SITE PLAN REVIEW TECHNICAL ADVISORY COMMITTEE
PORTSMOUTH, NEW HAMPSHIRE

CONFERENCE ROOM A
CITY HALL, MUNICIPAL COMPLEX, 1 JUNKINS AVENUE

Members of the public also have the option to join the meeting over Zoom
*(See below for more details)**

2:00 PM **December 5, 2023**

AGENDA

I. APPROVAL OF MINUTES

A. Approval of minutes from the November 7, 2023 Site Plan Review Technical Advisory Committee Meeting.

II. OLD BUSINESS

A. The request of **The Islamic Society of the Seacoast Area (Owner)**, for property located at **686 Maplewood Avenue** requesting Site Plan Review Approval for the construction of six (6) single family unit residential condominium with the associated paving, stormwater management, lighting, utilities and landscaping. Said property is located on Assessor Map 220 Lot 90 and lies within the Single Residence B (SRB) District. (LU-23-57)

B. The request of **Prospect North 815 LLC (Owner)**, for property located at **815 Lafayette Road** requesting Site Plan Review Approval for the demolition of the existing building along Sagamore Creek and the construction of three 4-story, 24-unit multi-family buildings (72 total units) with first floor parking. The project will include associated site improvements such as parking, pedestrian access, community space in the form of a park with public access, utilities, stormwater management, lighting, and landscaping. Said property is located on Assessor Map 245 Lot 3 and lies within the Gateway Corridor (G1) District. (LU-23-149)

III. NEW BUSINESS

A. The request of **Atlas Commons LLC (Owner)**, for property located on **581 Lafayette Road** requesting Site Plan review approval for two 4-story additions to the existing building that will total 72 residential units with associated site improvements including lighting, utilities, landscaping, and stormwater treatment/management. Said property is located on Assessor Map 229 Lot 8B and lies within the Gateway Corridor (G1) District. (LU-23-189)

B. The request of **Portsmouth Submarine Memorial Association (Owner),** for property located at **569 Submarine Way** requesting Amended Site Plan Approval to construct an approximately 1,588 square foot addition attached to the existing visitor center building and associated site improvements. Said property is located on Assessor Map 209 Lot 87 and lies within the Single Residence B (SRB) District. (LU-23-165)

IV. ADJOURNMENT

https://us06web.zoom.us/webinar/register/WN_qmpQ3vBzSDiXAJumbMT74Q

SITE PLAN REVIEW TECHNICAL ADVISORY COMMITTEE
PORTSMOUTH, NEW HAMPSHIRE

CONFERENCE ROOM A
CITY HALL, MUNICIPAL COMPLEX, 1 JUNKINS AVENUE

2:00 PM **November 7, 2023**

MINUTES

MEMBERS PRESENT: Peter Britz, Acting Chair; David Desfosses, Construction Technician Supervisor; Shanti Wolph, Chief Building Inspector, Eric Eby, Parking and Transportation Engineer; Vincent Hayes, Development Compliance Planner; Shawn Wheeler, Fire Prevention Officer

MEMBERS ABSENT: Peter Stith, Chairperson and Planning Manager, Principle Planner; Patrick Howe, Deputy Fire Chief, Mike Maloney, Deputy Police Chief, Zachary Cronin, Assistant City Engineer

ADDITIONAL STAFF PRESENT: Kate Homet, Associate Environmental Planner

[5:50] Acting Chair Britz opened the meeting at 2:01 p.m.

I. APPROVAL OF MINUTES

A. Approval of minutes from the October 3, 2023 Site Plan Review Technical Advisory Committee Meeting.

[6:07] E. Eby made a motion to approve the October minutes. D. Desfosses seconded the motion. The motion passed unanimously.

II. OLD BUSINESS

A. The request of **Pease Development Authority (Owner)**, for property located at **360 Corporate Drive** requesting Construction of a three-story Healthcare Complex with approximately 52,000 GSF. to allow space for up to 10 tenants which include an Ambulatory Surgical Center, Imaging Center and Plastic Surgery Center. The project includes (125) vehicle parking spaces, (2) loading docks as well as associated paving, stormwater management, lighting, utilities and landscaping. Said property is located on Assessor Map 315 Lot 5 and lies within the Airport Business Commercial (ABC) District. (LU-23-135)

SPEAKING TO THE APPLICATION

[7:06] Jeff Kilburg with Apex Design Build came to represent the project on behalf of ATDG LLC. Michael Mates, Director of Engineering for Pease Development Authority, and Brian Jones, Project Manager from Allen & Major Associates, also came to present this project. Mr. Kilburg noted that his team had worked to address the comments provided during the last meeting and public hearing and had provided updated plans reflecting the suggested changes.

[7:57] Mr. Kilburg proceeded to address the comments provided by staff.

1. *Please install signage along wetland buffer edge that indicates the area as a "no mow" or "limited mowing" zone.*

Applicant noted that they would be happy to do this and would work with staff to coordinate.

2. *What efforts will be made to further protect the wetland and buffer areas?*

Applicant noted it would mainly be addressed through buffer setbacks and construction fencing.

3. *Please provide an easement plan.*

Mr. Jones noted that there are no easements recorded against the property. Mr. Mates noted that there is already a blanket agreement between the City and the PDA for water and sewer connections as well as an agreement with Eversource for electric connections at Pease.

[14:17] Acting Chair Britz asked for more information about the areas of loam and seeding on the landscape plan and noted his concern for the abutting wetland. Mr. Kilburg noted that those areas would be getting different seed mixes, such as native wildflower blends or conservation mixes. Mr. Britz asked the applicants to call out a buffer mowing maintenance schedule within the plans.

[18:55] E. Eby asked the applicants to continue the sidewalk up from International Drive to the next driveway. Mr. Kilburg agreed that it would be incorporated into the plans.

[19:45] E. Eby also brought up the subject of the tactile pads that should be placed in any driveway that has a stop sign as a recommended best practice. Mr. Kilburg said that this would be incorporated into the plans. This will include the two driveways on International Drive, the driveway on Corporate Drive, and where the sidewalk ends at the abutter's driveway.

PUBLIC HEARING

[21:44] Acting Chair Britz opened the public hearing. No one spoke. The public hearing was closed.

DISCUSSION AND DECISION OF THE BOARD

[22:00] D. Desfosses made a motion to recommend approval of this application to the Planning Board with the following conditions to be completed prior to Planning Board submission:

1) The sidewalk on International Drive be extended to the neighbor's driveway as previously requested.

2) Tactile pads be installed at all driveways.

3) Work with City staff to coordinate the installation of signage along the wetland buffer edge that indicates the area as a 'low' or 'no-mow' area.

4) Add a note to landscape plan indicating buffer and wetland area "to remain natural and undisturbed".

E. Eby seconded the motion. The motion passed unanimously.

III. NEW BUSINESS

A. The request of **The Islamic Society of the Seacoast Area (Owner)**, for property located at **686 Maplewood Avenue** requesting Site Plan Review Approval for the construction of six (6) single family unit residential condominium with the associated paving, stormwater management, lighting, utilities and landscaping. Said property is located on Assessor Map 220 Lot 90 and lies within the Single Residence B (SRB) District. (LU-23-57)

SPEAKING TO THE APPLICATION

[23:32] John Chagnon of Ambit Engineering came to present this application along with Maria Pyburn of Chinburg Properties. Mr. Chagnon explained that they had previously come before the committee for a work session and then he proceeded to give a brief description of the existing site and the development proposal and its associated plan set.

[27:55] Mr. Chagnon then read through the comments submitted by staff and addressed each one.

1. *Show existing water stub sizes. Domestic line is currently capped and the line is off. Fill the existing valve box with spray foam and cement the top of the box under the cover. Coordinate with Water Dept.*

The applicant will highlight this within the plans. There will be 8" and 2" sizes.

2. *Extend fire hydrant stub to the location of the first house and install hydrant there. Then proceed on with 4" main for home connections to minimize pipe size for water quality.*

They are okay with doing this.

3. *The City will need our std leak, valve and meter easement for the private water system.*

No problem.

4. *The City will need a fire hydrant agreement for the fire hydrant.*

No problem.

5. *Install Ripley dam on sewer about 25' from Maplewood.*

No problem.

6. *Provide SMH detail for cutting into the sewer main on Maplewood for review.*

No problem.

7. *Show grouting the annular space inside the sewer and drain structures where the pipes protrude.*

No problem.

8. *Please provide a more robust landscape plan that includes a planting schedule and any irrigation plans.*

Landscape architect will work on this.

9. *Please consider solar for the single family unit roofs.*

Would not be opposed to this.

10. *Please update note #3 under General Construction Notes on Sheet D1 where it states "The site shall be stabilized for the winter by October 15". Please revise similar language under the Winter Notes section on the same sheet.*

This is a general erosion control note and is standard for the plan.

11. *Buildings must be constructed to highway noise standards.*

They will be applying to the Planning Board for this.

12. *In regard to note 8 on the utility plan, please explain what other properties are affected and why.*

This is a general note and does not mean to imply that other properties will be impacted.

13. *Please confirm note 9 on utility plan is consistent with DPW requirements.*

This will be a private main with taps, the City will be present for pressure testing of the system. Applicant is responsible for all the connections.

14. *What is the plan for the existing drain line, 678 Maplewood?*

This is a State-jurisdictional drain, which the applicant will follow up on its use.

15. *Please provide an easement plan*

A plan showing all of the easements will be provided. The City will need an easement for the private water main for leak detection, turning of valves and metering. All other blanket easements such as the easement for Eversource shall be shown.

16. *Please remove notes referencing and identifying the limited common areas*

This is no problem and the notes will be removed.

17. *Please provide more information on the retaining wall.*

A new markup was provided at the meeting. An engineered plan for the wall will be provided.

18. *How tall will the retaining wall be?*

It is planned to top out at a maximum of 8’ in height, which the fence having a maximum height of 4’ on top of that, for fallout protection.

19. *Excess of 6 feet (including any fencing on top) within the side or rear yard area will require a variance.*

The applicant will go back and figure out how to address this issue.

20. *Will there be an easement to construct and maintain the wall?*

They do not anticipate this.

21. *How does the drainage for the wall work? Where does it drain to?*

They will work with staff to determine how to avoid having any flooding of the R-Tank system through the constructed wall.

22. *Please update the landscape plan to match the site layout of the most up to date site plan*

They will take care of this.

23. *Please update calculations to reflect 10 parking spaces are required not 9*

They had forgotten to include the guest parking space, will update.

24. *Please provide more information on how the height of the new structures conforms to the permitted 35’ (existing grade vs proposed grade).*

The applicant will return with average grade plane and building height drawings for each o the proposed buildings.

PUBLIC HEARING

[46:05] Acting Chair Britz opened the public hearing, no one spoke. The public hearing was closed.

DISCUSSION AND DECISION OF THE BOARD

[46:25] D. Desfosses note that he would like to see an updated plan set with more details before they can decide.

[46:52] E. Eby asked where the row of post boxes would be located in relation to the utility pole.

Mr. Chagnon responded that they are still working out where to situate the boxes but there would be room on the side of the pole that would allow them to be out of sight distance setbacks.

[48:15] E. Eby asked if the sidewalk between the current site opening and 678 Maplewood would be removed, the radius should meet the back of the sidewalk line.

Mr. Chagnon would address this and show this in the plans.

[49:42] D. Desfosses made a motion to postpone the application until the December meeting. S. Wolph seconded the motion. The notion passed unanimously.

B. The request of **Prospect North 815 LLC (Owner)**, for property located at **815 Lafayette Road** requesting Site Plan Review Approval for the demolition of the existing building along Sagamore Creek and the construction of three 4-story, 24-unit multi-family buildings (72 total units) with first floor parking. The project will include associated site improvements such as parking, pedestrian access, community space in the form of a park with public access, utilities, stormwater management, lighting, and landscaping. Said property is located on Assessor Map 245 Lot 3 and lies within the Gateway Corridor (G1) District. (LU-23-149)

SPEAKING TO THE APPLICATION

[51:25] Neil Hansen and Patrick Crimmins of Tighe and Bond and F.X. Bruton of Bruton & Berube PLLC came to present this application. Mr. Hansen explained how they had come previously before the Committee for a work session, performed a conceptual consultation with the Planning Board and had met with the Conservation Commission for a site walk and work session. They have received variances for their lot line buildout and primary façade not being parallel to the lot line from the Zoning Board of Adjustment. Mr. Hansen went on to describe the project location and the proposed development, including revisions that had been made since the previous work session such as the increased rive aisle, the truck turnaround template, and the dumpsters added between buildings.

[1:00:42] He then went on to address staff comments:

1. *Provide truck access to the treatment device for maintenance cleaning.*

They will coordinate this with the vendor to make sure they are meeting all access requirements.

2. *Use either a 4" DI or 2" water service, not 3".*

They will coordinate with the building designer to do this.

3. *Remove planted trees from on top of stormwater pipe/utilities.*

They will revise the planting plan to remove any potential utility conflicts.

4. *Hip down ramps with detectable warning devices will be required on either side of the driveway.*

They have no issue adding this but wanted to make a note that there is no receiving sidewalk on the north side of the driveway.

5. Provide a sewer connection (insert a tee) detail showing service connection to AC main in Lafayette.

They will add this detail to the plan.

6. *Will the one jellyfish system be sufficient for treating the entire developed site? Please ensure that the system will be able to properly filter stormwater from the site before being discharged into Sagamore Creek.*

Yes, they will be utilizing an appropriately sized system.

7. *Please consider reducing impervious surfaces where possible and replacing them with a pervious alternative.*

They have pulled all impervious surfaces out of the 100' buffer already. In addition, the high ledge on the site makes it difficult to have functioning pervious surfaces.

8. *Please consider the use of solar on the three roofs.*

They will discuss this with the architects.

9. *Please consider additional bicycle parking outside of the ground-level garage for public access.*

They can look into this.

10. *Under Vegetation in Sheet C-501, add a note that addresses the restricted chemical uses for wetlands and wetland buffers from Section 10.1018.23, 10.1018.24 ND 10.1018.25 in our Zoning Ordinance. Please also make a note of this on the Landscape Plan (Sheet L-101).*

This will be revised.

11. *Please remove the community space from 0-25' vegetative buffer. This area should not be utilized by the public due to its environmentally sensitive nature and it is already considered protected in the Zoning Ordinance through environmental regulations. Please remove the vegetated 25' buffer from the community space calculations as well.*

There has already been a precedent set for this, but the applicants are willing to work with staff to figure out a solution.

12. *Please provide an easement plan.*

This has already been provided in Sheet C-201.

13. *Please put a note on the plan that reads, "Final alignment of the trail is subject to review and approval by the Planning and Sustainability Director and any subsequent modification will be subject to the PB approval as a site plan amendment."*

They will add this note to the site plan. Any movement of the trail within the community space area will require an amendment.

[1:11:00] D. Desfosses asked the applicants to change the lasty building's 8" crown pipe to a 6" to match the other crowns. He also asked the applicants to perform some test pits on the site to see if infiltration/perforated piping could be viable.

[1:12:28] S. Wolph asked for clarification on the accessible unit requirements. Mr. Hansen responded that yes, they meet the required number of accessible units.

[1:13:11] E. Eby asked the applicants if they could connect the end of the proposed path to the back of the property to continue the trail. Mr. Hansen responded that he believed the easement towards the back by the radio tower only allowed for radio tower maintenance as a use and public access is likely not allowed.

E. Eby asked if the proposed EV charger parking spaces would only be available to those using it for charging. Mr. Hansen responded that they would not be restricting other parking in those spots but that it was very unlikely that non-EV's would park there.

E. Eby noted a mistake on Sheet C-102 where the drive aisle width is labeled as 24' but the plans call it out as 26', Mr. Hansen would correct that. Additionally, on the landscape plan, "shrub" was incorrectly labeled. Mr. Hansen mentioned that this would be fixed as well.

PUBLIC HEARING

[1:15:18] Acting Chair Britz opened the public hearing, no one spoke. The public hearing was closed.

DISCUSSION AND DECISION OF THE BOARD

[1:15:37] E. Eby asked D. Desfosses for clarification on whether the tactile pad could be used north of the driveway, even if it is in the right of way. D. Desfosses mentioned that there should be a tactile pad there, and in fact, it should be changed over from asphalt to concrete with a tactile pad leading to the Mobil Station and another one leading to the new development driveway.

[1:17:04] D. Desfosses made a motion to postpone the application to the December meeting while they await the results of the test pits and clean up the plan set. E. Eby seconded the motion. The motion passed unanimously.

C. The request of **2422 Lafayette Road Association LLC (Owner)**, for property located at **2454 Lafayette Road** requesting Amended Site Plan Review Approval and Amended Conditional Use Permit for a new motor vehicle sales office. Said property is located on Assessor Map 273 Lot 3 and lies within the Gateway Corridor (G1) District. (LU-23-160)

SPEAKING TO THE APPLICATION

[1:18:13] Chris Mulligan of Bosen & Associates, Kelly Webb (Property Manager) of the Wilder Group, Mike Seger (General Manager – New England Region) and Brendan Lafay (Fire Protection Engineer) of Tesla. Mr. Mulligan described the history of the project to create the Tesla showroom which included a conditional use permit for parking in 2021 and a site plan amendment approval in May of 2022. The change proposed currently consists of the dedication of two spaces for EV charging and for parking vehicles to be test-driven, noting that only 2 to 3 vehicles will be in the showroom at a time.

[1:21:19] D. Desfosses asked if they had noted where the underground stormwater storage was in relation to where they plan to install utilities. The applicants had not been aware of this and noted that they would check where the stormwater chambers exist.

[1:22:28] E. Eby asked for clarification on the 'new curb ramp' on the plans and whether it was different than their proposed portable ramp. Mr. Mulligan noted that this was an older note for the BOA and there would not be a new curb cut in the proposal.

PUBLIC HEARING

[1:24:35] Acting Chair Britz opened he public hearing, no one spoke. The public hearing was closed.

DISCUSSION AND DECISION OF THE BOARD

[1:24:54] D. Desfosses made a motion to recommend approval of the amended the site plan and the amended conditional use permit to the Planning Board. E. Eby seconded the motion. The motion passed unanimously.

D. The request of **Maureen Oakman** and **Michael A. Valinski (Owners)**, for property located at **1155 Sagamore Avenue** requesting Site Plan Review Approval for the demolition of the existing building and construction of a 4- unit residential condominium with the associated paving, stormwater, lighting, utilities and landscaping. Said property is located on Assessor Map 224 Lot 18 and lies within the Mixed Residential Office (MRO) District. (LU-23-178)

SPEAKING TO THE APPLICATION

[1:25:53] John Chagnon of Ambit Engineering and Thomas Frangos (applicant) came to present this application. Mr. Chagnon noted that they had previously brought this project for review in a work session and proceeded to go over the proposal and associated changes from that initial work session.

[1:31:19] Mr. Chagnon proceeded to address the most recent staff comments:

1. *The City will need our std leak, valve and meter easement for the private water system.*

They have added Note 9 on Sheet C4 to address this.

2. Run one 4"? line in from Sagamore and branch off for each unit.

The applicant would like to service each individual unit with separate water services to separate meters. The four meters will be in a heated metering room where the fire suppression room also exists. DPW suggests sleeves under the units to prevent freezing of the pipes. They will be running a 2" line instead of a 4" line.

3. *Show meter location in each unit or heated water metering room.*

They will show the heated meter room.

4. *Show duplex pump arrangement with alarm for common pump system.*

A note was put on Detail #1 that relays that the applicants will be providing the plans for the pump arrangement.

5. *Show rain garden details including test pit in the location proposed similar to septic leach field cross section for approval.*

There are test pits shown on the sheet, but a cross-section will be provided.

6. *Are there foundation drains or sump pumps? They should be piped into the rain garden…*

It will just be a slab on grade, no gutters.

7. *A green building checklist is needed.*

The architect will provide that.

8. *Please include a planting schedule and irrigation plan within your Landscape Plan.*

There is a planting schedule on the landscape plan. See Note 8 on Sheet C4 regarding irrigation.

9. *Please provide a rain garden detail sheet.*

They can add this.

10. Please consider reducing impervious surfaces where possible and replacing with a pervious alternative.

There are not many opportunities left to convert from pavement.

11. Please provide an easement plan.

They will add an additional note on the plan for the standard leak valve and meter access easement, but a full easement plan is not necessary.

[1:43:05] E. Eby asked the applicant about the driveway sight lines and if the vegetation to the north of the property lines will impact that. It will be up to NHDOT as that is a state road.

Mr. Chagnon responded that they would be working with NHDOT on that with their potential new driveway permit.

[1:44:20] V. Hayes asked if they were required to have a third-party inspector for this project because Note 31 on the Utility Plan calls one out. Mr. Chagnon responded that it was a holdover note that they would take off if not needed.

PUBLIC HEARING

[1:44:52] Acting Chair Stith opened the public hearing.

[1:45:07] Danica Thompson, an abutter at 1163 Sagamore Avenue Unit 10, came to speak on behalf of the Sea Star Homeowners Association. She expressed her concern about the proposed intensity of the land use, the removal of the 6' fence (she would like to see it remain), the potential of the development to tap into their fire hydrant, and the potential for increased traffic speeds along Sagamore.

[1:49:19] Jonathan Mosier, an abutter at 1163 Sagamore Avenue Unit 20, came to speak. He addressed his concerns about the site plan on record at the registry and how it compares to the lot size that is shown on the proposed plan. He noted a change in the lot sizes between the existing and proposed and would like to see an independent boundary survey done to confirm.

[1:50:48] Acting Chair Britz closed the public hearing.

DISCUSSION AND DECISION OF THE BOARD

[1:51:00] Mr. Chagnon addressed the public comments received. He mentioned that the applicants were willing to keep the existing fence, the fire hydrant will be serviced by the City and it will be a stand-alone hydrant separate from the condo association's hydrant. Additionally, he noted that traffic speeds were not part of their application and not in their jurisdiction for this application. The previous older site plan survey was a rough estimate – not an exact survey, although both the old and new plans were certified site plan surveys that were signed and stamped by Mr. Chagnon.

[1:57:13] S. Wolph mentioned that he would like to see elevation views eventually.

[1:58:18] D. Desfosses announced that he would like to see the items discussed at the meeting seen on a plan, prior to going to the Planning Board.

[1:59:23] D. Desfosses made a motion to recommend approval to the Planning Board with the stipulation that all required changes are reviewed and approved by DPW before final submission to the Planning Board. In the meantime, he would like to see that the engineer and the neighbors work together to accurately reflect the fence alignment and any other collaborative changes. E. Eby seconded the motion. The motion passed unanimously.

IV. ADJOURNMENT

The meeting adjourned at 3:56 p.m.

Respectfully submitted,

Kate E. Homet
Secretary for the Technical Advisory Committee

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

22 October 2023

Peter Stith, Chair, City of Portsmouth TAC
1 Junkins Avenue
Portsmouth, NH 03801

RE: Request for Site Plan Review at 686 Maplewood Avenue, Tax Map 220, Lot 90

Dear Mr. Stith and TAC Members:

On behalf of Chinburg Development, we are pleased to submit the attached plan set for **Site Plan Review** for the above-mentioned project and request that we be placed on the agenda for your **November 7, 2023,** Meeting. The project is the proposed new construction of a six (6) unit residential condominium with the associated and required site improvements.

The following plans are included in our submission:

- Cover Sheet – This shows the Development Team, Legend, Site Location, and Site Zoning.
- Existing Conditions and Topographic Plan - This plan shows the 2017 site boundary survey.
- Existing Conditions Plan C1 – This plan shows the existing site conditions.
- Site Plan C2 – This plan shows the site development with impervious surface calculations and the circulation and layout with setbacks. The project received Variances from the Board of Adjustment, which are noted on the plan.
- Landscape Plan L-1 – This plan shows the proposed landscaping.
- Floor Plans and Elevations A1 - This plan shows the Architecture of the proposed buildings.
- Grading and Erosion Control Plan C3 – This plan shows preliminary site grading and building floor elevations. The proposal is to direct runoff to a proposed R-Tank detention system.
- Utility Plan C4 – This plan shows proposed site utilities. The project will connect utilities brought to the property line in the Maplewood Avenue reconstruction project.
- Erosion Control Notes and Details D1 and D2 to D5 – These plans shows site details.

We look forward to TAC review of this submission and the Committees feedback on the proposed design.

Sincerely,

John R. Chagnon, PE

Construction Cost Estimate

Ambit Engineering

Date: October 19, 2023

Project: Chinburg Development, LLC - 696 Maplewood Avenue 5010220.2360.01

Location: 696 Maplewood Avenue, Portsmouth, NH

Scope: **Site Cost Estimate**

ITEM NO	DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
1	Road Construction (Including Utilities)	LF	370	$850.00	$314,500.00
2	Granite Curbing	LF	520	$30.00	$15,600.00
3	Concrete Retaining Wall	SFF	1300	$45.00	$58,500.00
4	Fence	LF	250	$ 50.00	$12,500.00
5	Parking Striping	LS	1	$500.00	$500.00
6	Concrete Sidewalk	LF	360	$18.00	$6,480.00
7	Underground Electric / Conduit	LF	460	$45.00	$20,700.00
8	Sewer Manhole	EA	4	$4,000.00	$16,000.00
9	Sewer Service	LF	100	$60.00	$6,000.00
10	Transformer and Pad	EA	1	$5,000.00	$5,000.00
11	Water & Sprinkler Services	LF	6	$2,000.00	$12,000.00
12	R Tank System	LS	1	$32,000.00	$32,000.00
13	Drain Manhole	LS	2	$4,000.00	$8,000.00
14	Catch Basin	LS	6	$3,500.00	$21,000.00
15	Drainage Pipe	LF	475	$60.00	$28,500.00
16	Erosion Control	LS	1	$5,000.00	$5,000.00
	TOTAL				**$562,280**

Note: This is an estimate of construction costs based upon various sources

CHINBURG PROPERTIES
686 MAPLEWOOD AVENUE
OCTOBER 23, 2023

PROPOSED GREEN BUILDING COMPONENTS

LOCATION AND TRANSPORTATION

1. Public Transportation – The site is directly served by local bus service with stops along Maplewood Avenue.

2. Walkable Amenities – The site is a short walking distance to the Portsmouth downtown and numerous businesses.

3. Increased Density - The project will provide increased residential density in a previously undeveloped location.

SITE

4. Stormwater Design - The stormwater system has been designed using Low Impact Design techniques, such as R-tank stormwater detention.

5. Parking - Parking calculations have been performed using the City's parking requirements and have been exceeded.

WATER

6. Plumbing Fixtures - Dual flush or low-flow toilets and other low-flow fixtures will be provided where possible.

7. Domestic Hot Water - Will be designed to exceed code requirements.

ENERGY

8. Building Envelope - The building envelope will be designed as a high-performance assembly to exceed minimum Energy Code requirements to minimize heating and cooling expenses, while achieving a high standard of occupant comfort. Energy efficient windows will be used to meet or exceed energy code.

9. HVAC Units - High-efficiency Air Source Heat Pumps controlled by the building occupant.

10. High-Efficiency Lighting - Efficient LED lighting will be used for interior and exterior fixtures.

11. Energy Star Appliances - Appliances provided by Owner will be Energy Star rated where possible.

MATERIALS AND RESOURCES

12. Minimize Waste - Material waste will be minimized as much as possible during construction.

INDOOR ENVIRONMENTAL QUALITY

13. Low-VOC Materials - Building materials with low volatile organic compound levels will be specified where possible.

14. Indoor Air Quality - Residences will have operable windows for access to fresh air.

15. Daylight – Primary habitable spaces will have access to windows for daylight.

16. Thermal Comfort - Each residence will have dedicated HVAC controlled by the occupant.

17. Acoustic Comfort - Acoustic and vibration isolating assemblies will be provided at exterior walls due to the proximity to Interstate 95. Requirements of the Highway Noise Overlay District will be met or exceeded.

Note: Green building components reflect proposed project features and are subject to feasibility of construction.

Site Photograph #1 February 2023

Site Photograph #2 February 2023

Site Photograph #3 February 2023

Site Photograph #4 February 2023

Site Photograph #5 February 2023

Site Photograph #6 February 2023

Site Photograph #7 February 2023

Site Photograph #8 February 2023

NORTH NAD83(2011)

GRID NHSPC

GRAPHIC SCALE

60 40 20 0 50 100 150 200 250 FEET

20 10 0 10 20 30 40 50 60 70 METERS

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 220 AS LOT 90.

2) OWNERS OF RECORD:
ISLAMIC SOCIETY OF THE SEACOAST AREA
42N DOVER POINT ROAD
DOVER, NH 03820
5806/2816

APPLICANT:
CHINBURG DEVELOPMENT, LLC
3 PENSTOCK WAY
NEWMARKET, NH 03857

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR APPROVAL	10/23/23

REVISIONS

SCALE: 1"=60' OCTOBER 2023

PHOTO EXHIBIT

FB 394 PG 1

2360.01

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

2 October, 2023

Trip Generation
Proposed Residential Development
686 Maplewood Avenue
Portsmouth, NH

On behalf of Chinburg Development, LLC, we hereby submit this Trip Generation in support of the applicant's filing with the Portsmouth Technical Advisory Committee for Site Plan approval. The Applicant / Developer seeks to construct 6 residential dwelling units at the site, which is currently vacant, but was used as a staging area for recent construction on Maplewood Avenue. The site has been vacant for some time but previously approvals were granted to construct a Mosque, which had a proposed peak trip generation of 76 trips in the PM peak hour.

The base trip generation for the proposed 6-unit development is based on a review of the Institute of Transportation Engineers (ITE), *Trip Generation* Manual, 11th Edition. The land use code (LUC) that best resembles the proposed use is LUC 270 – Planned Unit Development. Using that description, the proposed use the site generates the following peak hour trips:

Weekday Morning Peak Hour: 4 Trips (23% entering; 77% exiting)
Weekday Evening Peak Hour: 5 Trips (64% entering; 36% exiting)

The applicant believes that the added trip generation from the site is not excessive, will not impact the adjacent street networks, and represents a significant decrease from the previous approval.

Please feel free to call if you have any questions or comments about this application.

Sincerely,

John R. Chagnon, PE
Ambit Engineering, Inc. – Haley Ward

Land Use: 270
Residential Planned Unit Development

Description

A residential planned unit development (PUD), for the purposes of trip generation, is defined as containing any combination of residential land uses. These developments might also contain supporting services such as limited retail and recreational facilities.

Additional Data

Caution—The description of a PUD is general in nature because these developments vary by density and type of dwelling. It is therefore recommended that when information on the number and type of dwellings is known, trip generation should be calculated on the basis of the known type of dwellings rather than on the basis of Land Use 270. Data for this land use are provided as general information and would be applicable only when the number of dwellings is known.

The sites were surveyed in the 1980s, and the 1990s, and the 2000s in Minnesota, South Dakota, and Virginia.

Source Numbers

111, 119, 165, 169, 357

Residential Planned Unit Development
(270)

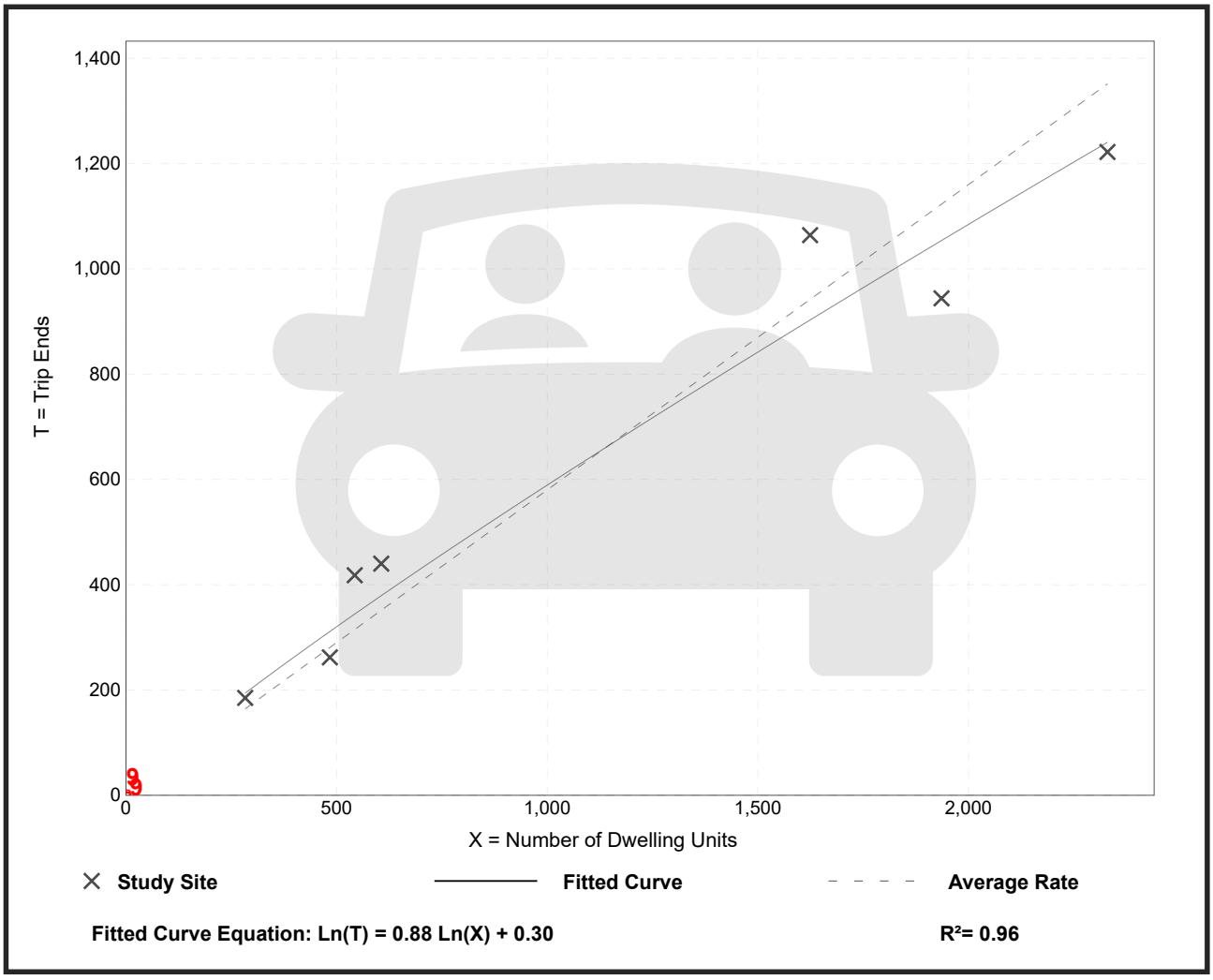
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. Num. of Dwelling Units: 1115
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.58	0.49 - 0.77	0.10

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Residential Planned Unit Development
(270)

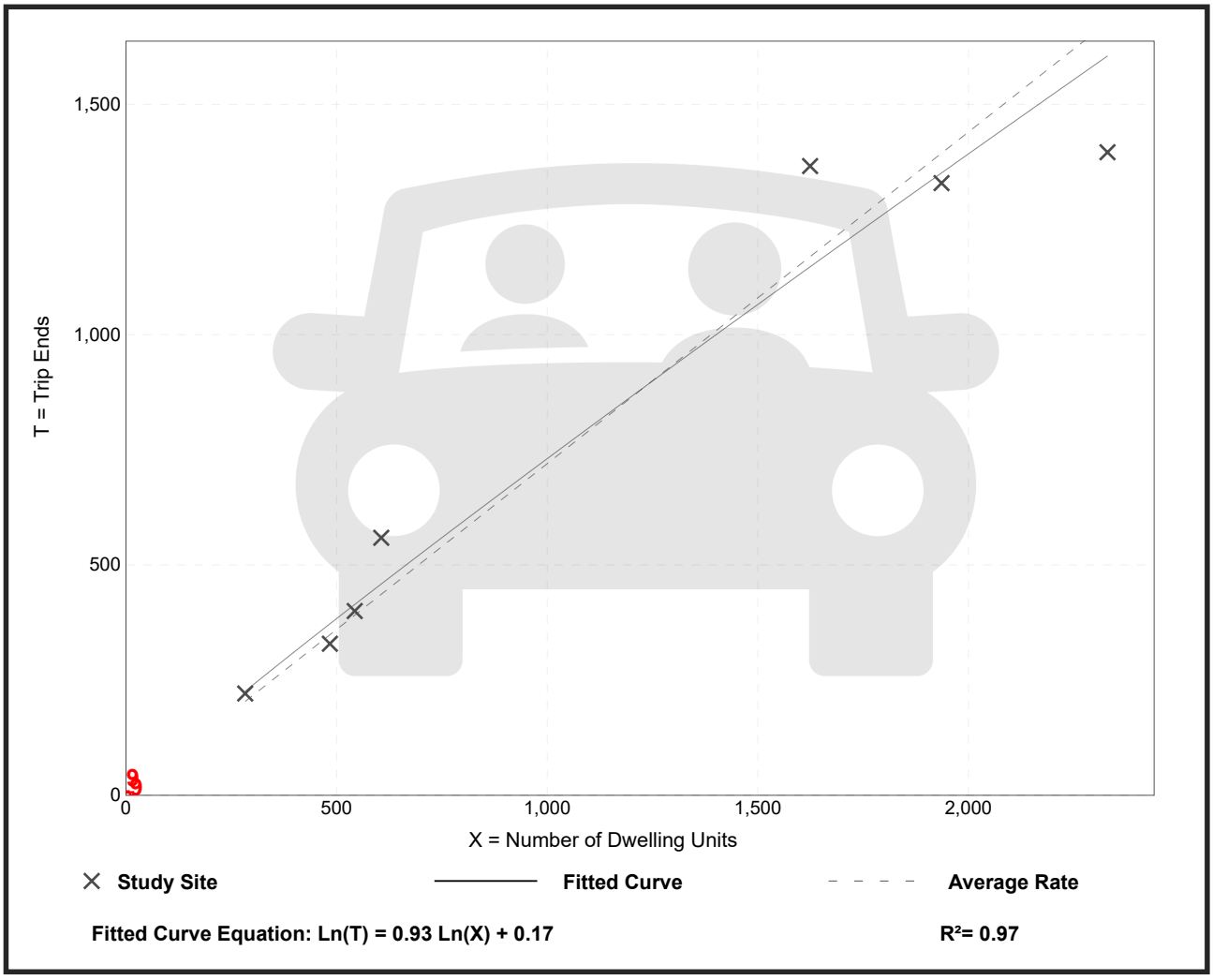
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. Num. of Dwelling Units: 1115
Directional Distribution: 64% entering, 36% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.72	0.60 - 0.92	0.11

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

DRAINAGE ANALYSIS

RESIDENTIAL DEVELOPMENT

686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

PREPARED FOR
CHINBURG DEVELOPMENT, LLC

23 OCTOBER 2023

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3
Portsmouth, NH 03801
Phone: 603.430.9282; Fax: 603.436.2315
E-mail: jchagnon@haleyward.com
(Ambit Job Number 5010220.2360.01)

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REPORT

ATTACHMENTS

APPENDIX

EXECUTIVE SUMMARY

This drainage analysis examines the pre-development (existing) and post-development (proposed) stormwater drainage patterns for the proposed residences and associated utilities and parking at 686 Maplewood Avenue in Portsmouth, NH. The site is shown on the City of Portsmouth Assessor's Tax Map 220 as Lot 90. The project proposes to develop six single-family residences. The total size of the lot is 62,776 square-feet (1.441 acres). The size of the total drainage area is 103,447 square-feet (2.375 acres).

The subdivision will provide for the construction of six single-family residences, with associated landscaping, utilities, and driveways. The new buildings will be serviced by public water and sewer. The development has the potential to increase stormwater runoff to adjacent properties, and therefore must be designed in a manner to prevent that occurrence. This will be done primarily by capturing stormwater runoff and routing it through appropriate stormwater facilities, designed to ensure that there will be no increase in peak runoff from the site as a result of this project.

The hydrologic modeling utilized for this analysis uses the "Extreme Precipitation" values for rainfall from The Northeast Regional Climate Center (Cornell University), with a 15% increase to comply with local ordinance.

INTRODUCTION / PROJECT DESCRIPTION

This drainage report is designed to assist the owner, planning board, contractor, regulatory reviewer, and others in understanding the impact of the proposed development project on local surface water runoff and quality. The project site is shown on the City of Portsmouth, NH Assessor's Tax Map 220 as Lot 90. Bounding the site to north is a residence and Maplewood Avenue. Bounding the site to east is a business. Bounding the site to south is businesses and a residence. Bounding the site to the west is Interstate 95. The property is situated in the Single Residence B (SRB) District. A vicinity map is included in the Appendix to this report.

This report includes information about the existing site necessary to analyze stormwater runoff and to design any required mitigation. The report includes maps of pre-development and post-development watersheds, subcatchment areas and calculations of runoff. The report will provide a narrative of the stormwater runoff and describe numerically and graphically the surface water runoff patterns for this site. Proposed stormwater management and treatment structures and methods will also be described, as well as erosion and sediment control practices. To fully understand the proposed site development the reader should also review a complete site plan set in addition to this report.

METHODOLOGY

"Extreme Precipitation" values from The Northeast Regional Climate Center (Cornell University) have been used for modeling purposes. These values have been used in this analysis, with a 15% addition to comply with local ordinances.

This report uses the US Soil Conservation Service (SCS) Method for estimating stormwater runoff. The SCS method is published in The National Engineering Handbook (NEH), Section 4 "Hydrology" and includes the Technical Release No. 20, (TR-20) "Computer Program for Project Formulation Hydrology", and Technical Release No. 55 (TR-55) "Urban Hydrology for Small Watersheds" methods. This report uses the HydroCAD version 10.20 program, written by HydroCAD Software Solutions LLC, Chocorua, N.H., to apply these methods for

the calculation of runoff and for pond modeling. Rainfall data and runoff curve numbers are taken from "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire."

Time of Concentration (Tc) is calculated by entering measured flow path data such as flow path type, length, slope and surface characteristics into the HydroCAD program. For the purposes of this report, a minimum time of concentration of 5 minutes is used.

The storm events used for the calculations in this report are the 2-year, 10-year, 25-year, and 50-year (24-hour) storms. Watershed basin boundaries have been delineated using topographic maps prepared by Haley Ward and field observations to confirm.

SITE SPECIFIC INFORMATION

Based on the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Soil Survey of Rockingham County, New Hampshire the site is made up of one soil type:

Soil Symbol	Soil Name and Slopes
799	Urban land – Canton complex, 3 to 15 percent slopes

Urban land-Canton complex is well drained with a stated depth to restrictive feature and water table of greater than inches. While the soil report provides a Hydrologic Soil Group (HSG) of A, due to the prominent presence of ledge on the site, the site was assumed as HSG B.

The physical characteristics of the site consist of flat to moderate (3-15%) grades that generally slope downward from the south to the north of the lot. Elevations on the site range from 35 to 61 feet above sea level. The existing site is undeveloped, but was used as a construction staging facility. Vegetation around the developed portion of the lot consists of established grasses, shrubs, and trees. There is an existing gravel driveway/parking area.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 33015C0259F (effective date January 29, 2021), the project site is

located in Zone X and is determined to be outside of the 0.2% annual chance floodplain. A copy of the FIRM map is included in the Appendix.

PRE-DEVELOPMENT DRAINAGE

In the pre-development condition, the site has been analyzed as three watershed basins (ES1, ES2 and ES3) based on localized topography and discharge location. Subcatchment ES1 contains the west half of the lot and drains north to the City drainage network on Maplewood Avenue (Drainage Point 1 or DP1). Subcatchment ES2 contains the east half of the lot and drains to the northeast to DP1. Subcatchment ES3 contains the southern edge of the lot and drains to the southeast to Drainage Point 2 (DP2).

Table 1: Pre-Development Watershed Basin Summary

Watershed Basin ID	Basin Area (SF)	Tc (MIN)	CN	10-Year Runoff (CFS)	50-Year Runoff (CFS)	To Design Point
ES1	65,154	6.6	66	5.48	11.26	DP1
ES2	28,750	5.0	73	3.27	6.12	DP1
ES3	9,546	5.0	62	0.71	1.56	DP2

POST-DEVELOPMENT DRAINAGE

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. In the post-development condition, the site has been analyzed as four subcatchment basins, (PS1, PS2, PS2a, and PS3). Subcatchments PS1, PS2, and PS3 approximate the locations of ES1, ES2, and ES3 respectively and drain to the same discharge points. Subcatchment PS2a is located in the center of the property and is detained and treated through an infiltrative R-Tank system before being discharged to DP1.

Table 2: Post-Development Watershed Basin Summary

Watershed Basin ID	Basin Area (SF)	Tc (MIN)	CN	10-Year Runoff (CFS)	50-Year Runoff (CFS)	Design Point
PS1	57,906	6.3	68	5.31	10.59	DP1
PS2	13,835	5.0	70	1.42	2.77	DP1
PS2a	22,677	5.0	87	3.66	5.95	DP1
PS3	9,029	5.0	61	0.64	1.43	DP2

The overall impervious coverage of the subcatchment areas analyzed in this report **increases** from 24,089 s.f. (23.3%) in the pre-development condition to 33,105 s.f. (32.0%) in the post-development condition. The project proposes the construction of an R-Tank detention system with infiltrative capacity on site, providing treatment and reducing the peak flow discharge from the site.

Table 3 shows a summary of the comparison between pre-developed flows and post-developed flows for each design point. The comparison shows the reduced flows as a result of the R-Tank system.

Table 3: Pre-Development to Post-Development Comparison

	Q2 (CFS)		Q10 (CFS)		Q50 (CFS)		
Design Point	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Description**
DP1	3.67	3.57	8.55	8.38	17.05	17.02	Maplewood Ave.
DP2	0.25	0.22	0.71	0.64	1.56	1.43	South of Lot

Note that all post-development peak discharges are either equivalent or less than the existing peak discharges.

OFFSITE INFRASTRUCTURE CAPACITY

Drainage Point 1 is the City drainage network on Maplewood Avenue. A subsurface R-Tank structure with infiltrative capacity will be implemented to mitigate any increases in peak flow from the site, therefore no impact to city infrastructure is anticipated.

EROSION AND SEDIMENT CONTROL PRACTICES

The erosion potential for this site as it exists is moderate due to the presence of soils that are highly erodible. During construction, the major potential for erosion is wind and stormwater runoff. The contractor will be required to inspect and maintain all necessary erosion control measures, as well as installing any additional measures as required. All erosion control practices shall conform to "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire." Some examples of erosion and sediment control measures to be utilized for this project during construction may include:

- Silt Soxx (or approved alternative) located at the toe of disturbed slopes
- Stabilized construction entrance at access point to the site
- Temporary mulching and seeding for disturbed areas
- Spraying water over disturbed areas to minimize wind erosion

After construction, permanent stabilization will be accomplished by permanent seeding, landscaping, and surfacing the access drives and parking areas with asphalt paving and other areas with impervious walkways.

CONCLUSION

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. With the design of the R-Tank units, the post-development runoff rates are reduced to below the pre-development runoff rates. Erosion and sediment control practices will be implemented for both the temporary condition during construction and for final stabilization after construction. Therefore, there are no negative impacts to downstream receptors or adjacent properties anticipated as a result of this project.

REFERENCES

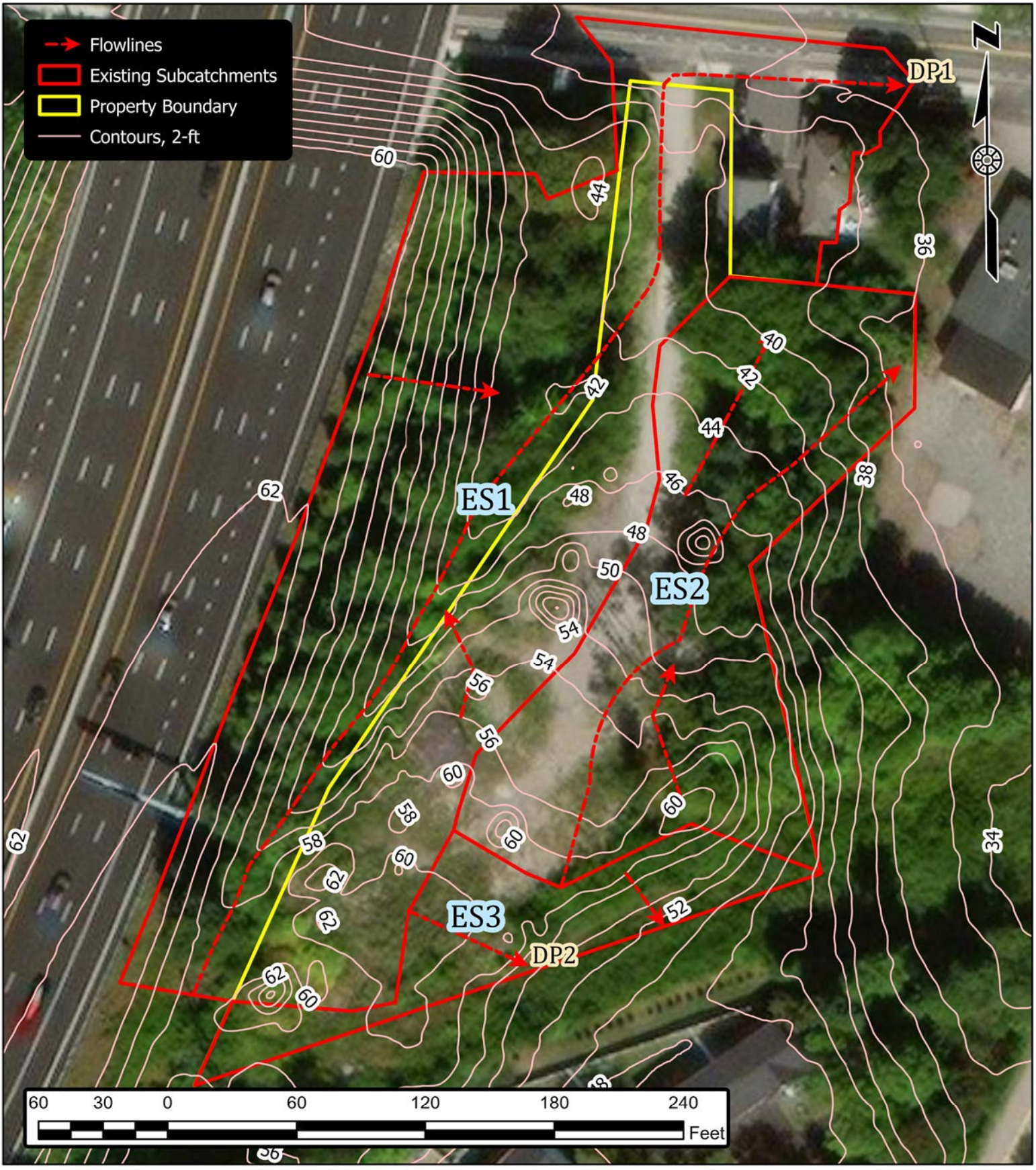
1. Comprehensive Environmental Inc. and New Hampshire Department of Environmental Services. *New Hampshire Stormwater Manual (Volumes 1, 2 and 3)*, December 2008 (Revision 1.0).
2. Minnick, E.L. and H.T. Marshall. *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire*, prepared by Rockingham County Conservation District, prepared for New Hampshire Department of Environmental Services, in cooperation with USDA Soil Conservation Service, August 1992.
3. HydroCAD Software Solution, LLC. *HydroCAD Stormwater Modeling System Version 10.20* copyright 2013.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

Existing Subcatchments

SITE REDEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

JOB NUMBER: 2360
SCALE: 1" = 60'
SUBMITTED: 10-17-2023

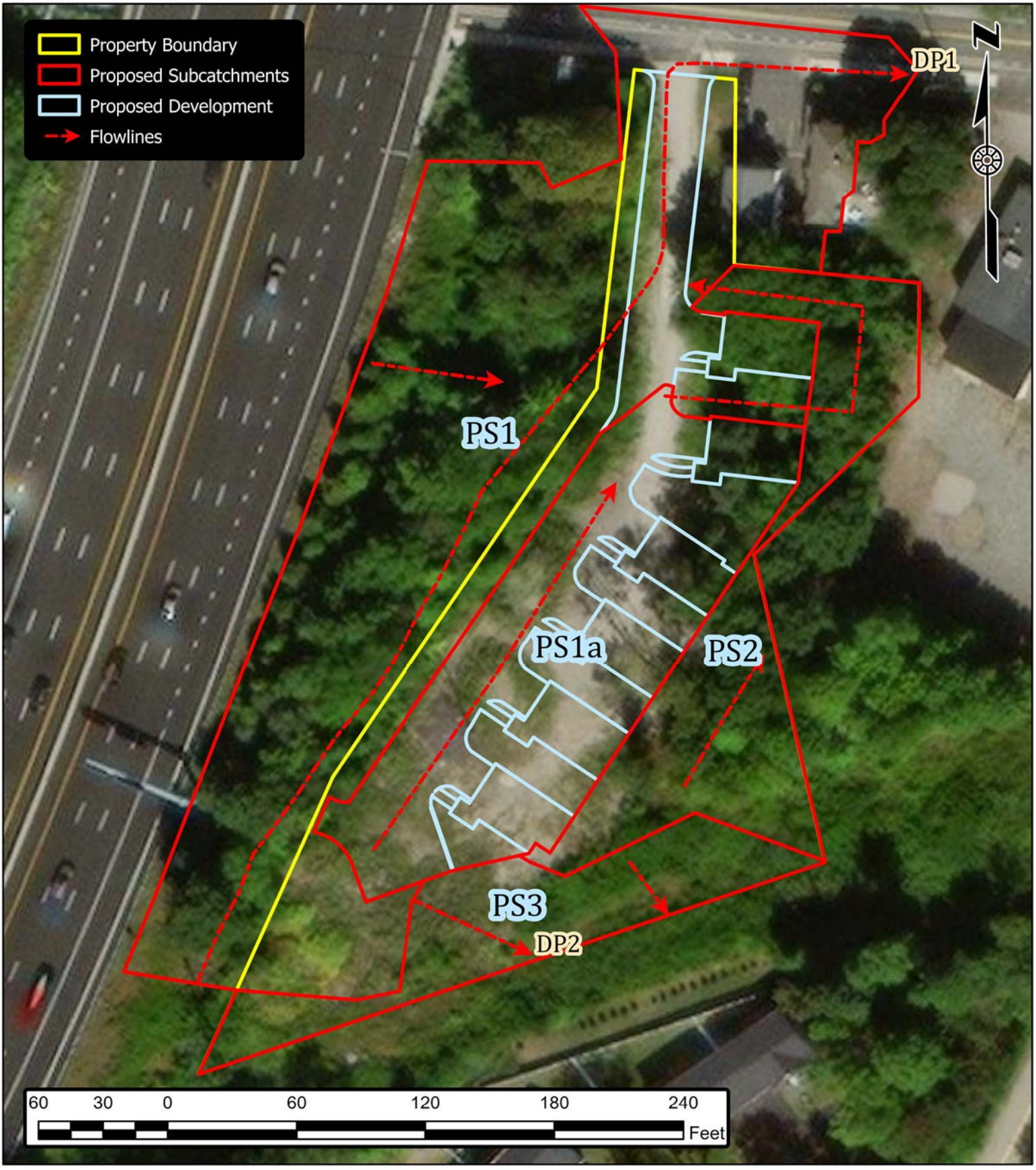


AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

Proposed Subcatchments

SITE REDEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

JOB NUMBER: 2360
SCALE: 1" = 60'
SUBMITTED: 10-23-2023



APPENDIX A

VICINITY (TAX) MAP,

AERIAL ORTHOGRAPHY,

USGS MAP

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

Aerial Orthography

SITE REDEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

JOB NUMBER: 2360
SCALE: 1" = 60'
SUBMITTED: 02-14-2023

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

Tax Map

SITE REDEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

JOB NUMBER: 2360
SCALE: 1" = 100'
SUBMITTED: 02-14-2023

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

USGS Map

SITE REDEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

JOB NUMBER: 2360
SCALE: 1" = 2,000'
SUBMITTED: 02-21-2023

APPENDIX B

TABLES, CHARTS, ETC.

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing	Yes
State	New Hampshire
Location	New Hampshire, United States
Latitude	43.080 degrees North
Longitude	70.774 degrees West
Elevation	10 feet
Date/Time	Thu Feb 16 2023 11:52:25 GMT-0500 (Eastern Standard Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66	2.92	**1yr**	2.35	2.80	3.21	3.94	4.54	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.49	3.20	3.56	**2yr**	2.84	3.43	3.93	4.67	5.32	**2yr**
5yr	0.37	0.58	0.73	0.97	1.25	1.60	**5yr**	1.08	1.46	1.88	2.43	3.13	4.06	4.57	**5yr**	3.59	4.39	5.03	5.92	6.69	**5yr**
10yr	0.41	0.65	0.82	1.11	1.45	1.89	**10yr**	1.25	1.72	2.23	2.89	3.74	4.86	5.52	**10yr**	4.30	5.31	6.07	7.09	7.96	**10yr**
25yr	0.48	0.76	0.96	1.33	1.77	2.33	**25yr**	1.53	2.14	2.77	3.62	4.73	6.16	7.09	**25yr**	5.45	6.81	7.78	9.00	10.03	**25yr**
50yr	0.53	0.86	1.10	1.53	2.06	2.75	**50yr**	1.78	2.52	3.28	4.31	5.65	7.38	8.57	**50yr**	6.53	8.24	9.40	10.79	11.95	**50yr**
100yr	0.59	0.96	1.24	1.76	2.41	3.24	**100yr**	2.08	2.97	3.89	5.14	6.75	8.83	10.36	**100yr**	7.82	9.96	11.35	12.93	14.25	**100yr**
200yr	0.67	1.09	1.42	2.03	2.81	3.82	**200yr**	2.43	3.50	4.60	6.11	8.06	10.59	12.52	**200yr**	9.37	12.04	13.71	15.50	16.99	**200yr**
500yr	0.79	1.31	1.70	2.47	3.46	4.74	**500yr**	2.98	4.36	5.74	7.68	10.19	13.45	16.11	**500yr**	11.90	15.49	17.60	19.72	21.45	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.88	**1yr**	0.63	0.86	0.92	1.32	1.68	2.22	2.49	**1yr**	1.97	2.39	2.86	3.17	3.87	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.05	3.45	**2yr**	2.70	3.32	3.82	4.54	5.07	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.12	2.73	3.78	4.18	**5yr**	3.35	4.02	4.71	5.52	6.23	**5yr**
10yr	0.38	0.59	0.73	1.02	1.32	1.60	**10yr**	1.14	1.56	1.81	2.39	3.06	4.36	4.85	**10yr**	3.86	4.67	5.43	6.40	7.18	**10yr**
25yr	0.44	0.67	0.83	1.18	1.56	1.90	**25yr**	1.35	1.86	2.10	2.76	3.54	4.69	5.88	**25yr**	4.15	5.65	6.63	7.77	8.66	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.17	**50yr**	1.52	2.12	2.35	3.08	3.94	5.30	6.79	**50yr**	4.69	6.53	7.70	9.02	9.99	**50yr**
100yr	0.53	0.81	1.01	1.46	2.01	2.47	**100yr**	1.73	2.41	2.63	3.42	4.36	5.94	7.83	**100yr**	5.26	7.53	8.94	10.47	11.53	**100yr**
200yr	0.59	0.89	1.13	1.63	2.27	2.81	**200yr**	1.96	2.75	2.93	3.80	4.81	6.65	9.04	**200yr**	5.89	8.69	10.38	12.18	13.33	**200yr**
500yr	0.68	1.02	1.31	1.90	2.71	3.36	**500yr**	2.33	3.29	3.41	4.34	5.48	7.73	10.91	**500yr**	6.84	10.50	12.64	14.89	16.13	**500yr**

Upper Confidence Limits

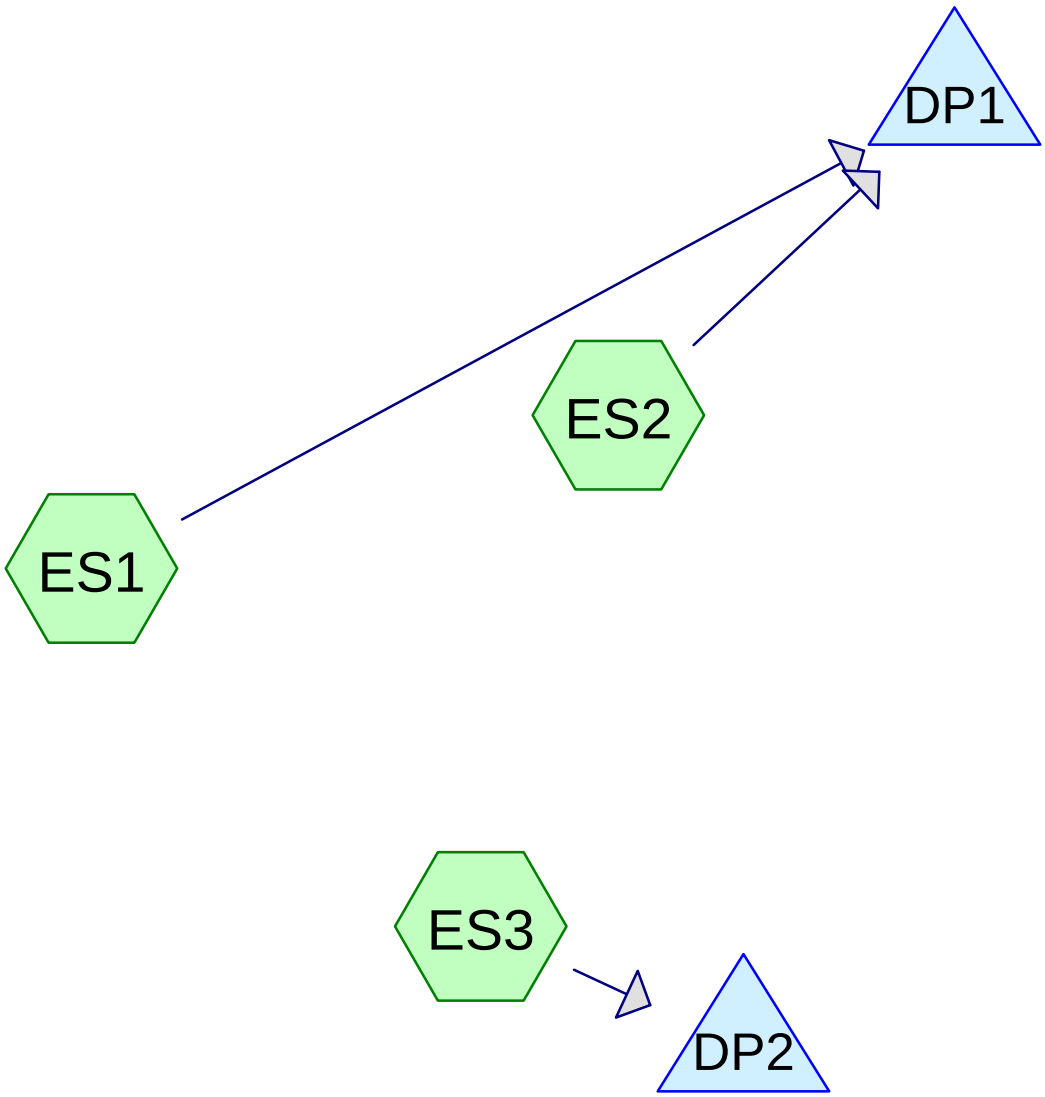
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	**1yr**	0.77	1.06	1.26	1.74	2.21	2.98	3.15	**1yr**	2.64	3.03	3.58	4.37	5.04	**1yr**
2yr	0.34	0.52	0.64	0.86	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.51	3.42	3.70	**2yr**	3.03	3.55	4.08	4.83	5.63	**2yr**
5yr	0.40	0.62	0.76	1.05	1.33	1.62	**5yr**	1.15	1.58	1.88	2.53	3.25	4.33	4.95	**5yr**	3.83	4.76	5.37	6.36	7.14	**5yr**
10yr	0.47	0.72	0.89	1.24	1.61	1.97	**10yr**	1.39	1.93	2.28	3.10	3.95	5.33	6.19	**10yr**	4.72	5.95	6.80	7.82	8.73	**10yr**
25yr	0.57	0.87	1.09	1.55	2.04	2.56	**25yr**	1.76	2.50	2.95	4.06	5.14	7.79	8.32	**25yr**	6.90	8.00	9.12	10.32	11.39	**25yr**
50yr	0.67	1.02	1.27	1.82	2.45	3.12	**50yr**	2.11	3.05	3.59	4.99	6.30	9.76	10.43	**50yr**	8.64	10.03	11.41	12.70	13.94	**50yr**
100yr	0.79	1.19	1.49	2.15	2.95	3.79	**100yr**	2.54	3.71	4.36	6.14	7.73	12.22	13.08	**100yr**	10.81	12.57	14.26	15.66	17.06	**100yr**
200yr	0.92	1.38	1.75	2.53	3.53	4.63	**200yr**	3.05	4.52	5.32	7.56	9.49	15.34	16.41	**200yr**	13.57	15.78	17.86	19.30	20.88	**200yr**
500yr	1.14	1.69	2.18	3.17	4.50	6.00	**500yr**	3.89	5.87	6.91	9.99	12.48	20.74	22.15	**500yr**	18.35	21.30	24.04	25.45	27.30	**500yr**

Powered by ACIS Northeast Regional Climate Center

APPENDIX C

HYDROCAD DRAINAGE

ANALYSIS CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for 2023-03-17 Existing Subcatchments David T
Prepared by Haley Ward, Printed 10/19/2023

Project Notes

Defined 5 rainfall events from extreme_precip IDF
Defined 5 rainfall events from extreme_precip_tables_output IDF

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.68	2
2	10-yr	Type II 24-hr		Default	24.00	1	5.59	2
3	25-yr	Type II 24-hr		Default	24.00	1	7.08	2
4	50-yr	Type II 24-hr		Default	24.00	1	8.49	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.157	61	>75% Grass cover, Good, HSG B (ES1, ES2, ES3)
0.298	96	Gravel surface, HSG B (ES1, ES2, ES3)
0.214	98	Paved parking, HSG B (ES1, ES2, ES3)
0.041	98	Roofs, HSG B (ES1)
0.665	55	Woods, Good, HSG B (ES1, ES2)
2.375	**68**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.375	HSG B	ES1, ES2, ES3
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.375		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	1.157	0.000	0.000	0.000	1.157	>75% Grass cover, Good	ES1, ES2, ES3
0.000	0.298	0.000	0.000	0.000	0.298	Gravel surface	ES1, ES2, ES3
0.000	0.214	0.000	0.000	0.000	0.214	Paved parking	ES1, ES2, ES3
0.000	0.041	0.000	0.000	0.000	0.041	Roofs	ES1
0.000	0.665	0.000	0.000	0.000	0.665	Woods, Good	ES1, ES2
0.000	**2.375**	**0.000**	**0.000**	**0.000**	**2.375**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 ES1: Runoff Area=65,154 sf 11.95% Impervious Runoff Depth>0.80"
Flow Length=486' Slope=0.1604 '/' Tc=6.6 min CN=66 Runoff=2.20 cfs 0.100 af

Subcatchment ES2: Runoff Area=28,750 sf 11.44% Impervious Runoff Depth>1.18"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=73 Runoff=1.54 cfs 0.065 af

Subcatchment ES3: Runoff Area=9,546 sf 0.04% Impervious Runoff Depth>0.62"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=62 Runoff=0.25 cfs 0.011 af

Pond DP1: Inflow=3.67 cfs 0.165 af
Primary=3.67 cfs 0.165 af

Pond DP2: Inflow=0.25 cfs 0.011 af
Primary=0.25 cfs 0.011 af

Total Runoff Area = 2.375 ac Runoff Volume = 0.176 af Average Runoff Depth = 0.89"
89.29% Pervious = 2.121 ac 10.71% Impervious = 0.254 ac

Summary for Subcatchment ES1:

Runoff = 2.20 cfs @ 11.99 hrs, Volume= 0.100 af, Depth> 0.80"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
1,767	98	Roofs, HSG B
32,907	61	>75% Grass cover, Good, HSG B
19,850	55	Woods, Good, HSG B
6,020	98	Paved parking, HSG B
4,610	96	Gravel surface, HSG B
65,154	66	Weighted Average
57,367		88.05% Pervious Area
7,787		11.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	486	0.1604	1.23		**Lag/CN Method,**

Summary for Subcatchment ES2:

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

Runoff = 1.54 cfs @ 11.96 hrs, Volume= 0.065 af, Depth> 1.18"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
3,290	98	Paved parking, HSG B
8,147	61	>75% Grass cover, Good, HSG B
9,126	55	Woods, Good, HSG B
8,187	96	Gravel surface, HSG B
28,750	73	Weighted Average
25,460		88.56% Pervious Area
3,290		11.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	283	0.1041	1.07		**Lag/CN Method,**
4.4	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES3:

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

Runoff = 0.25 cfs @ 11.98 hrs, Volume= 0.011 af, Depth> 0.62"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
4	98	Paved parking, HSG B
9,359	61	>75% Grass cover, Good, HSG B
183	96	Gravel surface, HSG B
9,546	62	Weighted Average
9,542		99.96% Pervious Area
4		0.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	28	0.1868	0.67		**Lag/CN Method,**
0.7	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond DP1:

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

Inflow Area = 2.156 ac, 11.80% Impervious, Inflow Depth > 0.92" for 2-yr event
Inflow = 3.67 cfs @ 11.98 hrs, Volume= 0.165 af
Primary = 3.67 cfs @ 11.98 hrs, Volume= 0.165 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

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

Inflow Area = 0.219 ac, 0.04% Impervious, Inflow Depth > 0.62" for 2-yr event
Inflow = 0.25 cfs @ 11.98 hrs, Volume= 0.011 af
Primary = 0.25 cfs @ 11.98 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 ES1: Runoff Area=65,154 sf 11.95% Impervious Runoff Depth>1.95"
Flow Length=486' Slope=0.1604 '/' Tc=6.6 min CN=66 Runoff=5.48 cfs 0.243 af

Subcatchment ES2: Runoff Area=28,750 sf 11.44% Impervious Runoff Depth>2.53"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=73 Runoff=3.27 cfs 0.139 af

Subcatchment ES3: Runoff Area=9,546 sf 0.04% Impervious Runoff Depth>1.64"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=62 Runoff=0.71 cfs 0.030 af

Pond DP1: Inflow=8.55 cfs 0.382 af
Primary=8.55 cfs 0.382 af

Pond DP2: Inflow=0.71 cfs 0.030 af
Primary=0.71 cfs 0.030 af

Total Runoff Area = 2.375 ac Runoff Volume = 0.412 af Average Runoff Depth = 2.08"
89.29% Pervious = 2.121 ac 10.71% Impervious = 0.254 ac

Summary for Subcatchment ES1:

Runoff = 5.48 cfs @ 11.98 hrs, Volume= 0.243 af, Depth> 1.95"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
1,767	98	Roofs, HSG B
32,907	61	>75% Grass cover, Good, HSG B
19,850	55	Woods, Good, HSG B
6,020	98	Paved parking, HSG B
4,610	96	Gravel surface, HSG B
65,154	66	Weighted Average
57,367		88.05% Pervious Area
7,787		11.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	486	0.1604	1.23		**Lag/CN Method,**

Summary for Subcatchment ES2:

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

Runoff = 3.27 cfs @ 11.96 hrs, Volume= 0.139 af, Depth> 2.53"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
3,290	98	Paved parking, HSG B
8,147	61	>75% Grass cover, Good, HSG B
9,126	55	Woods, Good, HSG B
8,187	96	Gravel surface, HSG B
28,750	73	Weighted Average
25,460		88.56% Pervious Area
3,290		11.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	283	0.1041	1.07		**Lag/CN Method,**
4.4	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES3:

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

Runoff = 0.71 cfs @ 11.96 hrs, Volume= 0.030 af, Depth> 1.64"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
4	98	Paved parking, HSG B
9,359	61	>75% Grass cover, Good, HSG B
183	96	Gravel surface, HSG B
9,546	62	Weighted Average
9,542		99.96% Pervious Area
4		0.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	28	0.1868	0.67		**Lag/CN Method,**
0.7	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond DP1:

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

Inflow Area = 2.156 ac, 11.80% Impervious, Inflow Depth > 2.13" for 10-yr event
Inflow = 8.55 cfs @ 11.97 hrs, Volume= 0.382 af
Primary = 8.55 cfs @ 11.97 hrs, Volume= 0.382 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

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

Inflow Area = 0.219 ac, 0.04% Impervious, Inflow Depth > 1.64" for 10-yr event
Inflow = 0.71 cfs @ 11.96 hrs, Volume= 0.030 af
Primary = 0.71 cfs @ 11.96 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 ES1: Runoff Area=65,154 sf 11.95% Impervious Runoff Depth>3.00"
Flow Length=486' Slope=0.1604 '/' Tc=6.6 min CN=66 Runoff=8.38 cfs 0.373 af

Subcatchment ES2: Runoff Area=28,750 sf 11.44% Impervious Runoff Depth>3.71"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=73 Runoff=4.72 cfs 0.204 af

Subcatchment ES3: Runoff Area=9,546 sf 0.04% Impervious Runoff Depth>2.61"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=62 Runoff=1.13 cfs 0.048 af

Pond DP1: Inflow=12.82 cfs 0.577 af
Primary=12.82 cfs 0.577 af

Pond DP2: Inflow=1.13 cfs 0.048 af
Primary=1.13 cfs 0.048 af

Total Runoff Area = 2.375 ac Runoff Volume = 0.625 af Average Runoff Depth = 3.16"
89.29% Pervious = 2.121 ac 10.71% Impervious = 0.254 ac

Summary for Subcatchment ES1:

Runoff = 8.38 cfs @ 11.98 hrs, Volume= 0.373 af, Depth> 3.00"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
1,767	98	Roofs, HSG B
32,907	61	>75% Grass cover, Good, HSG B
19,850	55	Woods, Good, HSG B
6,020	98	Paved parking, HSG B
4,610	96	Gravel surface, HSG B
65,154	66	Weighted Average
57,367		88.05% Pervious Area
7,787		11.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	486	0.1604	1.23		**Lag/CN Method,**

Summary for Subcatchment ES2:

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

Runoff = 4.72 cfs @ 11.96 hrs, Volume= 0.204 af, Depth> 3.71"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
3,290	98	Paved parking, HSG B
8,147	61	>75% Grass cover, Good, HSG B
9,126	55	Woods, Good, HSG B
8,187	96	Gravel surface, HSG B
28,750	73	Weighted Average
25,460		88.56% Pervious Area
3,290		11.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	283	0.1041	1.07		**Lag/CN Method,**
4.4	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES3:

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

Runoff = 1.13 cfs @ 11.96 hrs, Volume= 0.048 af, Depth> 2.61"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
4	98	Paved parking, HSG B
9,359	61	>75% Grass cover, Good, HSG B
183	96	Gravel surface, HSG B
9,546	62	Weighted Average
9,542		99.96% Pervious Area
4		0.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	28	0.1868	0.67		**Lag/CN Method,**
0.7	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond DP1:

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

Inflow Area = 2.156 ac, 11.80% Impervious, Inflow Depth > 3.21" for 25-yr event
Inflow = 12.82 cfs @ 11.97 hrs, Volume= 0.577 af
Primary = 12.82 cfs @ 11.97 hrs, Volume= 0.577 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

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

Inflow Area = 0.219 ac, 0.04% Impervious, Inflow Depth > 2.61" for 25-yr event
Inflow = 1.13 cfs @ 11.96 hrs, Volume= 0.048 af
Primary = 1.13 cfs @ 11.96 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 ES1: Runoff Area=65,154 sf 11.95% Impervious Runoff Depth>4.07"
Flow Length=486' Slope=0.1604 '/' Tc=6.6 min CN=66 Runoff=11.26 cfs 0.507 af

Subcatchment ES2: Runoff Area=28,750 sf 11.44% Impervious Runoff Depth>4.88"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=73 Runoff=6.12 cfs 0.268 af

Subcatchment ES3: Runoff Area=9,546 sf 0.04% Impervious Runoff Depth>3.62"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=62 Runoff=1.56 cfs 0.066 af

Pond DP1: Inflow=17.05 cfs 0.775 af
Primary=17.05 cfs 0.775 af

Pond DP2: Inflow=1.56 cfs 0.066 af
Primary=1.56 cfs 0.066 af

Total Runoff Area = 2.375 ac Runoff Volume = 0.841 af Average Runoff Depth = 4.25"
89.29% Pervious = 2.121 ac 10.71% Impervious = 0.254 ac

Summary for Subcatchment ES1:

Runoff = 11.26 cfs @ 11.98 hrs, Volume= 0.507 af, Depth> 4.07"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
1,767	98	Roofs, HSG B
32,907	61	>75% Grass cover, Good, HSG B
19,850	55	Woods, Good, HSG B
6,020	98	Paved parking, HSG B
4,610	96	Gravel surface, HSG B
65,154	66	Weighted Average
57,367		88.05% Pervious Area
7,787		11.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	486	0.1604	1.23		**Lag/CN Method,**

Summary for Subcatchment ES2:

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

Runoff = 6.12 cfs @ 11.96 hrs, Volume= 0.268 af, Depth> 4.88"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
3,290	98	Paved parking, HSG B
8,147	61	>75% Grass cover, Good, HSG B
9,126	55	Woods, Good, HSG B
8,187	96	Gravel surface, HSG B
28,750	73	Weighted Average
25,460		88.56% Pervious Area
3,290		11.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	283	0.1041	1.07		**Lag/CN Method,**
4.4	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES3:

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

Runoff = 1.56 cfs @ 11.96 hrs, Volume= 0.066 af, Depth> 3.62"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
4	98	Paved parking, HSG B
9,359	61	>75% Grass cover, Good, HSG B
183	96	Gravel surface, HSG B
9,546	62	Weighted Average
9,542		99.96% Pervious Area
4		0.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	28	0.1868	0.67		**Lag/CN Method,**
0.7	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond DP1:

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

Inflow Area = 2.156 ac, 11.80% Impervious, Inflow Depth > 4.32" for 50-yr event
Inflow = 17.05 cfs @ 11.97 hrs, Volume= 0.775 af
Primary = 17.05 cfs @ 11.97 hrs, Volume= 0.775 af, Atten= 0%, Lag= 0.0 min

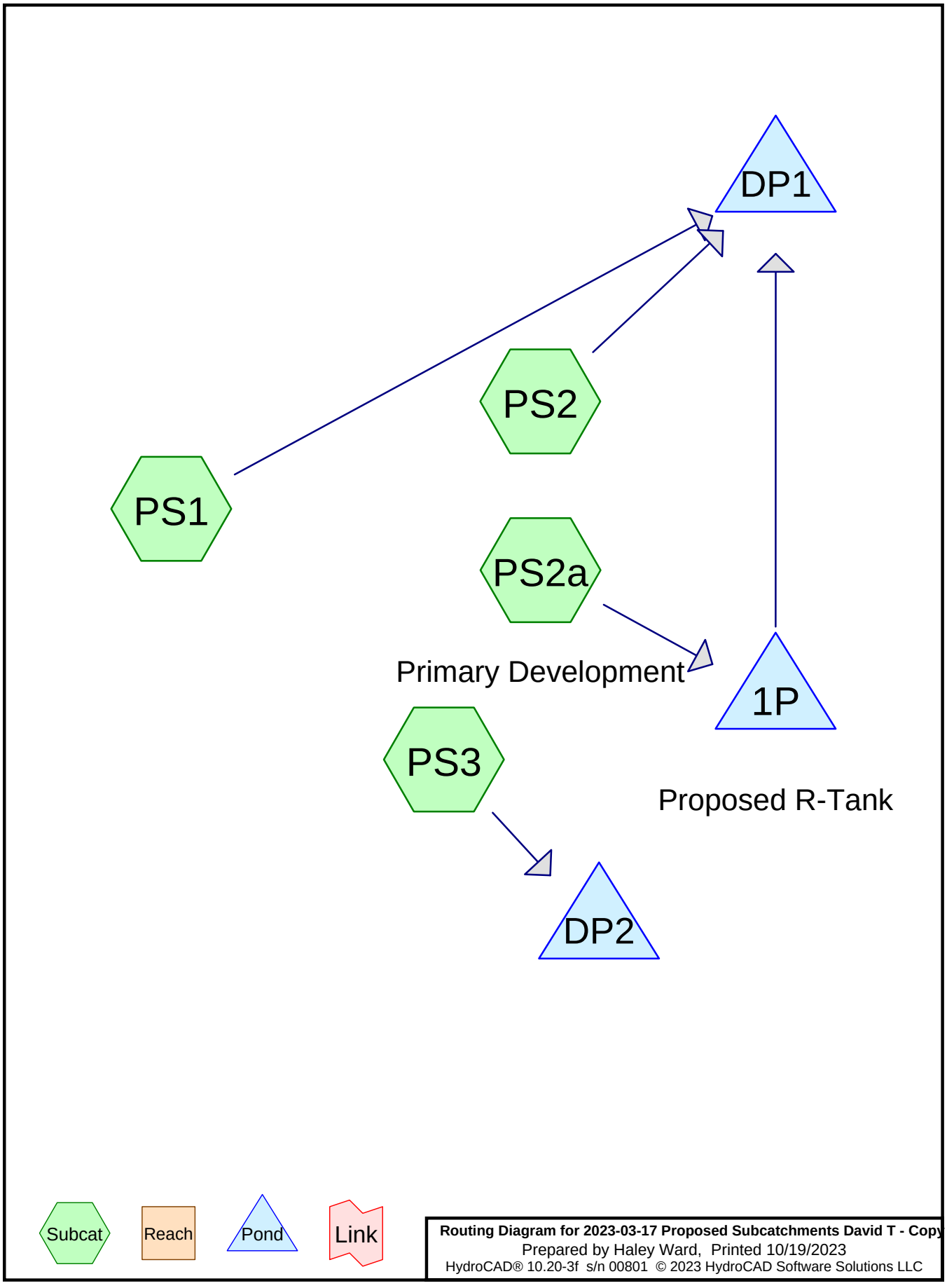
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

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

Inflow Area = 0.219 ac, 0.04% Impervious, Inflow Depth > 3.62" for 50-yr event
Inflow = 1.56 cfs @ 11.96 hrs, Volume= 0.066 af
Primary = 1.56 cfs @ 11.96 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Routing Diagram for 2023-03-17 Proposed Subcatchments David T - Copy
Prepared by Haley Ward, Printed 10/19/2023
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Project Notes

Defined 5 rainfall events from extreme_precip IDF
Defined 5 rainfall events from extreme_precip_tables_output IDF

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.68	2
2	10-yr	Type II 24-hr		Default	24.00	1	5.59	2
3	25-yr	Type II 24-hr		Default	24.00	1	7.08	2
4	50-yr	Type II 24-hr		Default	24.00	1	8.49	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.163	61	>75% Grass cover, Good, HSG B (PS1, PS2, PS2a, PS3)
0.551	98	Paved parking, HSG B (PS1, PS2, PS2a)
0.208	98	Roofs, HSG B (PS1, PS2a)
0.000	98	Unconnected pavement, HSG B (PS3)
0.453	55	Woods, Good, HSG B (PS1)
2.375	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.375	HSG B	PS1, PS2, PS2a, PS3
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.375		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	1.163	0.000	0.000	0.000	1.163	>75% Grass cover, Good	PS1, PS2, PS2a, PS3
0.000	0.551	0.000	0.000	0.000	0.551	Paved parking	PS1, PS2, PS2a
0.000	0.208	0.000	0.000	0.000	0.208	Roofs	PS1, PS2a
0.000	0.000	0.000	0.000	0.000	0.000	Unconnected pavement	PS3
0.000	0.453	0.000	0.000	0.000	0.453	Woods, Good	PS1
0.000	**2.375**	**0.000**	**0.000**	**0.000**	**2.375**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1P	37.45	37.28	68.4	0.0025	0.013	0.0	15.0	0.0	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 PS1: Runoff Area=57,906 sf 23.43% Impervious Runoff Depth>0.90"
Flow Length=486' Slope=0.1604 '/' Tc=6.3 min CN=68 Runoff=2.25 cfs 0.100 af

Subcatchment PS2: Runoff Area=13,835 sf 23.79% Impervious Runoff Depth>1.01"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=70 Runoff=0.63 cfs 0.027 af

Subcatchment PS2a: Primary Development Runoff Area=22,677 sf 71.57% Impervious Runoff Depth>2.18"
Tc=5.0 min CN=87 Runoff=2.15 cfs 0.095 af

Subcatchment PS3: Runoff Area=9,029 sf 0.04% Impervious Runoff Depth>0.57"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=61 Runoff=0.22 cfs 0.010 af

Pond 1P: Proposed R-Tank Peak Elev=38.37' Storage=0.027 af Inflow=2.15 cfs 0.095 af
Discarded=0.16 cfs 0.060 af Primary=0.86 cfs 0.034 af Outflow=1.02 cfs 0.095 af

Pond DP1: Inflow=3.57 cfs 0.161 af
Primary=3.57 cfs 0.161 af

Pond DP2: Inflow=0.22 cfs 0.010 af
Primary=0.22 cfs 0.010 af

Total Runoff Area = 2.375 ac Runoff Volume = 0.231 af Average Runoff Depth = 1.17"
68.01% Pervious = 1.615 ac 31.99% Impervious = 0.760 ac

Summary for Subcatchment PS1:

Runoff = 2.25 cfs @ 11.99 hrs, Volume= 0.100 af, Depth> 0.90"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
24,628	61	>75% Grass cover, Good, HSG B
10,570	98	Paved parking, HSG B
2,995	98	Roofs, HSG B
19,713	55	Woods, Good, HSG B
57,906	68	Weighted Average
44,341		76.57% Pervious Area
13,565		23.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	486	0.1604	1.29		**Lag/CN Method,**

Summary for Subcatchment PS2:

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

Runoff = 0.63 cfs @ 11.97 hrs, Volume= 0.027 af, Depth> 1.01"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
10,544	61	>75% Grass cover, Good, HSG B
3,291	98	Paved parking, HSG B
13,835	70	Weighted Average
10,544		76.21% Pervious Area
3,291		23.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	283	0.1041	0.99		**Lag/CN Method,**
4.8	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2a: Primary Development

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

Runoff = 2.15 cfs @ 11.95 hrs, Volume= 0.095 af, Depth> 2.18"
Routed to Pond 1P : Proposed R-Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
6,448	61	>75% Grass cover, Good, HSG B
10,146	98	Paved parking, HSG B
6,083	98	Roofs, HSG B
22,677	87	Weighted Average
6,448		28.43% Pervious Area
16,229		71.57% Impervious Area

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

Summary for Subcatchment PS3:

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

Runoff = 0.22 cfs @ 11.98 hrs, Volume= 0.010 af, Depth> 0.57"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
9,025	61	>75% Grass cover, Good, HSG B
4	98	Unconnected pavement, HSG B
9,029	61	Weighted Average
9,025		99.96% Pervious Area
4		0.04% Impervious Area
4		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	28	0.1868	0.66		**Lag/CN Method,**
0.7	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Proposed R-Tank

Inflow Area = 0.521 ac, 71.57% Impervious, Inflow Depth > 2.18" for 2-yr event
Inflow = 2.15 cfs @ 11.95 hrs, Volume= 0.095 af
Outflow = 1.02 cfs @ 12.06 hrs, Volume= 0.095 af, Atten= 53%, Lag= 6.1 min
Discarded = 0.16 cfs @ 11.60 hrs, Volume= 0.060 af
Primary = 0.86 cfs @ 12.06 hrs, Volume= 0.034 af
Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 38.37' @ 12.06 hrs Surf.Area= 0.031 ac Storage= 0.027 af

Plug-Flow detention time= 14.5 min calculated for 0.095 af (100% of inflow)

Center-of-Mass det. time= 14.2 min (785.5 - 771.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	37.20'	0.023 af	**26.31'W x 50.92'L x 4.07'H Field A** 0.125 af Overall - 0.068 af Embedded = 0.057 af x 40.0% Voids
#2A	37.45'	0.064 af	**Ferguson R-Tank HD 2** x 340 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 340 Chambers in 17 Rows
		0.087 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.20'	**5.000 in/hr Exfiltration over Surface area**
#2	Primary	37.45'	**15.0" Round Culvert** L= 68.4' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.45' / 37.28' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	37.45'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Elev. (feet) 37.45 39.69 39.69 41.27 Width (feet) 0.30 0.30 4.00 4.00

Discarded OutFlow Max=0.16 cfs @ 11.60 hrs HW=37.24' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.16 cfs)

Primary OutFlow Max=0.85 cfs @ 12.06 hrs HW=38.36' (Free Discharge)
└**2=Culvert** (Passes 0.85 cfs of 2.01 cfs potential flow)
└**3=Custom Weir/Orifice** (Weir Controls 0.85 cfs @ 3.13 fps)

Summary for Pond DP1:

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

Inflow Area = 2.168 ac, 35.04% Impervious, Inflow Depth > 0.89" for 2-yr event
Inflow = 3.57 cfs @ 11.99 hrs, Volume= 0.161 af
Primary = 3.57 cfs @ 11.99 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

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

Inflow Area = 0.207 ac, 0.04% Impervious, Inflow Depth > 0.57" for 2-yr event
Inflow = 0.22 cfs @ 11.98 hrs, Volume= 0.010 af
Primary = 0.22 cfs @ 11.98 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 PS1: Runoff Area=57,906 sf 23.43% Impervious Runoff Depth>2.11"
Flow Length=486' Slope=0.1604 '/' Tc=6.3 min CN=68 Runoff=5.31 cfs 0.234 af

Subcatchment PS2: Runoff Area=13,835 sf 23.79% Impervious Runoff Depth>2.27"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=70 Runoff=1.42 cfs 0.060 af

Subcatchment PS2a: Primary Development Runoff Area=22,677 sf 71.57% Impervious Runoff Depth>3.87"
Tc=5.0 min CN=87 Runoff=3.66 cfs 0.168 af

Subcatchment PS3: Runoff Area=9,029 sf 0.04% Impervious Runoff Depth>1.56"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=61 Runoff=0.64 cfs 0.027 af

Pond 1P: Proposed R-Tank Peak Elev=39.02' Storage=0.043 af Inflow=3.66 cfs 0.168 af
Discarded=0.16 cfs 0.089 af Primary=1.94 cfs 0.078 af Outflow=2.09 cfs 0.168 af

Pond DP1: Inflow=8.38 cfs 0.372 af
Primary=8.38 cfs 0.372 af

Pond DP2: Inflow=0.64 cfs 0.027 af
Primary=0.64 cfs 0.027 af

Total Runoff Area = 2.375 ac Runoff Volume = 0.488 af Average Runoff Depth = 2.47"
68.01% Pervious = 1.615 ac 31.99% Impervious = 0.760 ac

Summary for Subcatchment PS1:

Runoff = 5.31 cfs @ 11.98 hrs, Volume= 0.234 af, Depth> 2.11"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
24,628	61	>75% Grass cover, Good, HSG B
10,570	98	Paved parking, HSG B
2,995	98	Roofs, HSG B
19,713	55	Woods, Good, HSG B
57,906	68	Weighted Average
44,341		76.57% Pervious Area
13,565		23.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	486	0.1604	1.29		**Lag/CN Method,**

Summary for Subcatchment PS2:

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

Runoff = 1.42 cfs @ 11.96 hrs, Volume= 0.060 af, Depth> 2.27"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
10,544	61	>75% Grass cover, Good, HSG B
3,291	98	Paved parking, HSG B
13,835	70	Weighted Average
10,544		76.21% Pervious Area
3,291		23.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	283	0.1041	0.99		**Lag/CN Method,**
4.8	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2a: Primary Development

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

Runoff = 3.66 cfs @ 11.95 hrs, Volume= 0.168 af, Depth> 3.87"
Routed to Pond 1P : Proposed R-Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
6,448	61	>75% Grass cover, Good, HSG B
10,146	98	Paved parking, HSG B
6,083	98	Roofs, HSG B
22,677	87	Weighted Average
6,448		28.43% Pervious Area
16,229		71.57% Impervious Area

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

Summary for Subcatchment PS3:

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

Runoff = 0.64 cfs @ 11.97 hrs, Volume= 0.027 af, Depth> 1.56"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
9,025	61	>75% Grass cover, Good, HSG B
4	98	Unconnected pavement, HSG B
9,029	61	Weighted Average
9,025		99.96% Pervious Area
4		0.04% Impervious Area
4		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	28	0.1868	0.66		**Lag/CN Method,**
0.7	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Proposed R-Tank

Inflow Area = 0.521 ac, 71.57% Impervious, Inflow Depth > 3.87" for 10-yr event
Inflow = 3.66 cfs @ 11.95 hrs, Volume= 0.168 af
Outflow = 2.09 cfs @ 12.04 hrs, Volume= 0.168 af, Atten= 43%, Lag= 5.3 min
Discarded = 0.16 cfs @ 11.25 hrs, Volume= 0.089 af
Primary = 1.94 cfs @ 12.04 hrs, Volume= 0.078 af
Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 39.02' @ 12.04 hrs Surf.Area= 0.031 ac Storage= 0.043 af

Plug-Flow detention time= 14.2 min calculated for 0.167 af (100% of inflow)

Center-of-Mass det. time= 13.8 min (771.8 - 758.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	37.20'	0.023 af	**26.31'W x 50.92'L x 4.07'H Field A** 0.125 af Overall - 0.068 af Embedded = 0.057 af x 40.0% Voids
#2A	37.45'	0.064 af	**Ferguson R-Tank HD 2** x 340 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 340 Chambers in 17 Rows
		0.087 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.20'	**5.000 in/hr Exfiltration over Surface area**
#2	Primary	37.45'	**15.0" Round Culvert** L= 68.4' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.45' / 37.28' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	37.45'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Elev. (feet) 37.45 39.69 39.69 41.27 Width (feet) 0.30 0.30 4.00 4.00

Discarded OutFlow Max=0.16 cfs @ 11.25 hrs HW=37.24' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.16 cfs)

Primary OutFlow Max=1.92 cfs @ 12.04 hrs HW=39.01' (Free Discharge)
└**2=Culvert** (Passes 1.92 cfs of 4.28 cfs potential flow)
└**3=Custom Weir/Orifice** (Weir Controls 1.92 cfs @ 4.09 fps)

Summary for Pond DP1:

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

Inflow Area = 2.168 ac, 35.04% Impervious, Inflow Depth > 2.06" for 10-yr event
Inflow = 8.38 cfs @ 11.98 hrs, Volume= 0.372 af
Primary = 8.38 cfs @ 11.98 hrs, Volume= 0.372 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

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

Inflow Area = 0.207 ac, 0.04% Impervious, Inflow Depth > 1.56" for 10-yr event
Inflow = 0.64 cfs @ 11.97 hrs, Volume= 0.027 af
Primary = 0.64 cfs @ 11.97 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 PS1: Runoff Area=57,906 sf 23.43% Impervious Runoff Depth>3.20"
Flow Length=486' Slope=0.1604 '/' Tc=6.3 min CN=68 Runoff=7.96 cfs 0.354 af

Subcatchment PS2: Runoff Area=13,835 sf 23.79% Impervious Runoff Depth>3.40"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=70 Runoff=2.10 cfs 0.090 af

Subcatchment PS2a: Primary Development Runoff Area=22,677 sf 71.57% Impervious Runoff Depth>5.21"
Tc=5.0 min CN=87 Runoff=4.84 cfs 0.226 af

Subcatchment PS3: Runoff Area=9,029 sf 0.04% Impervious Runoff Depth>2.51"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=61 Runoff=1.03 cfs 0.043 af

Pond 1P: Proposed R-Tank Peak Elev=39.49' Storage=0.055 af Inflow=4.84 cfs 0.226 af
Discarded=0.16 cfs 0.109 af Primary=2.85 cfs 0.117 af Outflow=3.01 cfs 0.226 af

Pond DP1: Inflow=12.55 cfs 0.561 af
Primary=12.55 cfs 0.561 af

Pond DP2: Inflow=1.03 cfs 0.043 af
Primary=1.03 cfs 0.043 af

Total Runoff Area = 2.375 ac Runoff Volume = 0.714 af Average Runoff Depth = 3.61"
68.01% Pervious = 1.615 ac 31.99% Impervious = 0.760 ac

Summary for Subcatchment PS1:

Runoff = 7.96 cfs @ 11.98 hrs, Volume= 0.354 af, Depth> 3.20"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
24,628	61	>75% Grass cover, Good, HSG B
10,570	98	Paved parking, HSG B
2,995	98	Roofs, HSG B
19,713	55	Woods, Good, HSG B
57,906	68	Weighted Average
44,341		76.57% Pervious Area
13,565		23.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	486	0.1604	1.29		**Lag/CN Method,**

Summary for Subcatchment PS2:

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

Runoff = 2.10 cfs @ 11.96 hrs, Volume= 0.090 af, Depth> 3.40"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
10,544	61	>75% Grass cover, Good, HSG B
3,291	98	Paved parking, HSG B
13,835	70	Weighted Average
10,544		76.21% Pervious Area
3,291		23.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	283	0.1041	0.99		**Lag/CN Method,**
4.8	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2a: Primary Development

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

Runoff = 4.84 cfs @ 11.95 hrs, Volume= 0.226 af, Depth> 5.21"
Routed to Pond 1P : Proposed R-Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
6,448	61	>75% Grass cover, Good, HSG B
10,146	98	Paved parking, HSG B
6,083	98	Roofs, HSG B
22,677	87	Weighted Average
6,448		28.43% Pervious Area
16,229		71.57% Impervious Area

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

Summary for Subcatchment PS3:

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

Runoff = 1.03 cfs @ 11.96 hrs, Volume= 0.043 af, Depth> 2.51"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
9,025	61	>75% Grass cover, Good, HSG B
4	98	Unconnected pavement, HSG B
9,029	61	Weighted Average
9,025		99.96% Pervious Area
4		0.04% Impervious Area
4		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	28	0.1868	0.66		**Lag/CN Method,**
0.7	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Proposed R-Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.521 ac, 71.57% Impervious, Inflow Depth > 5.21" for 25-yr event
Inflow = 4.84 cfs @ 11.95 hrs, Volume= 0.226 af
Outflow = 3.01 cfs @ 12.03 hrs, Volume= 0.226 af, Atten= 38%, Lag= 4.8 min
Discarded = 0.16 cfs @ 10.85 hrs, Volume= 0.109 af
Primary = 2.85 cfs @ 12.03 hrs, Volume= 0.117 af
Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 39.49' @ 12.03 hrs Surf.Area= 0.031 ac Storage= 0.055 af

Plug-Flow detention time= 14.2 min calculated for 0.225 af (100% of inflow)
Center-of-Mass det. time= 13.8 min (765.5 - 751.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	37.20'	0.023 af	**26.31'W x 50.92'L x 4.07'H Field A** 0.125 af Overall - 0.068 af Embedded = 0.057 af x 40.0% Voids
#2A	37.45'	0.064 af	**Ferguson R-Tank HD 2** x 340 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 340 Chambers in 17 Rows
		0.087 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.20'	**5.000 in/hr Exfiltration over Surface area**
#2	Primary	37.45'	**15.0" Round Culvert** L= 68.4' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.45' / 37.28' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	37.45'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Elev. (feet) 37.45 39.69 39.69 41.27 Width (feet) 0.30 0.30 4.00 4.00

Discarded OutFlow Max=0.16 cfs @ 10.85 hrs HW=37.24' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.16 cfs)

Primary OutFlow Max=2.80 cfs @ 12.03 hrs HW=39.46' (Free Discharge)
└**2=Culvert** (Passes 2.80 cfs of 5.40 cfs potential flow)
└**3=Custom Weir/Orifice** (Weir Controls 2.80 cfs @ 4.64 fps)

Summary for Pond DP1:

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

Inflow Area = 2.168 ac, 35.04% Impervious, Inflow Depth > 3.11" for 25-yr event
Inflow = 12.55 cfs @ 11.98 hrs, Volume= 0.561 af
Primary = 12.55 cfs @ 11.98 hrs, Volume= 0.561 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

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

Inflow Area = 0.207 ac, 0.04% Impervious, Inflow Depth > 2.51" for 25-yr event
Inflow = 1.03 cfs @ 11.96 hrs, Volume= 0.043 af
Primary = 1.03 cfs @ 11.96 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 PS1: Runoff Area=57,906 sf 23.43% Impervious Runoff Depth>4.30"
Flow Length=486' Slope=0.1604 '/' Tc=6.3 min CN=68 Runoff=10.59 cfs 0.476 af

Subcatchment PS2: Runoff Area=13,835 sf 23.79% Impervious Runoff Depth>4.53"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=70 Runoff=2.77 cfs 0.120 af

Subcatchment PS2a: Primary Development Runoff Area=22,677 sf 71.57% Impervious Runoff Depth>6.50"
Tc=5.0 min CN=87 Runoff=5.95 cfs 0.282 af

Subcatchment PS3: Runoff Area=9,029 sf 0.04% Impervious Runoff Depth>3.50"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=61 Runoff=1.43 cfs 0.061 af

Pond 1P: Proposed R-Tank Peak Elev=39.84' Storage=0.064 af Inflow=5.95 cfs 0.282 af
Discarded=0.16 cfs 0.125 af Primary=4.16 cfs 0.156 af Outflow=4.32 cfs 0.282 af

Pond DP1: Inflow=17.02 cfs 0.752 af
Primary=17.02 cfs 0.752 af

Pond DP2: Inflow=1.43 cfs 0.061 af
Primary=1.43 cfs 0.061 af

Total Runoff Area = 2.375 ac Runoff Volume = 0.938 af Average Runoff Depth = 4.74"
68.01% Pervious = 1.615 ac 31.99% Impervious = 0.760 ac

Summary for Subcatchment PS1:

Runoff = 10.59 cfs @ 11.98 hrs, Volume= 0.476 af, Depth> 4.30"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
24,628	61	>75% Grass cover, Good, HSG B
10,570	98	Paved parking, HSG B
2,995	98	Roofs, HSG B
19,713	55	Woods, Good, HSG B
57,906	68	Weighted Average
44,341		76.57% Pervious Area
13,565		23.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	486	0.1604	1.29		**Lag/CN Method,**

Summary for Subcatchment PS2:

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

Runoff = 2.77 cfs @ 11.96 hrs, Volume= 0.120 af, Depth> 4.53"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
10,544	61	>75% Grass cover, Good, HSG B
3,291	98	Paved parking, HSG B
13,835	70	Weighted Average
10,544		76.21% Pervious Area
3,291		23.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	283	0.1041	0.99		**Lag/CN Method,**
4.8	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2a: Primary Development

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

Runoff = 5.95 cfs @ 11.95 hrs, Volume= 0.282 af, Depth> 6.50"
Routed to Pond 1P : Proposed R-Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
6,448	61	>75% Grass cover, Good, HSG B
10,146	98	Paved parking, HSG B
6,083	98	Roofs, HSG B
22,677	87	Weighted Average
6,448		28.43% Pervious Area
16,229		71.57% Impervious Area

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

Summary for Subcatchment PS3:

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

Runoff = 1.43 cfs @ 11.96 hrs, Volume= 0.061 af, Depth> 3.50"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
9,025	61	>75% Grass cover, Good, HSG B
4	98	Unconnected pavement, HSG B
9,029	61	Weighted Average
9,025		99.96% Pervious Area
4		0.04% Impervious Area
4		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	28	0.1868	0.66		**Lag/CN Method,**
0.7	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Proposed R-Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.521 ac, 71.57% Impervious, Inflow Depth > 6.50" for 50-yr event
Inflow = 5.95 cfs @ 11.95 hrs, Volume= 0.282 af
Outflow = 4.32 cfs @ 12.01 hrs, Volume= 0.282 af, Atten= 27%, Lag= 3.8 min
Discarded = 0.16 cfs @ 10.45 hrs, Volume= 0.125 af
Primary = 4.16 cfs @ 12.01 hrs, Volume= 0.156 af
Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 39.84' @ 12.02 hrs Surf.Area= 0.031 ac Storage= 0.064 af

Plug-Flow detention time= 14.2 min calculated for 0.281 af (100% of inflow)
Center-of-Mass det. time= 13.8 min (761.4 - 747.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	37.20'	0.023 af	**26.31'W x 50.92'L x 4.07'H Field A** 0.125 af Overall - 0.068 af Embedded = 0.057 af x 40.0% Voids
#2A	37.45'	0.064 af	**Ferguson R-Tank HD 2** x 340 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 340 Chambers in 17 Rows
		0.087 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.20'	**5.000 in/hr Exfiltration over Surface area**
#2	Primary	37.45'	**15.0" Round Culvert** L= 68.4' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.45' / 37.28' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	37.45'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Elev. (feet) 37.45 39.69 39.69 41.27 Width (feet) 0.30 0.30 4.00 4.00

Discarded OutFlow Max=0.16 cfs @ 10.45 hrs HW=37.24' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.16 cfs)

Primary OutFlow Max=4.00 cfs @ 12.01 hrs HW=39.80' (Free Discharge)
└**2=Culvert** (Passes 4.00 cfs of 6.31 cfs potential flow)
└**3=Custom Weir/Orifice** (Weir Controls 4.00 cfs @ 3.57 fps)

Summary for Pond DP1:

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

Inflow Area = 2.168 ac, 35.04% Impervious, Inflow Depth > 4.17" for 50-yr event
Inflow = 17.02 cfs @ 11.98 hrs, Volume= 0.752 af
Primary = 17.02 cfs @ 11.98 hrs, Volume= 0.752 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

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

Inflow Area = 0.207 ac, 0.04% Impervious, Inflow Depth > 3.50" for 50-yr event
Inflow = 1.43 cfs @ 11.96 hrs, Volume= 0.061 af
Primary = 1.43 cfs @ 11.96 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

APPENDIX D

SOIL SURVEY INFORMATION

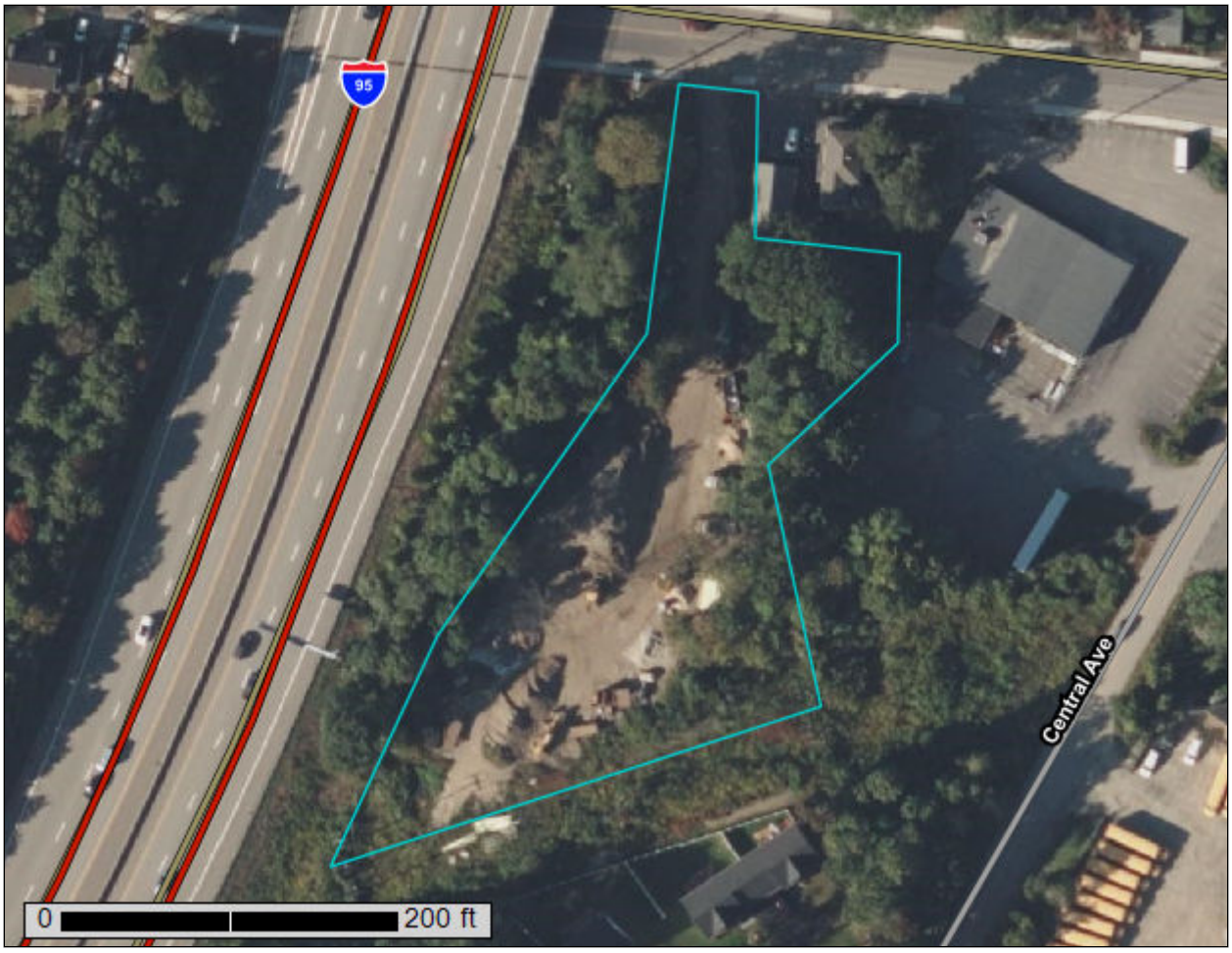
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Rockingham County, New Hampshire



February 16, 2023

Custom Soil Resource Report
Soil Map

Map Scale: 1:829 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 40 80 160 240

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 Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 25, Sep 12, 2022

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

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
799	Urban land-Canton complex, 3 to 15 percent slopes	1.4	100.0%
Totals for Area of Interest		**1.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

Rockingham County, New Hampshire

799—Urban land-Canton complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9cq0
Elevation: 0 to 1,000 feet
Mean annual precipitation: 42 to 46 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 55 percent
Canton and similar soils: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Parent material: Till

Typical profile

H1 - 0 to 5 inches: gravelly fine sandy loam
H2 - 5 to 21 inches: gravelly fine sandy loam
H3 - 21 to 60 inches: loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Udorthents

Percent of map unit: 5 percent
Hydric soil rating: No

Scituate and newfields

Percent of map unit: 4 percent
Hydric soil rating: No

Chatfield

Percent of map unit: 4 percent
Hydric soil rating: No

Boxford and eldridge

Percent of map unit: 4 percent
Hydric soil rating: No

Walpole

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Squamscott and scitico

Percent of map unit: 4 percent
Landform: Marine terraces
Hydric soil rating: Yes

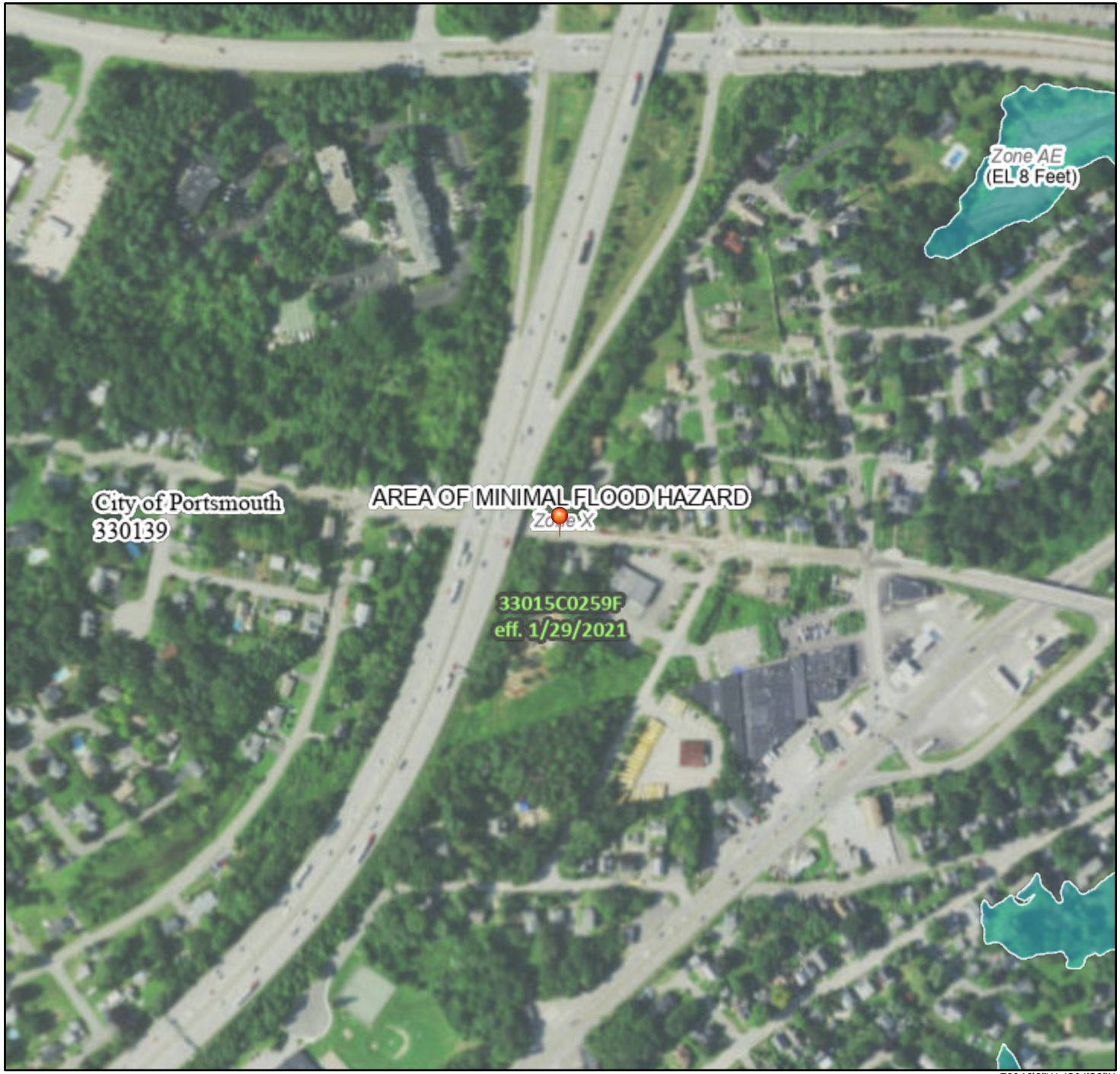
APPENDIX E

FEMA FIRM MAP

National Flood Hazard Layer FIRMette

FEMA

70°46'46"W 43°5'5"N



70°46'8"W 43°4'38"N

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

1:6,000

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

Legend

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 Cross Sections with 1% Annual Chance
- 17.5 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 2/16/2023 at 11:49 AM 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.

APPENDIX F

INSPECTION & LONG TERM MAINTENANCE PLAN

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors

INSPECTION & LONG-TERM MAINTENANCE PLAN
FOR
RESIDENTIAL DEVELOPMENT

686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

Introduction

The intent of this plan is to provide Chinburg Developers (herein referred to as "owner") with a list of procedures that document the inspection and maintenance requirements of the stormwater management system for this development. Specifically, the R-Tank Storage System and associated structures on the project site (collectively referred to as the "Stormwater Management System"). The contact information for the owner shall be kept current, and when the condominium ownership of the property is created, this plan must be transferred to the new owners.

The following inspection and maintenance program is necessary to keep the stormwater management system functioning properly and will help in maintaining a high quality of stormwater runoff to minimize potential environmental impacts. By following the enclosed procedures, the owner will be able to maintain the functional design of the stormwater management system and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff.

Annual Report

The owner shall prepare an annual Inspection & Maintenance Report. The report shall include a summary of the system's maintenance and repair by transmission of the Inspection & Maintenance Log and other information as required. A copy of the report shall be delivered annually to the City of Portsmouth Public Works Department, as required.

Inspection & Maintenance Checklist/Log

The following pages contain the Stormwater Management System Inspection & Maintenance Requirements and a blank copy of the Stormwater Management System Inspection & Maintenance Log. These forms are provided to the owner as a guideline for performing the inspection and maintenance of the Stormwater Management System. This is a guideline and should be periodically reviewed for conformance with current practice and standards.

Stormwater Management System Components

The Stormwater Management System is designed to mitigate both the quantity and quality of site-generated stormwater runoff. As a result, the design includes the following elements:

Non-Structural BMPs

Non-Structural best management practices (BMP's) include temporary and permanent measures that typically require less labor and capital inputs and are intended to provide protection against erosion of soils. Examples of non-structural BMP's on this project include but are not limited to:

- Temporary and Permanent mulching
- Temporary and Permanent grass cover
- Trees
- Shrubs and ground covers
- Miscellaneous landscape plantings
- Dust control
- Tree protection
- Topsoiling
- Sediment barriers
- Stabilized construction entrance
- Vegetated buffer area

Structural BMPs

Structural BMPs are more labor and capital-intensive structures or installations that require more specialized personnel to install. Examples on this project include but are not limited to:

- Ferguson R-Tank® and PRETX® system
- Outlet Control Structures and Storm Drains

Inspection and Maintenance Requirements

The following summarizes the inspection and maintenance requirements for the various BMPs that may be found on this project.

1. **Grassed areas (until established):** After each rain event of 0.5" or more during a 24-hour period, inspect grassed areas for signs of disturbance, such as erosion. If damaged areas are discovered, immediately repair the damage. Repairs may include adding new topsoil, lime, seed, fertilizer and mulch.
2. **Plantings**: Planting and landscaping (trees, shrubs) shall be monitored bi-monthly during the first year to insure viability and vigorous growth. Replace dead or dying vegetation with new stock and make adjustments to the conditions that caused the dead or dying vegetation. During dryer times of the year, provide weekly watering or irrigation during the establishment period of the first year.

Make the necessary adjustments to ensure long-term health of the vegetated covers, i.e. provide more permanent mulch or compost or other means of protection.

3. **Ferguson R-Tank® and PRETX® system:** Reference the attached operations and maintenance manual for proper maintenance of the system.
4. **Outlet Control Structures and Storm Drains:** Monitor accumulation of debris in outlet control structures monthly or after significant rain events. Remove sediments when they accumulate within the yard drains and outlet pipe. During construction, maintain inlet protection until the site has been stabilized. Prior to the end of construction, inspect the drains and basins for accumulations and remove and clean by jet-vacuuming.

Pollution Prevention

The following pollution prevention activities shall be undertaken to minimize potential impacts on stormwater runoff quality. The Contractor is responsible for all activities during construction. The Owner is responsible thereafter.

Spill Procedures

Any discharge of waste oil or other pollutant shall be reported immediately to the New Hampshire Department of Environmental Services (NHDES). The Contractor/Owner will be responsible for any incident of groundwater contamination resulting from the improper discharge of pollutants to the stormwater system, and may be required by NHDES to remediate incidents that may impact groundwater quality. If the property ownership is transferred, the new owner will be informed of the legal responsibilities associated with operation of the stormwater system, as indicated above.

Sanitary Facilities

Sanitary facilities shall be provided during all phases of construction.

Material Storage

No on site trash facility is provided until homes are constructed. The contractors are required to remove trash from the site. Hazardous material storage is prohibited.

Material Disposal

All waste material, trash, sediment, and debris shall be removed from the site and disposed of in accordance with applicable local, state, and federal guidelines and regulations. Removed sediments shall be if necessary dewatered prior to disposal.

Invasive Species

Monitor the Stormwater Management System for signs of invasive species growth. If caught early, their eradication is much easier. The most likely places where invasions start is in wetter, disturbed soils or detention ponds. Species such as phragmites and purple loose-strife are common invaders in these wetter areas. If they are found, the owner shall refer to the fact-sheet created by the University of New Hampshire Cooperative Extension (or other source) or contact a wetlands scientist with experience in invasive species control to implement a plan of action for eradication. Measures that do not require the application of chemical herbicides should be the first line of defense.

Figure 1: Lythrum salicaria, Purple Loosestrife. Photo by Liz West.

Figure 2: Phragmites australis. Photo by Le Loup Gris

CLOSED DRAINAGE STRUCTURE LONG-TERM MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
-Outlet Control Structures *-Drain Manholes* *-Catch Basins*	Every other Month	*Check for erosion or short-circuiting* *Check for sediment accumulation* *Check for floatable contaminants*
-Drainage Pipes	1 time per 2 years	*Check for sediment accumulation/clogging, or soiled runoff.* *Check for erosion at outlets.*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

STABILIZED CONSTRUCTION ENTRANCE CONSTRUCTION MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
ENTRANCE SURFACE *-Check for sediment accumulation/clogging of stone* *-Check Vegetative filter strips*	After heavy rains, as necessary	*-Top dress pad with new stone.* *-Replace stone completely if completely clogged.* *-Maintain vigorous stand of vegetation.*
WASHING FACILITIES (if applicable) *-Monitor Sediment Accumulation*	As often as necessary	*-Remove Sediments from traps.*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

CONVERGENT WATER TECHNOLOGIES

PRETX OPERATION AND MAINTENANCE GUIDE

February 2020

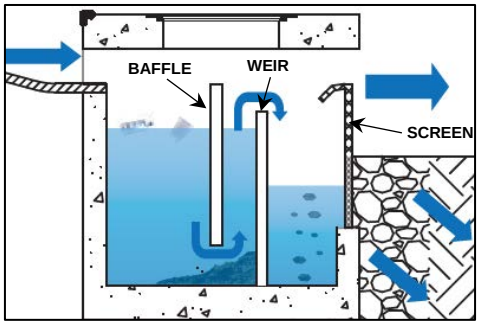
PRETX™ BIOFILTER PRETREATMENT
OPERATION AND MAINTENANCE GUIDANCE

PRETX systems provide pretreatment of sediment and debris prior to filtration and infiltration. Maintenance of PRETX pretreatment catch basins is simple and typically uses a standard vactor truck for cleaning. Simply remove the manhole cover and vactor out debris from within the sump and clean internal components by pressure washing. PRETX units are comprised of an outer precast concrete shell and consist of HDPE and stainless-steel internals that are resistant to rust and rot from corrosive winter runoff. Ideal tools include camera, shovel, hoe/rake, manhole pick, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local authority or company procedures.

Routine annual inspections and periodic maintenance is required for the effective operation of PRETX systems. The Responsible Parties should maintain PRETX systems in accordance with the minimum design standards. This page provides guidance on maintenance activities that are typically required for PRETX systems, along with a suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending upon a variety of factors including land use intensity, seasonality, the occurrence of large storm events, overly wet or dry (i.e., drought) regional hydrologic conditions, and any changes or redevelopment in the upstream land use.

Activity	Frequency
NOTE: A properly functioning PRETX system will trap floatables such as bottles, cups, and leaves within the first sump area behind the baffle. Settleables such as sand, saturated leaves and trash will fall to the bottom of the sump area behind the weir wall. Lastly, removal of smaller debris such as cigarettes, grass clippings, etc. will be removed by the screened outlet.	Annual Inspection
Cleaning of PRETX systems is best conducted by a vactor truck with pressure washing for removal of accumulated sediment, trash, and debris.	
Remove maintenance cover and inspect for accumulation of trash and debris.	
Inspect for floatables behind baffle wall and remove as needed by vactor.	
Inspect for settleable behind weir wall and remove as needed by vactor.	
Inspect outlet screen for accumulated debris and clean as needed by pressure wash.	
Check the inlet area (curb throat or drop inlet grate) and surrounding pavement area immediately upstream for sediment deposition, weed growth, etc. Remove as needed with a broom and shovel or by vactor.	
Check to insure the PRETX system drains to the outvert level completely after storm events.	
This process is to be repeated until proper drainage and function has been restored.	As Needed
Repair or replace any damaged structural parts, inlets, outlets, grates.	

TOP VIEW WITH COVER REMOVED



SIDE VIEW OF TRASH AND DEBRIS ACCUMULATION

REAR VIEW OF OUTLET SCREEN

February 2020

CHECKLIST FOR OPERATION & MAINTENANCE
PRETX™ BIOFILTER PRETREATMENT

Location:

Inspector:

Date: Time: Site Conditions:

Date Since Last Rain Event:

NOTE: A properly functioning PRETX system will trap floatables such as bottles, cups, and leaves within the first sump area behind the baffle. Settleables such as sand, saturated leaves and trash will fall to the bottom of the sump area behind the weir wall. Lastly, removal of smaller debris such as cigarettes, grass clippings, etc. will be removed by the screened outlet.

Inspection Items	Satisfactory (S) or Unsatisfactory (U)		Comments/Corrective Action
1. Remove maintenance cover to allow for visual inspection	**S**	**U**	
2. Complete drainage of PRETX system to outvert elevation after storm flow ceases	**S**	**U**	
3. Proper grading and drainage to PRETX inlet and outlet, no evidence of short-circuit or bypass of flow around or under structure	**S**	**U**	
4. Accumulation of settleable trash and debris within PRETX sump is 6” or less	**S**	**U**	
5. Sump area is empty of floatable trash and debris. Excessive accumulation of floatables will bypass baffle wall.	**S**	**U**	
6. Outlet screen is clear of debris	**S**	**U**	
7. Clogging and function of inlet/outlet components	**S**	**U**	
8. Cracking, spalling, or deterioration of concrete	**S**	**U**	
9. Nuisance vegetation, animal burrows, or settling of structure	**S**	**U**	
10. Undesirable odors	**S**	**U**	
11. Complaints from residents	**S**	**U**	
12. Public hazards noted	**S**	**U**	
13.	**S**	**U**	
14.	**S**	**U**	
15.	**S**	**U**	

Corrective Action Needed	Due Date
1.	
2.	
3.	
4.	
5.	

R-TANK® OPERATION, INSPECTION AND MAINTENANCE

Operation

Your R-Tank System has been designed to function in conjunction with the engineered drainage system on your site, the existing municipal infrastructure, and/or the existing soils and geography of the receiving watershed. Unless your site included certain unique and rare features, the operation of your R-Tank System will be driven by naturally occurring systems and will function autonomously. However, upholding a proper schedule of Inspection & Maintenance is critical to ensuring continued functionality and optimum performance of the system.

Inspection

Both the R-Tank and all stormwater pre-treatment features incorporated into your site must be inspected regularly. Inspections should be done every six months for the first year of operation, and at least yearly thereafter. Inspections may be required more frequently for pre-treatment systems. You should refer to the manufacturer requirements for the proper inspection schedule.

With the right equipment most inspections and measurements can be accomplished from the surface without physically entering any confined spaces. If your inspection does require confined space entry, you must follow all local, regional, and OSHA requirements.

All maintenance features of your system can be accessed through a covering at the surface. With the lid removed, you can visually inspect each component to identify sediment, trash, and other contaminants within the structure. Check you construction plans to identify the maintenance features engineered into your R-Tank system, which may include:

Upstream Pipes, Inlets, and Manholes

- Working from the structures adjacent the R-Tank toward those farther away, check for debris and sediment in both the structures and the pipes. Be sure to Include all structures that contain pre- treatment systems. Some structures may include a sump.

Maintenance Ports

- Located near the inlet and outlet connections and throughout the system, check sediment depth at each port.

Inspection Ports

- Less common, inspection ports are primarily located within the Treatment Row of an R-Tank System. These should be used to check for sediment deposits but are typically too small to access for backflushing.

Treatment Row

- On installations in 2018 or later, inlet pipes may connect to a row of modules with 12” diameter access holes running horizontally through the module that can be jet vacuumed. Check these rows for accumulation of sediment and debris.

All observations and measurements should be recorded on an Inspection Log kept on file. We’ve included a form you can use at the end of this guide.

Maintenance

For modules taller than 40” the R-Tank System should be back-flushed once sediment accumulation has reached 6”. For modules less than 40” tall, perform maintenance when sediment depths are greater than 15% of the total system height.

If your system includes a Treatment Row with linear access through the modules from the inlet pipe, backflush this area when sediment depths reach 6”.

BEFORE ANY MAINTENANCE IS PERFORMED ON YOUR SYSTEM -
PLUG THE OUTLET PIPE TO PREVENT CONTAMINATION OF THE DOWNSTREAM SYSTEMS.

Begin by cleaning all upstream structures, pipes, and pre-treatment systems containing sediment and/or debris. If your system includes a Treatment Row, this portion of the system should be cleaned with traditional jet-vac equipment. Add a centralizer to the jet for easiest access through the modules.

To back-flush the R-Tank, water is pumped into the system through the Maintenance Ports as rapidly as possible. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out. If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well.

For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

STEP BY STEP INSTRUCTIONS FOR INSPECTION AND MAINTENANCE CAN BE FOUND ON THE NEXT PAGE, WITH A MAINTENANCE LOG ON THE LAST PAGE.

INSPECTION

1. Upstream Structures
    a. Remove cover
    b. Use flashlight to detect sediment deposits If present, measure sediment depth
    c. Inspect pipes connecting to R-Tank
        i. If inlet pipes connect to Treatment Row, check sediment depth within these modules
        ii. If access for measurement inside the Treatment Row is difficult, sediment depth can be estimated based on the coverage of the round, 12” opening of the module
    d. Inspect pre-treatment systems (if present)
    e. Record results on Maintenance Log
    f. Replace cover
    g. Repeat for ALL Manholes upstream of R-Tank until no sedimentation is observed and all pre- treatment systems have been checked
2. Maintenance Ports
    a. Remove cap
    b. Use flashlight to detect sediment deposits
    c. If present, measure sediment depth with stadia rod
    d. Record results on maintenance log
    e. Replace cap
    f. Repeat for ALL Maintenance Ports
3. Inspection Port
    a. Remove cap
    b. Use flashlight to detect sediment deposits
    c. If present, measure sediment depth with stadia rod
    d. Record results on Maintenance Log
    e. Replace cap

MAINTENANCE

1. Plug system outlet to prevent discharge of back-flush water
2. Vacuum all upstream structures, inlet pipes, and stormwater pre-treatment systems
3. If a Treatment Row is present, vacuum this row of modules
4. Determine best location to pump out back-flush water. Typically, the outlet structure will work best, but sometimes the Maintenance Ports must be used.
5. Remove cap from Maintenance Port and pump water as rapidly as possible into system through port to suspend sediments, pumping dirty water out of the system from the outlet or nearby Maintenance Port
6. Repeat at all Maintenance Ports until sediment levels are reduced to a satisfactory level
7. Sediment-laden water shall be disposed of per local regulations
8. Replace any remaining caps or covers and remove outlet plug
9. Record the back-flushing event in your Maintenance Log with any relevant specifics

R-Tank® Maintenance Log

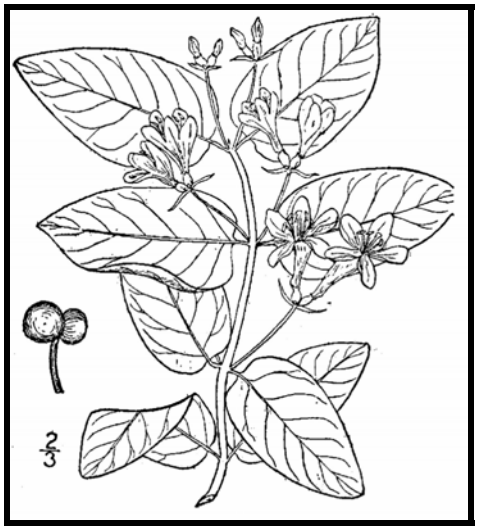
Site Name:		Company:	
Location:		Contact:	
City and State:		Phone:	
System Owner:		Email:	

Date	Location	Sediment Depth	Observations / Notes	Initials

University of New Hampshire Cooperative Extension

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

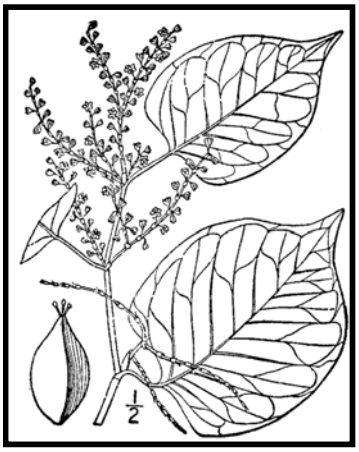
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

<table>
<tr><th>Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">Norway maple
(Acer platanoides)
European barberry
(Berberis vulgaris)
Japanese barberry
(Berberis thunbergii)
autumn olive
(Elaeagnus umbellata)
burning bush
(Euonymus alatus)
Morrow's honeysuckle
(Lonicera morrowii)
Tatarian honeysuckle
(Lonicera tatarica)
showy bush honeysuckle
(Lonicera x bella)
common buckthorn
(Rhamnus cathartica)
glossy buckthorn
(Frangula alnus)</td><td rowspan="2">Fruit and Seeds
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Use as firewood.
▪ Make a brush pile.
▪ Chip.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip once all fruit has dropped from branches.
▪ Leave resulting chips on site and monitor.</td></tr>
<tr><td rowspan="2">oriental bittersweet
(Celastrus orbiculatus)
multiflora rose
(Rosa multiflora)</td><td rowspan="2">Fruits, Seeds, Plant Fragments
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Make a brush pile.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</td></tr>
</table>

<table>
<tr><th>Non-Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">garlic mustard
(Alliaria petiolata)
spotted knapweed
(Centaurea maculosa)
▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling.
black swallow-wort
(Cynanchum nigrum)
▪ May cause skin rash. Wear gloves and long sleeves when handling.
pale swallow-wort
(Cynanchum rossicum)
giant hogweed
(Heracleum mantegazzianum)
▪ Can cause major skin rash. Wear gloves and long sleeves when handling.
dame’s rocket
(Hesperis matronalis)
perennial pepperweed
(Lepidium latifolium)
purple loosestrife
(Lythrum salicaria)
Japanese stilt grass
(Microstegium vimineum)
mile-a-minute weed
(Polygonum perfoliatum)</td><td rowspan="2">Fruits and Seeds
  </td><td>Prior to flowering
Depends on scale of infestation
Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>During and following flowering
Do nothing until the following year or remove flowering heads and bag and let rot.

Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>common reed
(Phragmites australis)
Japanese knotweed
(Polygonum cuspidatum)
Bohemian knotweed
(Polygonum x bohemicum)</td><td>Fruits, Seeds, Plant Fragments
Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn’t materially influence disposal activities.</td><td>Small infestation
▪ Bag all plant material and let rot.
▪ Never pile and use resulting material as compost.
▪ Burn.

Large infestation
▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile.
▪ Monitor and remove any sprouting material.
▪ Pile, let dry, and burn.</td></tr>
</table>

January 2010

PROPOSED SITE PLAN
RESIDENTIAL DEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NEW HAMPSHIRE
PERMIT PLANS

APPLICANT:

CHINBURG DEVELOPMENT, LLC
3 PENSTOCK WAY
NEWMARKET, NH 03857
Tel. (603) 868–5995

OWNER:

ISLAMIC SOCIETY OF
THE SEACOAST AREA
42N DOVER POINT ROAD
DOVER, NH 03820

CIVIL ENGINEER & LAND SURVEYOR:

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, N.H. 03801
Tel. (603) 430–9282
Fax (603) 436–2315

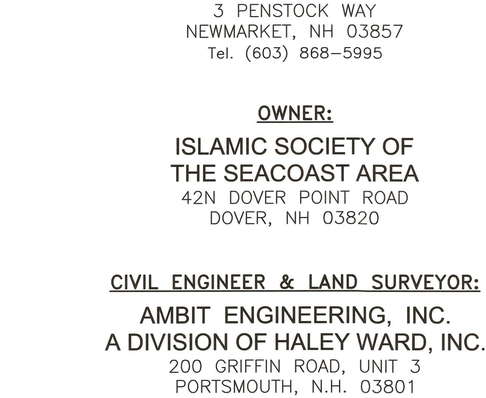
ARCHITECT:

CJ ARCHITECTS
233 VAUGHAN STREET, SUITE 101
PORTSMOUTH, NH, 03801
Tel. (603) 431–2808

LEGAL REPRESENTATION:

DONAHUE, TUCKER & CIANDELLA, PLLC
111 MAPLEWOOD AVE., SUITE D
PORTSMOUTH, NH, 03801
Tel. (603) 766–1686

REQUIRED PERMITS:
PORTSMOUTH BOA: APPROVED
PORTSMOUTH SITE PLAN: PENDING
DES SEWER EXTENSION: TBD
DES WATER MAIN: TBD

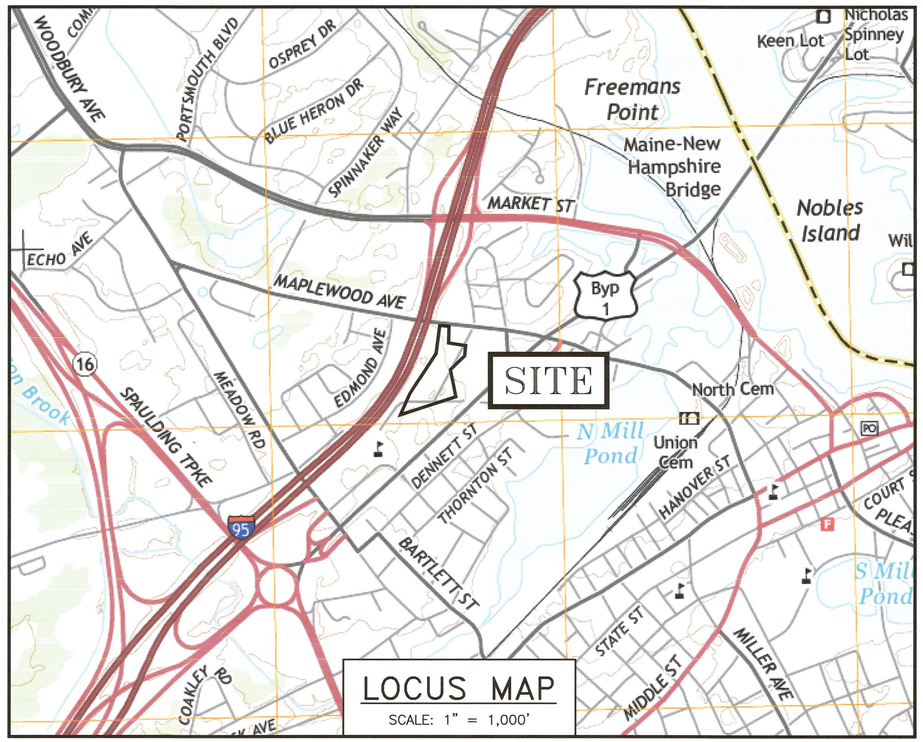


Legend

Character Districts
Character-Based Zoning Area
(Refer to Zoning Map Sheet 2 of 2 Character Districts Regulating Plan)

Residential Districts
R Rural
SRA Single Residence A
SRB Single Residence B
GRA General Residence A
GRB General Residence B
GRC General Residence C
GA/MH Garden Apartment/Mobile Home Park

Mixed Residential Districts
MRO Mixed Residential Office
MRB Mixed Residential Business



LOCUS MAP
SCALE: 1" = 1,000'

LEGEND:

EXISTING	PROPOSED	
		PROPERTY LINE
		SETBACK
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	G	GAS LINE
D	D	STORM DRAIN
W	W	WATER LINE
WS	WS	WATER SERVICE
UGE	UGE	UNDERGROUND ELECTRIC
OHW	OHW	OVERHEAD ELECTRIC/WIRES
	UD	FOUNDATION DRAIN
		EDGE OF PAVEMENT (EP)
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		UTILITY POLE
		WALL MOUNTED EXTERIOR LIGHTS
		TRANSFORMER ON CONCRETE PAD
		ELECTRIC HANDHOLD
		SHUT OFFS (WATER/GAS)
	GV	GATE VALVE
	HYD	HYDRANT
CB	CB	CATCH BASIN
S	SMH	SEWER MANHOLE
D	DMH	DRAIN MANHOLE
T	TMH	TELEPHONE MANHOLE
14	14	PARKING SPACE COUNT
PKM		PARKING METER
LSA		LANDSCAPED AREA
TBD	TBD	TO BE DETERMINED
CI	CI	CAST IRON PIPE
COP	COP	COPPER PIPE
DI	DI	DUCTILE IRON PIPE
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
AC	–	ASBESTOS CEMENT PIPE
VC	VC	VITRIFIED CLAY PIPE
EP	EP	EDGE OF PAVEMENT
EL.	EL.	ELEVATION
FF	FF	FINISHED FLOOR
INV	INV	INVERT
S =	S =	SLOPE FT/FT
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL

DIG SAFE
– ME – NH – RI – VT
1–888–344–7233
CALL TOLL FREE

PORTSMOUTH APPROVAL CONDITIONS NOTE:
ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

APPROVED BY THE PORTSMOUTH ZONING BOARD

CHAIRMAN _____ DATE _____

INDEX OF SHEETS

UTILITY CONTACTS

ELECTRIC:
EVERSOURCE
1700 LAFAYETTE ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 436–7708, Ext. 555.5678
ATTN: MICHAEL BUSBY, P.E. (MANAGER)

NATURAL GAS:
UNITIL
325 WEST ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 294–5144
ATTN: DAVE BEAULIEU

CABLE:
COMCAST
155 COMMERCE WAY
PORTSMOUTH, N.H. 03801
Tel. (603) 679–5695 (X1037)
ATTN: MIKE COLLINS

SEWER & WATER:
PORTSMOUTH DEPARTMENT OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 766–1438 ATTN: JIM TOW

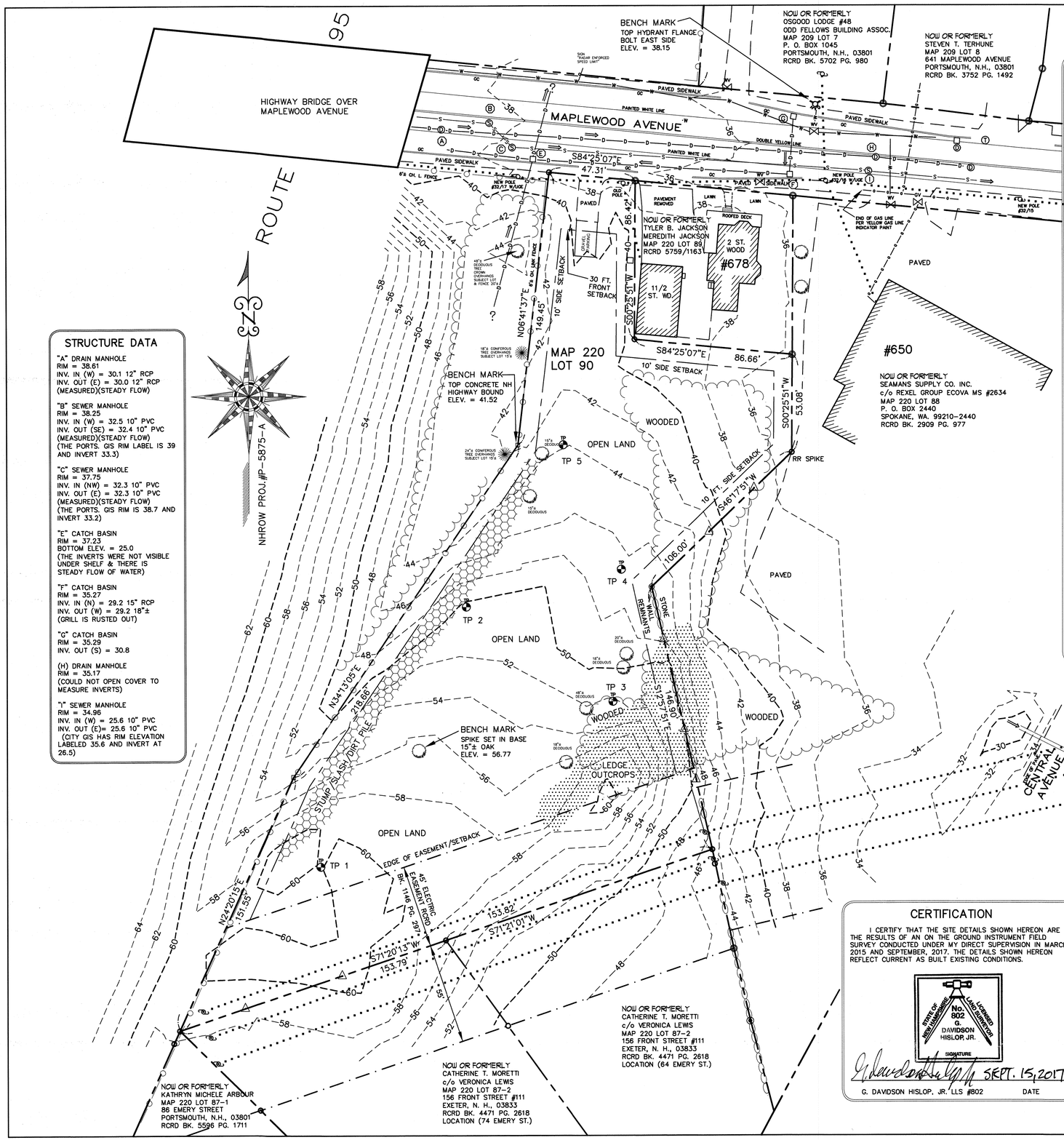
COMMUNICATIONS:
FAIRPOINT COMMUNICATIONS
JOE CONSIDINE
1575 GREENLAND ROAD
GREENLAND, N.H. 03840
Tel. (603) 427–5525

PROPOSED SITE PLAN
RESIDENTIAL DEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, N.H.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

PLAN SET SUBMITTAL DATE: 23 OCTOBER 2023

2360.01



STRUCTURE DATA

"A" DRAIN MANHOLE
RIM = 38.61
INV. IN (W) = 30.1 12" RCP
INV. OUT (E) = 30.0 12" RCP
(MEASURED)(STEADY FLOW)

"B" SEWER MANHOLE
RIM = 38.25
INV. IN (W) = 32.5 10" PVC
INV. OUT (SE) = 32.4 10" PVC
(MEASURED)(STEADY FLOW)
(THE PORTS. GIS RIM LABEL IS 39 AND INVERT 33.3)

"C" SEWER MANHOLE
RIM = 37.75
INV. IN (NW) = 32.3 10" PVC
INV. OUT (E) = 32.3 10" PVC
(MEASURED)(STEADY FLOW)
(THE PORTS. GIS RIM IS 38.7 AND INVERT 33.2)

"E" CATCH BASIN
RIM = 37.23
BOTTOM ELEV. = 25.0
(THE INVERTS WERE NOT VISIBLE UNDER SHELF & THERE IS STEADY FLOW OF WATER)

"F" CATCH BASIN
RIM = 35.27
INV. IN (N) = 29.2 15" RCP
INV. OUT (W) = 29.2 18"±
(GRILL IS RUSTED OUT)

"G" CATCH BASIN
RIM = 35.29
INV. OUT (S) = 30.8

(H) DRAIN MANHOLE
RIM = 35.17
(COULD NOT OPEN COVER TO MEASURE INVERTS)

"I" SEWER MANHOLE
RIM = 34.96
INV. IN (W) = 25.6 10" PVC
INV. OUT (E)= 25.6 10" PVC
(CITY GIS HAS RIM ELEVATION LABELED 35.6 AND INVERT AT 26.5)

GENERAL NOTES:

1.) ZONING DISTRICT– "SRB" SINGLE RESIDENCE "B"
MIN. LOT AREA = 15,000 S.F.
MIN. FRONTAGE = 100'
MIN. LOT DEPTH = 100'
BUILDING SETBACKS
FRONT SETBACK = 30'
REAR SETBACK = 30'
SIDE SETBACK = 10'
WETLANDS SETBACK = 100' (10,000 S.F. OR GREATER)
WET LIMITED CUT ZONE = 50' (10,000 S.F. OR GREATER)
WET VEGETATED BUFFER = 25' (10,000 S.F. OR GREATER)
BUILDING RESTRICTIONS
MAX. HEIGHT = 35'
MAX. BUILDING COVERAGE = 20%
MIN OPEN SPACE = 40%

2.) THIS IS AN AS–BUILT PLAN DEPICTING EXISTING CONDITIONS AS OF APRIL 2015 AND UPDATED SEPTEMBER 2017. THE LOT CORNER/LOT LINE MONUMENT LOCATIONS WERE HELD AS SHOWN ON THIS PLAN. THE BEARINGS AND DISTANCES MAY VARY SLIGHTLY FROM THE CALCULATED RECORDED DISTANCE AND BEARINGS PER REFERENCE PLAN #4 (RCRD D–38016). THE BEARING BASE IS NH GRID NORTH PER ABOVE PLAN REF. #1 (NH PROJ. P–5875–A). THIS AUTOCAD DRAWING HAS BEEN SHIFTED ONTO PORTSMOUTH GIS COORDINATES NH NAD83 GRID NORTH AS DIRECTED BY PORTSMOUTH GIS DEPT..

3.) THE ELEVATION DATUM BASE IS NAVD88 ESTABLISHED USING THE HYDRANT FLANGE BOLT BENCH MARK ON MYRTLE AVENUE. THIS IS DEPICTED AS TBM–1 ELEVATION 45.86 ON RECORDED PLAN RCRD PLAN # D–37764. PLAN D–37664 NOTES ELEVATION DATUM ESTABLISHED BY SURVEY GRADE GPS READINGS.

4.) THE ABUTTER HOUSE AND GARAGE/APARTMENT AT 678 MAPLEWOOD IS SERVICED BY CITY SEWER AND WATER. PORTSMOUTH COMPUTERIZED GIS UTILITY INFORMATION WAS OBTAINED FROM PORTSMOUTH DPW. THE DIAGRAM INDICATES SEWER, DRAIN AND WATER IS IN THE STREET. THE GIS DIAGRAM DOES NOT INDICATE HOW SUBJECT LOT HOUSE AND GARAGE APARTMENT ARE HOOKED INTO WATER AND SEWER. THE PORTS. WATER/SEWER DIVISION FOREMAN JOHN ADAMS DOES NOT KNOW OF ANY UTILITY RECORDS AVAILABLE TO SHOW THE LOCATION OF THE UTILITY SERVICE CONNECTIONS. THIS APARTMENT (FORMER GARAGE) HAS BEEN GUTTED AND NEW INTERIOR ROOMS ARE CURRENTLY UNDER CONSTRUCTION. THE CARPENTER INDICATED THAT SEWER AND WATER SERVICE WAS FROM THE BIG HOUSE BETWEEN BUILDINGS.

5.) SUBJECT PROPERTIES DO NOT LIE IN A FLOOD HAZARD ZONE AS SHOWN ON ROCKINGHAM COUNTY FLOOD INSURANCE RATE MAP (FIRM) FOR CITY OF PORTSMOUTH COMMUNITY #330139, PANEL #0259, SUFFIX "E" AND KNOWN AS MAP #33015C0259E WITH AN EFFECTIVE DATE OF MAY 17, 2005.

6.) ABUTTING PROPERTY AT #678 MAPLEWOOD HAS A TWO STORY HOUSE AND A SEPARATE GARAGE (GARAGE NOW BEING REFRAMED WITH ABOVE APARTMENT). A VARIANCE WAS GRANTED APRIL 10, 1979 TO ALLOW CONVERSION OF THE SECOND FLOOR OF AN EXISTING GARAGE INTO AN APARTMENT IN A SINGLE RESIDENCE II DISTRICT. A BUILDING PERMIT WAS GIVEN APRIL 25, 1979.

7.) SUBJECT LOT MAP 220 LOT 90 IS A VACANT LOT PARTLY WOODED. THIS PROPERTY IS REFERED TO AS #686 MAPLEWOOD AVENUE IN A DRIVEWAY PERMIT APPLICATION DATED 7–31–12. THE PAVED SIDEWALK CURBING WAS REMOVED WHERE THE PAVED DRIVEWAY IS NOW LOCATED AS SHOWN HEREON.

8.) THE UNDERGROUND GAS SERVICE SHOWN HEREON IN FRONT OF 650 MAPLEWOOD AVE. WAS PLOTTED FROM YELLOW GAS LINE PAINT MARKINGS LOCATED BY FIELD SURVEY. THE GAS PAINT MARKS INDICATES THE GAS LINE ENDS BEFORE CROSSING IN FRONT OF SUBJECT LOT AS SHOWN.

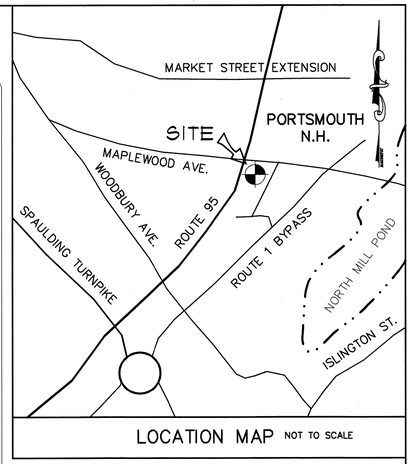
9.) UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE, BEING PLOTTED FROM OBSERVED ABOVE GROUND STRUCTURES AND PAINT MARKS.

10.) SUBJECT LOT 90 SUBJECT TO AN ELECTRIC EASEMENT PER RCRD BK. 1146 PG. 297. THIS EASEMENT IS ON THE REAR 45 FEET OF SUBJECT LOT 90 ADJOINING THE MORETTI PROPERTIES AS SHOWN AND ALLOWS FOR THE ELECTRIC TRANSMISSION LINES OPERATION AND MAINTENANCE. THERE IS CURRENTLY AN OVERHEAD ELECTRIC LINE CROSSING SUBJECT LOT AS SHOWN.

11.) SUBJECT LOT SUBJECT TO AN EASEMENT TO PERMIT THE STAIRWAY AND DECK ON APARTMENT BUILDING THAT ENCROACH SUBJECT LOT 90 PER RCRD BK. 5759 PG. 1160. THIS EASEMENT TO EXTINGUISH UPON REMOVAL OF ENCROACHING DECK AND STAIRS IF NOT REPLACED WITHIN 6 MONTHES OF REMOVAL. THE ENCROACHING STAIRS AND DECK ON THE WEST SIDE OF THE APARTMENT (GARAGE) BUILDING WERE REMOVED AS OF SEPT. 7, 2017.

12.) JOSEPH W. NOEL, N.H. CERTIFIED WETLAND SCIENTIST #086, (207–384–5587) INVESTIGATED THE SUBJECT PROPERTIES LOT 89 & LOT 90 APRIL 4, 2015 AND THERE WERE NO WETLANDS.

13.) PER PORTSMOUTH PLANNING DEPT. SUBJECT PROPERTY MAP 220 LOT 90 AT 686 MAPLEWOOD AVENUE RECEIVED A VARIANCE ON FEB. 21, 2017 TO PERMIT THE CONSTRUCTION OF A 4,000 SQ. FOOT PLACE OF WORSHIP AND A VARIANCE FOR REQUIRED FRONTAGE.



LOCATION MAP NOT TO SCALE

PLAN REFERENCES:

1.) STATE OF N. H. DEPT. OF PUBLIC WORKS AND HIGHWAYS FEDERAL AID RIGHT OF WAY PROJECT #1–95–1(9)14, INTERSTATE ROUTE 95 N. H. PROJECT #P–5875–A RCRD PLAN #D–2229–6.

2.) STATE OF N. H. DEPT. OF PUBLIC WORKS AND HIGHWAYS FEDERAL AID RIGHT OF WAY PROJECT #1–95–1(10)14, INTERSTATE ROUTE 95 N. H. PROJECT #P–5875–B, RCRD PLAN #D–2498–3.

3.) "PROPOSED DIVISION OF LAND OF CATHERINE T. MORETTI, PHASE 2 – MYRTLE AVENUE & CENTRAL AVENUE PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE" BY CIVIL CONSULTANTS ENGINEERS, REVISED 5–30–2014, RCRD PLAN #D–38286. (SEE ALSO EARLIER PLAN RCRD PLAN #D–37764)

4.) "CORRECTION PLAN, LAND BOUNDARY SURVEY PLAN DEPICTING LAND OWNED BY INDEPENDENT ORDER OF ODD FELLOWS, OSGOOD LODGE #48 KNOWN AS TAX MAP 209 LOT 6/#651 MAPLEWOOD AVE. AND DEPICTING LAND OWNED BY WARREN V. STEARNS & HELEN W. STEARNS KNOWN AS TAX MAP 220 LOT 89/#678 MAPLEWOOD AVE AND DEPICTING LAND OWNED BY WARREN V. STEARNS KNOWN AS TAX MAP 220 LOT 90" BY KNIGHT HILL LAND SURVEYING SERVICES, INC. DATED OCT., 2003, REVISED NOV. 19, 2013, RCRD PLAN #D–38016.

SITE DATA
TAX MAP 220 LOT 90

OWNER OF RECORD:
ISLAMIC SOCIETY OF THE SEACOAST AREA
42N DOVER POINT ROAD
DOVER, N. H., 03820

DEED: RCRD BK. 5806 PG. 2816

AREA: 1.44 ACRE

CERTIFICATION

I CERTIFY THAT THE SITE DETAILS SHOWN HEREON ARE THE RESULTS OF AN ON THE GROUND INSTRUMENT FIELD SURVEY CONDUCTED UNDER MY DIRECT SUPERVISION IN MARCH 2015 AND SEPTEMBER, 2017. THE DETAILS SHOWN HEREON REFLECT CURRENT AS BUILT EXISTING CONDITIONS.

STATE OF NEW HAMPSHIRE No. 802 G. DAVIDSON HISLOP, JR. LICENSED LAND SURVEYOR SIGNATURE

G. DAVIDSON HISLOP, JR. LLS #802 DATE SEPT. 15, 2017

LEGEND

PROPERTY LINE
EDGE OF PAVEMENT
IRON PIPE OR PIN
DRILL HOLE IN STONE WALL
N. H. HIGHWAY BOUND
EDGE OF EASEMENT
APROX. EDGE OF WOODS
STONE WALL
CATCH BASIN
WATER SHUT OFF VALVE
BELL MANHOLE
SEWER MANHOLE
UTILITY POLE
OVERHEAD ELECTRIC
APPROX. UNDERGROUND DRAIN
SIGN
SETBACK
ROCKINGHAM COUNTY REGISTRY OF DEEDS RCRD
DECIDUOUS TREE
CONIFEROUS TREE
DRAIN MANHOLE
GAS SHUT OFF VALVE
CHAIN LINK FENCE
STUMP/DIRT/SLASH PILE
APROX. UNDERGROUND SEWER
GRANITE CURB
APROX. UNDERGROUND WATER
APROX. UNDERGROUND GAS
LEDGE OUTCROP AREA
2 FOOT CONTOUR
CONTOUR AT EVEN 10 FOOT
TALL STAKE SET ON LOT LINE

EXISTING CONDITIONS & TOPOGRAPHY PLAN

for vacant lot known as

TAX MAP 220 LOT 90

owned by

ISLAMIC SOCIETY OF THE SEACOAST AREA

located at

686 MAPLEWOOD AVENUE
PORTSMOUTH, NEW HAMPSHIRE
ROCKINGHAM COUNTY

DATE: SEPT. 14, 2017 SCALE: 1" = 30' PROJECT # 1938ASBUILT

PREPARED FOR:
ISLAMIC SOCIETY OF THE SEACOAST AREA
42N DOVER POINT RD.
DOVER, N. H., 03820
c/o MOHAMMED EBRAHIM, PH.D., P.E.
attn: DOUG LAROSA
dj@ambitengineering.com
603–430–9282 (312)

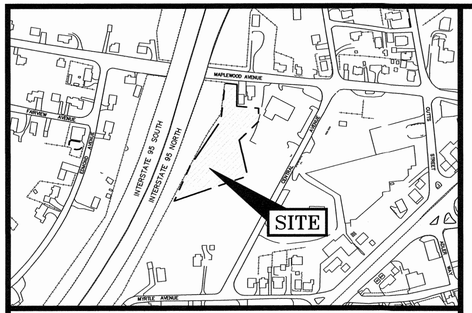
PREPARED BY:
KNIGHT HILL LAND SURVEYING SERVICES, INC.
c/o DAVE HISLOP
34 OLD POST ROAD
NEWINGTON, N. H. 03801
(603) 436–1330
dave@khlandsurveying.com

GRAPHIC SCALE

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

1938PNTS

2360



LOCATION MAP SCALE 1"=300'

LEGEND: SEE COVER SHEET

TEST PIT 1, ELEV. 60.1

Date:	8/18/17
Logged by:	DOUG LAROSA
ESHWT:	NONE
Observed Water:	NONE
Restrictive layer:	NONE
REFUSAL:	LEDGE AT 24"

DEPTH	DESCRIPTION
0" – 6"	10YR 3/3 FINE SANDY LOAM, MASSIVE, FRIABLE
6" – 24"	10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE

TEST PIT 2, ELEV. 50.1

Date:	8/18/17
Logged by:	DOUG LAROSA
ESHWT:	NONE
Observed Water:	NONE
Restrictive layer:	NONE
REFUSAL:	LEDGE AT 28"

DEPTH	DESCRIPTION
0" – 5"	10YR 3/3 FINE SANDY LOAM, MASSIVE, FRIABLE
5" – 28"	10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE

TEST PIT 3, ELEV. 52.1

Date:	8/18/17
Logged by:	DOUG LAROSA
ESHWT:	NONE
Observed Water:	NONE
Restrictive layer:	NONE
REFUSAL:	LEDGE AT 27"

DEPTH	DESCRIPTION
0" – 6"	10YR 3/3 FINE SANDY LOAM, MASSIVE, FRIABLE
6" – 27"	10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE

TEST PIT 4, ELEV. 44.5

Date:	8/18/17
Logged by:	DOUG LAROSA
ESHWT:	NONE
Observed Water:	NONE
Restrictive layer:	NONE
REFUSAL:	LEDGE AT 30"

DEPTH	DESCRIPTION
0" – 8"	10YR 4/3 FINE SANDY LOAM, MASSIVE, FRIABLE
8" – 30"	10YR 4/6 FINE SANDY LOAM, GRANULAR, FRIABLE

TEST PIT 5, ELEV. 43.5

Date:	8/18/17
Logged by:	DOUG LAROSA
ESHWT:	NONE
Observed Water:	NONE
Restrictive layer:	NONE
REFUSAL:	LEDGE AT 25"

DEPTH	DESCRIPTION
0" – 5"	10YR 4/3 FINE SANDY LOAM, MASSIVE, FRIABLE
5" – 25"	10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE

ABUTTERS:

209/07
N/F
OSGOOD LODGE NO. 48 ODDFELLOWS BLDG ASSOC.
P.O. BOX 1045
PORTSMOUTH, NH 03802
6354/1704

220/87-1
N/F
JEFFREY MATTSON &
KATHRYN MICHELE ARBOUR
86 EMERY STREET
PORTSMOUTH, NH 03801
6085/200

220/87-2
N/F
HAPPY MOUNTAIN HOLDINGS LLC
901 N MARKET ST SUITE 705
WILMINGTON, DE 19801
5905/2552

220/87-2-1
N/F
CARL & DEBORAH ROCHE
64 EMERY STREET, UNIT #1
PORTSMOUTH, NH 03801
6147/2870

220/87-2-2
N/F
BETTY J. SWANTON
64 EMERY STREET, UNIT #2
PORTSMOUTH, NH 03801
6121/2485

220/87-2-3
N/F
SUSAN ZIMMERMANN
48 NORTH STATE STREET
CONCORD, NH 03301
6184/111

220/87-2-4
N/F
JAIME PRIDHAM
74 EMERY STREET, UNIT #4
PORTSMOUTH, NH 03801
6142/69

220/87-3
N/F
HAPPY MOUNTAIN HOLDINGS LLC
901 N MARKET ST SUITE 705
WILMINGTON, DE 19801
5905/2552

220/88
N/F
650 MAPLEWOOD, LLC
3 CATE STREET
PORTSMOUTH, NH 03801
6367/690

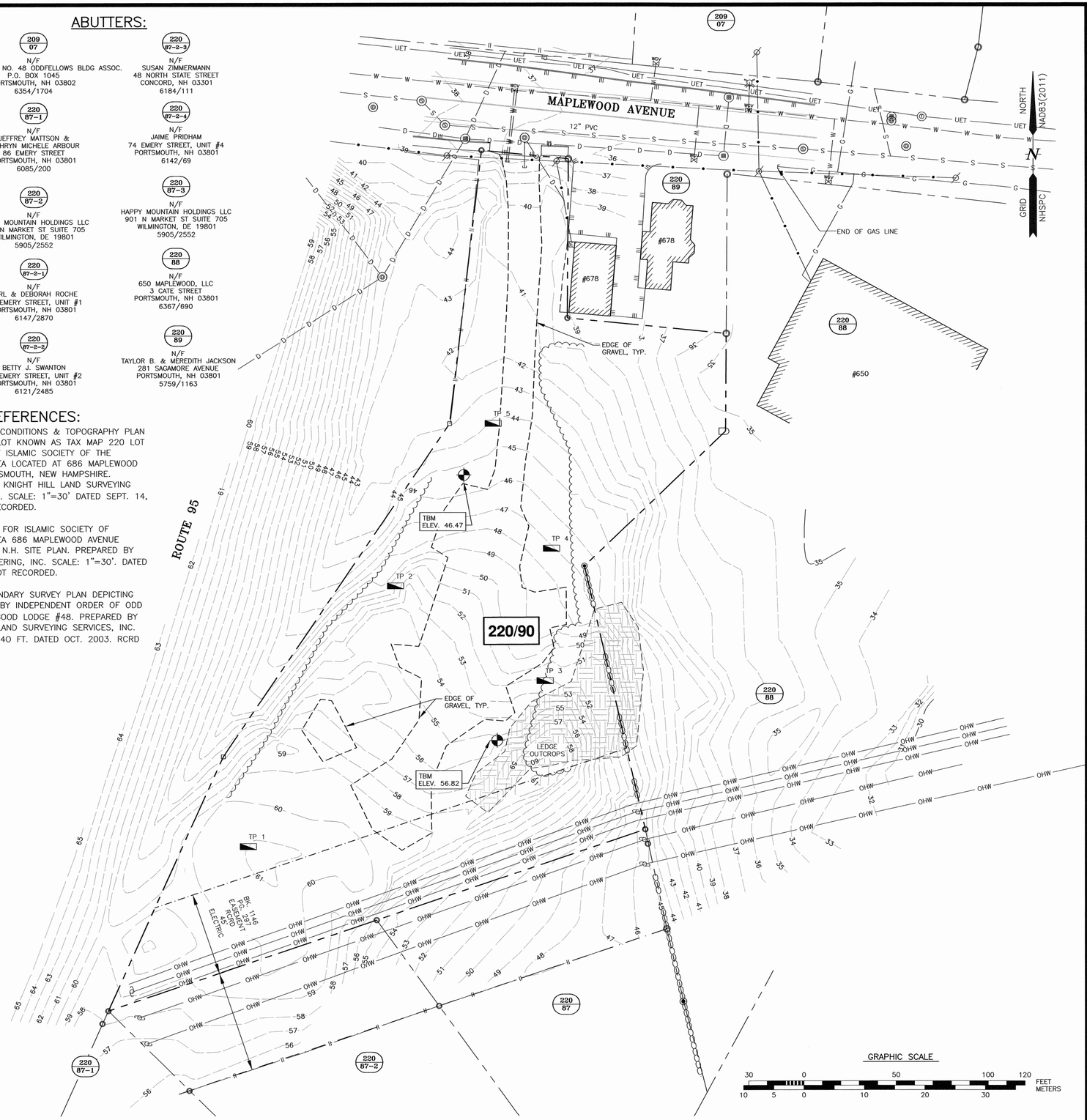
220/89
N/F
TAYLOR B. & MEREDITH JACKSON
281 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
5759/1163

PLAN REFERENCES:

1) EXISTING CONDITIONS & TOPOGRAPHY PLAN FOR VACANT LOT KNOWN AS TAX MAP 220 LOT 90 OWNED BY ISLAMIC SOCIETY OF THE SEACOAST AREA LOCATED AT 686 MAPLEWOOD AVENUE PORTSMOUTH, NEW HAMPSHIRE. PREPARED BY KNIGHT HILL LAND SURVEYING SERVICES, INC. SCALE: 1"=30' DATED SEPT. 14, 2017. NOT RECORDED.

2) SITE PLAN FOR ISLAMIC SOCIETY OF SEACOAST AREA 686 MAPLEWOOD AVENUE PORTSMOUTH, N.H. SITE PLAN. PREPARED BY AMBIT ENGINEERING, INC. SCALE: 1"=30'. DATED MAY 2019. NOT RECORDED.

3) LAND BOUNDARY SURVEY PLAN DEPICTING LAND OWNED BY INDEPENDENT ORDER OF ODD FELLOWS, OSGOOD LODGE #48. PREPARED BY KNIGHT HILL LAND SURVEYING SERVICES, INC. SCALE: 1" = 40 FT. DATED OCT. 2003. RCRD D-31278.



"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

10.3.23

JOHN R. CHAGNON, LLS DATE

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR NO. 738 JOHN R. CHAGNON SIGNATURE

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

WWW.HALEYWARD.COM

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 220 AS LOT 90.

2) OWNERS OF RECORD:
ISLAMIC SOCIETY OF THE SEACOAST AREA
42N DOVER POINT ROAD
DOVER, NH 03820
5806/2816

APPLICANT:
CHINBURG DEVELOPMENT, LLC
3 PENSTOCK WAY
NEWMARKET, NH 03857

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
62,776 S.F.
1.4411 ACRES

5) PARCEL IS LOCATED IN SINGLE RESIDENCE B (SRB) DISTRICT.

DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:		15,000 S.F.
FRONTAGE:		100 FEET
SETBACKS:	FRONT	30 FEET
	SIDE	10 FEET
	REAR	30 FEET
MAXIMUM STRUCTURE HEIGHT:		35 FEET
MAXIMUM BUILDING COVERAGE:		20%
MINIMUM OPEN SPACE:		40%

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON ASSESSOR'S MAP 220 LOT 90 IN THE CITY OF PORTSMOUTH.

8) RCRD 5759/1160 PLACED A BURDEN ON TAX MAP 220 LOT 90. THE EASEMENT DESCRIBED IN RCRD 5759/1160 HAS BEEN EXTINGUISHED DUE TO THE REMOVAL OF THE DECKS AND THE NON-REPLACEMENT WITHIN THE SIX (6) MONTHS ALLOWED BY THE EASEMENT DEED.

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	4/20/23
0	ISSUED FOR COMMENT	4/13/23

REVISIONS

SCALE: 1"=30' FEBRUARY 2023

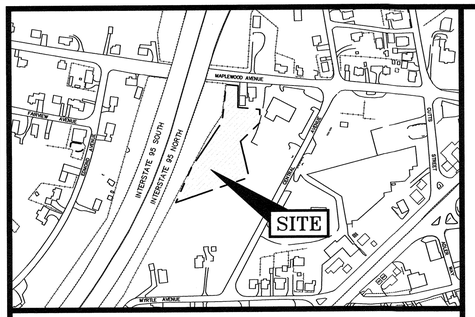
EXISTING CONDITIONS PLAN

C1

FB 394 PG 1

2360.01

P:\NHS\5010220-Chinburg, Builders\2360.01-686 Maplewood Ave., Portsmouth-JRC\2023 Site Plan\Plans & Specs\Site\2360 Site 2023.dwg, 10/2/2023 10:42:27 PM, Portsmouth Plotter Canon TX3000.pc3



LOCATION MAP SCALE 1"=300'

ABUTTERS:

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N/F
OSGOOD LODGE NO. 48 ODDFELLOWS BLDG ASSOC.
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N/F
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PORTSMOUTH, NH 03801
6147/2870

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N/F
BETTY J. SWANTON
64 EMERY STREET, UNIT #2
PORTSMOUTH, NH 03801
6121/2485

220/87-2-3
N/F
SUSAN ZIMMERMANN
48 NORTH STATE STREET
CONCORD, NH 03301
6184/111

220/87-2-4
N/F
JAIME PRIDHAM
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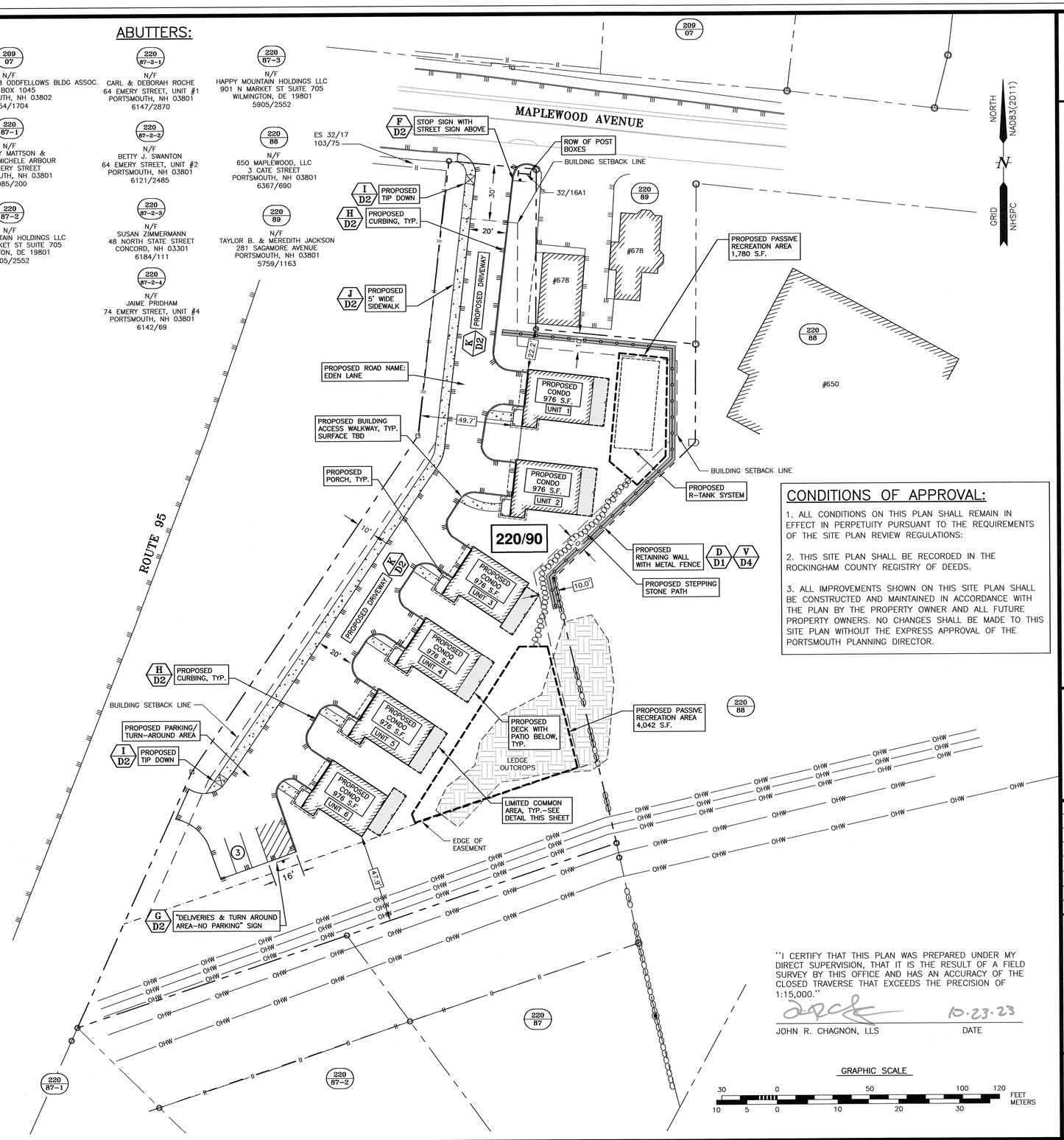
PORTSMOUTH, NH 03801
6367/690

220/89
N/F
TAYLOR B. & MEREDITH JACKSON
281 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
5759/1163



LEGEND: SEE COVER SHEET

IMPERVIOUS SURFACE AREAS
(TO PROPERTY LINE)

STRUCTURE	PRE-CONSTRUCTION IMPERVIOUS (S.F.)	POST-CONSTRUCTION IMPERVIOUS (S.F.)
MAIN STRUCTURES	0	5,856
DECKS	0	1,248
COVERED PORCHES	0	270
PAVEMENT	0	11,790
SIDEWALKS	0	2,376
GRAVEL	12,999	0
CURBING	0	255
RETAINING WALL	0	477
TOTAL	12,999	22,272
LOT SIZE	62,776	62,776
% LOT COVERAGE	20.7%	35.5%

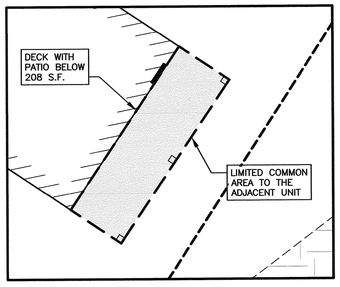
PROPOSED BUILDING COVERAGE: 7,374 S.F./62,776 S.F. = 11.7%
PROPOSED OPEN SPACE: 40,504 S.F./62,776 S.F. = 64.5%
BUILDING HEIGHT TO CONFORM TO ORDINANCE.

VARIANCES GRANTED:

1) ARTICLE #5, SECTION 10.520 TO PERMIT FRONTAGE OF 47.31 FEET WHERE 100 FEET IS REQUIRED. GRANTED 6/21/23.

2) ARTICLE #5, SECTION 10.520 TO PERMIT 10,462 S.F. OF LOT AREA PER DWELLING UNIT WHERE 15,000 S.F. OF LOT AREA PER DWELLING UNIT IS REQUIRED. GRANTED 8/22/23.

3) ARTICLE #5, SECTION 10.513 TO PERMIT 6 FREE STANDING BUILDINGS WITH DWELLINGS WHERE NO MORE THAN ONE FREE STANDING DWELLING IS PERMITTED. GRANTED 8/22/23.



LIMITED COMMON AREAS 1"=10'

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

CONDITIONS OF APPROVAL:

1. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS:

2. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

3. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

JOHN R. CHAGNON, LLS 10.23.23 DATE

GRAPHIC SCALE
30 0 50 100 120 FEET
10 5 0 10 20 30 METERS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

NOTES:

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2) OWNERS OF RECORD:
ISLAMIC SOCIETY OF THE SEACOAST AREA
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5806/2816

APPLICANT:
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62,776 S.F.
1.4411 ACRES

5) PARCEL IS LOCATED IN SINGLE RESIDENCE B (SRB) DISTRICT.

DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:		15,000 S.F.
FRONTAGE:		100 FEET
SETBACKS: FRONT	30 FEET	
SIDE	10 FEET	
REAR	30 FEET	
MAXIMUM STRUCTURE HEIGHT:	35 FEET	
MAXIMUM BUILDING COVERAGE:	20%	
MINIMUM OPEN SPACE:	40%	

6) THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED DEVELOPMENT ON ASSESSOR'S MAP 220 LOT 90 IN THE CITY OF PORTSMOUTH.

7) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GPS OBSERVATIONS.

8) BUILDINGS FROM PLANS BY CJ ARCHITECTS DATED 10-23-23.

9) PARKING CALCULATION:
REQUIRED: 1.3 PER UNIT
6 UNITS X 1.3 = 8 SPACES
GUEST REQUIRED: 1 PER 5 UNITS = 1 SPACE
TOTAL SPACES REQUIRED = 9
PROVIDED PARKING: 15 SPACES

10) UNIT NUMBERING TO BE COORDINATED WITH 911.

11) THE PLAN FOR SOLID WASTE REMOVAL IS TO PROVIDE PRIVATE WEEKLY PICKUP.

12) STORMWATER MANAGEMENT INSTALLATIONS SHALL BE INSPECTED BY DPW DURING CONSTRUCTION AND AN ANNUAL REPORT SHALL BE SUBMITTED TO THE DPW DEPARTMENT REGARDING THE FUNCTION OF THE DESIGN.

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	10/23/23
0	ISSUED FOR COMMENT	10/3/23

REVISIONS

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN R. CHAGNON SIGNATURE

STATE OF NEW HAMPSHIRE JOHN R. CHAGNON No. 7651 LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=30' JULY 2023

SITE PLAN C2

FB 394 PG 1

2360.01

P:\NH\501020-Chinburg_Builders\2360.01-686 Maplewood Ave., Portsmouth-JRC\2023 Site Plan\Plans & Specs\Sheet\2360 Site 2023.dwg, 10/23/2023 10:07:07 AM, Portsmouth Plotter Canon TX3000.pc3

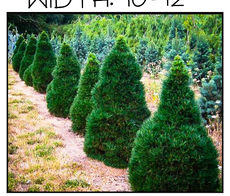
CALL BEFORE YOU DIG

811 DigSafe MA·ME·NH·RI·VT

Dig Safe System, Inc.
It's Smart. It's Free. It's the Law.

THUNDERHEAD BLACK PINE

HEIGHT: 10'-12'
WIDTH: 10'-12'



1" = 30'

N

PLANT LEGEND

Qty	Botanical Name	Common Name	Remarks
Trees			
39	PINUS thunbergiana 'Thunderhead'	Pine, Thunderhead Japanese Black	36" - 42"
7	Platanus x acerifolia 'Bloodgood'	BLOODGOOD LONDON PLANETREE	2" - 2.5" cal.
2	Prunus cerasifera 'Thundercloud'	THUNDERCLOUD CHERRY PLUM	2" - 2.5" cal.
Shrubs			
16	Spiraea japonica 'Shirobana'	SHIROBANA JAPANESE SPIREA	#3
Perennials			
28	Echinacea purpurea 'Kim's Knee High'	KIM'S KNEE HIGH PURPLE CONEFLOWER	#1

NOTES

SHEET SIZE
24"x32"

No.	Date	Description
1	07.25.23	COMMENTS
2	10.03.23	COMMENTS

REVISIONS

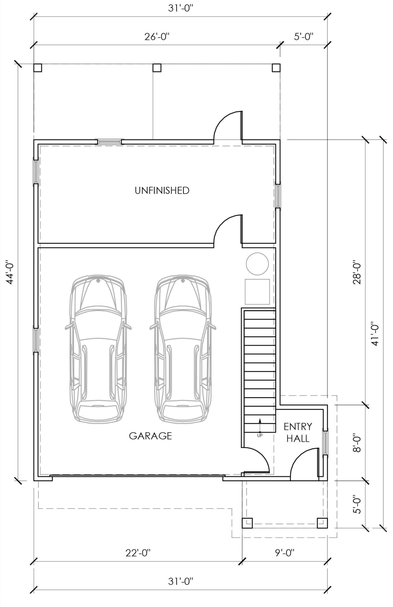
686 MAPLEWOOD CONCEPT PLAN LANDSCAPE

TRIMMERS LANDSCAPING, INC.

SCALE	1" = 30'
DRAWN BY	MIC
CHECKED BY	ES
DATE	10.03.23
DATE OF PRINT	

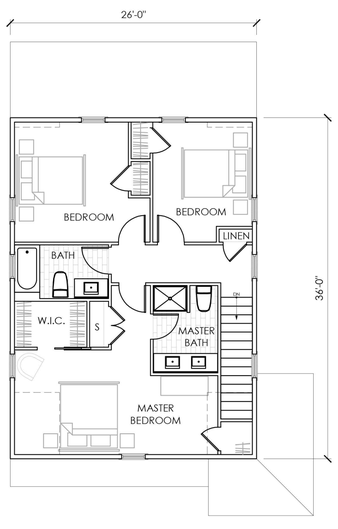
PROJECT NO.

SHEET NO. L-1



LOWER LEVEL PLAN
1/8" = 1'-0"

FIRST FLOOR PLAN
1/8" = 1'-0"



SECOND FLOOR PLAN
1/8" = 1'-0"

FRONT ELEVATION
1/8" = 1'-0"

RIGHT ELEVATION
1/8" = 1'-0"

BACK ELEVATION
1/8" = 1'-0"

LEFT ELEVATION
1/8" = 1'-0"

NOT FOR CONSTRUCTION

REVISIONS:

CHINBURG PROPERTIES, INC.

686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

LICENSED ARCHITECT
CARLA J GOODKNIGHT
No. 1988
THE STATE OF NEW HAMPSHIRE

CJ ARCHITECTS
233 VAUGHAN STREET
SUITE 101
PORTSMOUTH, NH 03801

(603) 431-2808
www.cjarchitects.net

FLOOR PLANS & ELEVATIONS

DATE:	10/23/23
DRAWN BY:	RDL
APPROVED BY:	CJG
SCALE:	1/8" = 1'-0"
JOB NUMBER:	22303

A1

DRAINAGE STRUCTURE SCHEDULE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
CB 1	PROP	37.0	12"		33.70	NW
CB 2	PROP	43.3	15"	37.28	37.03	W
CB 3	PROP	46.5	15"	42.00	41.90	E
CB 4	PROP	49.4	15"	46.00	45.75	NE
CB 5	PROP	55.1	12"	52.00	51.90	NE
CB 6	PROP	59.0	12"		55.00	NE
DMH 1	EX	37.1	15"	33.08		S
DMH 1	EX	37.1	12"	33.35		SE
DMH 2	PROP	43.4	15"	37.00	36.90	S
DMH 3	PROP	44.0	15"	37.45	37.45	W
DMH 4	PROP	44.5	15"	41.66	39.02	N

PIPE SCHEDULE

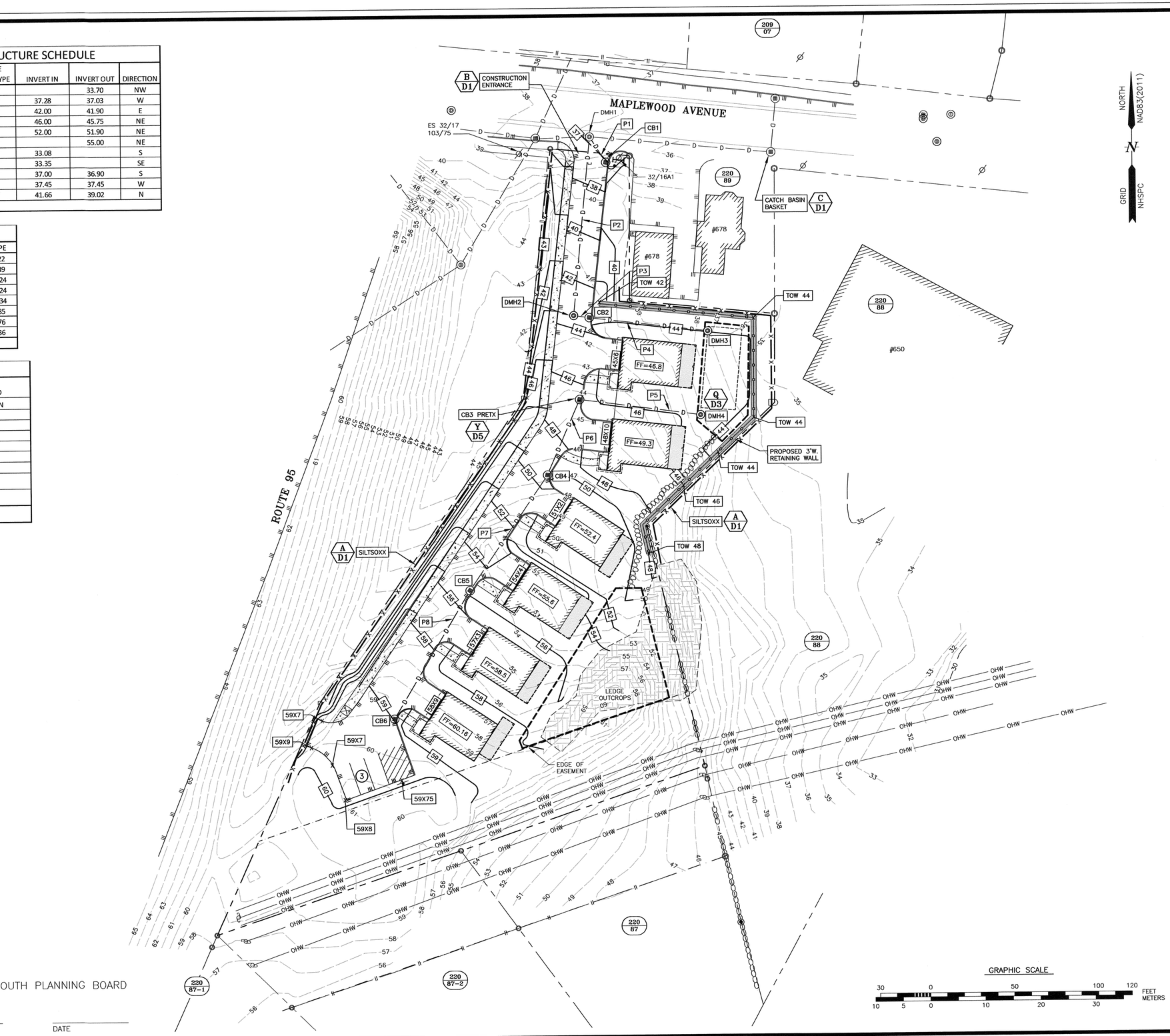
PIPE #	PIPE SIZE	LENGTH	SLOPE
P1	12"	16'	0.022
P2	15"	104'(91')	0.039
P3	15"	8'	0.0024
P4	15"	69'	0.0024
P5	15"	72'	0.0034
P6	15"	44'	0.085
P7	12"	78'	0.076
P8	12"	84'	0.036

*ALL PIPE TO BE HDPE

R-TANK SYSTEM

MODULE TYPE	R-TANK HD
TRAFFIC LOAD	PEDESTRIAN
# OF TANKS	680
TANK STORAGE	2805.6 cf
STONE STORAGE	1000.4 cf
TOTAL STORAGE	3805.9 cf
TOP OF COVER STONE	41.27
TOP OF R-TANK	40.27
BOTTOM OF TANK	37.45
STONE BASE INVERT	37.20

SYSTEM IS 26.31' WIDE BY 50.92' LONG



GRAPHIC SCALE

30 0 50 100 120 FEET

10 5 0 10 20 30 METERS

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

WWW.HALEYWARD.COM

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) INSTALL CATCH BASIN INLET PROTECTION ON ALL EXISTING AND PROPOSED CATCH BASINS UNTIL CONSTRUCTION IS COMPLETED AND THE SITE IS STABILIZED.

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
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PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
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REVISIONS

STATE OF NEW HAMPSHIRE - JOHN R. CHAGNON No. 7651 LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=30' OCTOBER 2023

GRADING & EROSION CONTROL PLAN

C3

FB 394 PG 1

2360.01

UTILITY NOTES:

1) SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
2) COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY.
3) SEE GRADING AND DRAINAGE PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
4) ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, POLYWRAPPED, CEMENT LINED DUCTILE IRON PIPE.
5) ALL WATERMAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION AND BEFORE ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE WITH THE CITY OF PORTSMOUTH.
6) ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
7) ALL WORK WITHIN CITY R.O.W. SHALL BE COORDINATED WITH CITY OF PORTSMOUTH
8) CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
9) ANY CONNECTION TO EXISTING WATERMAIN SHALL BE CONSTRUCTED BY THE CITY OF PORTSMOUTH.
10) EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
11) ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
12) THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH BUILDING DRAWINGS AND UTILITY COMPANIES.
13) ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
14) ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
15) THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATED TO THE OWNER PRIOR TO THE COMPLETION OF PROJECT.
16) THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED IN THESE DRAWING TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
17) CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
18) A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS WATER ABOVE SEWER.
19) SAWCUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVED AREAS.
20) GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
21) COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
22) ALL SEWER PIPES WITH LESS THAN 6' COVER SHALL BE INSULATED.
23) CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
24) CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH UTILITY COMPANY AND AFFECTED ABUTTER.
25) SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER IN COORDINATION WITH THE SITE CIVIL ENGINEER.
26) CONTRACTOR SHALL CONSTRUCT ALL UTILITIES AND DRAINS TO WITHIN 10' OF THE FOUNDATION WALLS AND CONNECT THESE TO SERVICE STUBS FROM THE BUILDING.
27) THE CONTRACTOR SHALL INSTALL THE SEWER LINE AND MANHOLE IN CONSULTATION AND COORDINATION WITH DEPARTMENT OF PUBLIC WORKS.
28) BRASS WEDGES FOR CONTINUITY OF SIGNAL MUST BE INSTALLED ON WATER MAINS PER THE PORTSMOUTH WATER DEPARTMENT
29) FINAL REVIEW OF ALL UTILITIES SHALL BE MADE DURING THE REQUIRED SEWER CONNECTION PERMIT PROCESS IN COORDINATION WITH DEPARTMENT OF PUBLIC WORKS.
30) ALL WORK PERFORMED IN THE PUBLIC RIGHT-OF-WAY SHALL BE BUILT TO DEPARTMENT OF PUBLIC WATER WORKS STANDARDS.
31) THIRD PARTY UTILITY INSTALLATION INSPECTIONS SHALL BE REQUIRED ON WATER MAIN, SEWER, AND DRAINAGE SYSTEM CONSTRUCTION, AS WELL AS CONSTRUCTION AND REPAIRS TO CITY STREETS.

SEWER STRUCTURE SCHEDULE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
SMH 1	EX					
SMH 2	EX					
SMH 3	EX					
SMH 4	PROP			32.31	32.21	E
SMH 5	PROP	44.0	8" PVC	34.73	34.63	N
SMH 6	PROP	47.4	8" PVC	39.83	39.73	N
SMH 7	PROP	59.1	8" PVC		52.1	NE

ALL SEWER PIPE TO BE SDR 35

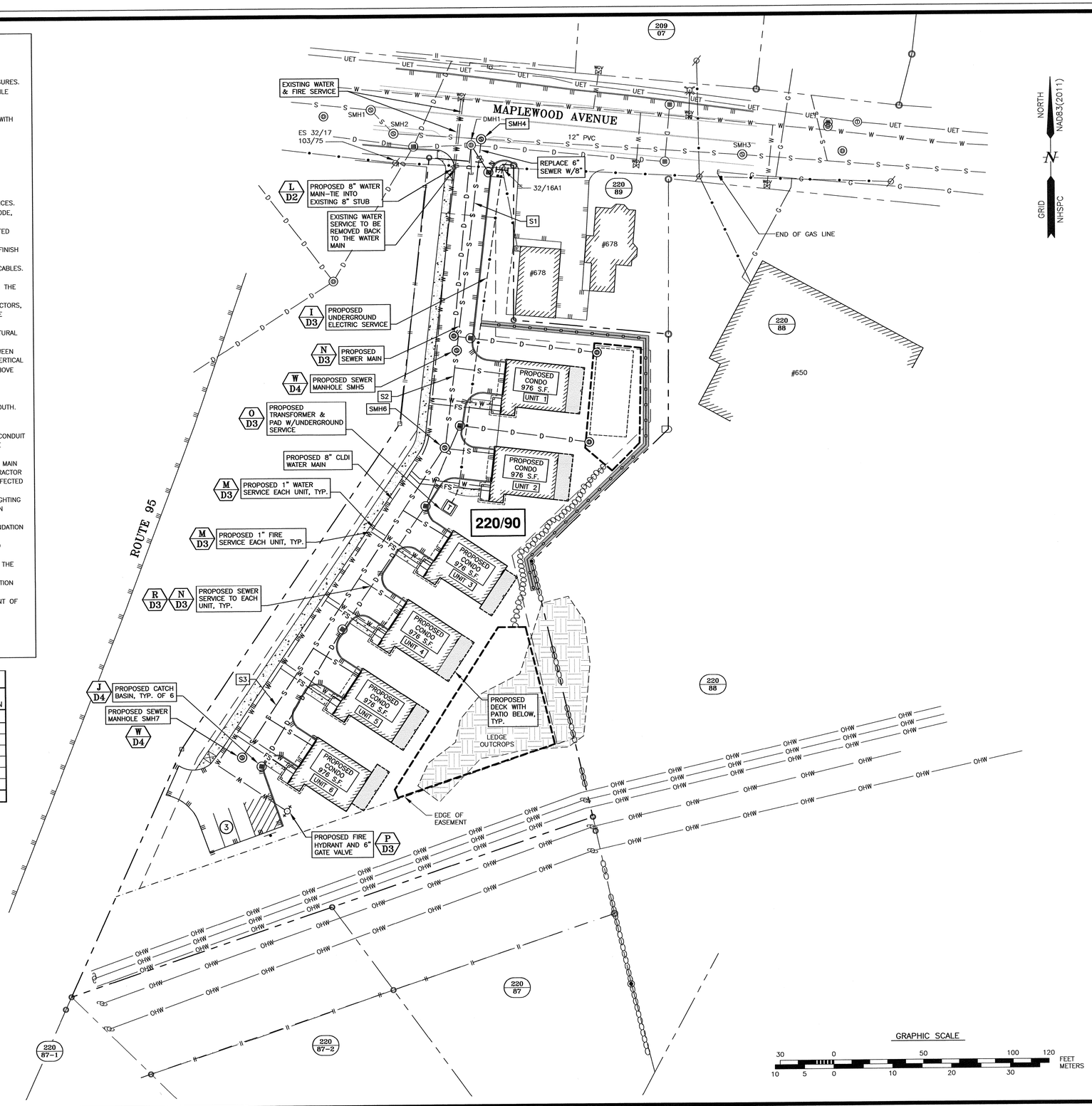
SEWER PIPE SCHEDULE

UNIT #	INV. @ MAIN	INV. @ BLDG.
1	35.13	41.6
2	40.07	44.1
3	42.23	47.2
4	44.75	50.4
5	47.63	53.3
6	50.39	54.9
PIPE	LENGTH	SLOPE
S1	116'	0.02
S2	50'	0.10
S3	202'	0.06

ALL SEWER PIPE TO BE SDR 35-8" MAIN, 6" SERVICES

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____



AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

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3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) INSTALL CATCH BASIN INLET PROTECTION ON ALL EXISTING AND PROPOSED CATCH BASINS UNTIL CONSTRUCTION IS COMPLETED AND THE SITE IS STABILIZED.

5) ALL WATER MAIN AND SANITARY SEWER WORK SHALL MEET THE STANDARDS OF THE NEW HAMPSHIRE STATE PLUMBING CODE AND CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.

6) UTILITY AS-BUILTS SHALL BE SUBMITTED TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS UPON COMPLETION OF THE PROJECT.

7) BUILDINGS WILL BE SPRINKLED PER REQUIRED CODES.

8) EVERSOURCE WORK ORDER NUMBER: 14984794.

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
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0	ISSUED FOR COMMENT	10/3/23

REVISIONS

JOHN R. CHAGNON No. 7851 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

SCALE: 1"=30' OCTOBER 2023

UTILITY PLAN C4

FB 394 PG 1

2360.01

P:\NH\5010220-Chinburg_Builders\2360.01-696 Maplewood Ave., Portsmouth-INC\2023 Site Plan\Plans & Specs\Site\2360 Site 2023.dwg, 10/23/2023 11:50:49 AM, Portsmouth Potter Canon TX3000.pc3

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE

DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

IF REQUIRED THE CONTRACTOR SHALL OBTAIN AN **NPDES** PHASE II STORMWATER PERMIT AND SUBMIT A NOTICE OF INTENT (N.O.I) BEFORE BEGINNING CONSTRUCTION AND SHALL HAVE ON SITE A STORMWATER POLLUTION PREVENTION PLAN (**S.W.P.P.P.**) AVAILABLE FOR INSPECTION BY THE PERMITTING AUTHORITY DURING THE CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THE **S.W.P.P.P.** AND INSPECTING AND MAINTAINING ALL BMP'S CALLED FOR BY THE PLAN. THE CONTRACTOR SHALL SUBMIT A NOTICE OF TERMINATION (**N.O.T.**) FORM TO THE REGIONAL EPA OFFICE WITHIN 30 DAYS OF FINAL STABILIZATION OF THE ENTIRE SITE OR TURNING OVER CONTROL OF THE SITE TO ANOTHER OPERATOR.

THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
1. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
2. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
3. A REPRESENTATIVE OF THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
4. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.

INSTALL PERIMETER CONTROLS, i.e., SILTSOXX AND CATCH BASIN PROTECTION AROUND THE LIMITS OF DISTURBANCE BEFORE ANY EARTH MOVING OPERATIONS. THE USE OF HAYBALES IS NOT ALLOWED.

THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

CUT AND GRUB ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND REMOVE OTHER DEBRIS AND RUBBISH AS REQUIRED. DEMOLISH BUILDINGS AND FENCES AS NEEDED. REMOVE WALL AND STORE.

CONSTRUCT TEMPORARY FILTRATION BASINS AND OUTLET.

ROUGH GRADE SITE.

CONSTRUCT ROADWAY AND DRAINAGE SYSTEM.

LAYOUT AND INSTALL ALL BURIED UTILITIES AND SERVICES UP TO 10' OF THE PROPOSED BUILDING FOUNDATIONS. CAP AND MARK TERMINATIONS OR LOG SWING TIES.

CONSTRUCT BUILDING FOUNDATIONS – BEGIN CONSTRUCTION.

CONNECT UTILITIES.

PLACE BINDER LAYER OF PAVEMENT FOR SIDEWALKS.

PLANT LANDSCAPING IN AREAS OUT OF WAY OF BUILDING CONSTRUCTION. PREPARE AND STABILIZE FINAL SITE GRADING BY ADDING TOPSOIL, SEED, MULCH AND FERTILIZER.

AFTER BUILDINGS ARE COMPLETED, FINISH ALL REMAINING LANDSCAPED WORK.

CONSTRUCT SIDEWALKS AND ASPHALT WEARING COURSE.

REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF FINAL STABILIZATION OF THE SITE.

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF SIX SINGLE FAMILY HOUSES WITH ASSOCIATED PARKING AND UTILITES.

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 1.050 ACRES.

BASED ON THE USCS WEB SOIL SURVEY THE SOILS ON SITE CONSIST OF URBAN LAND–CANTON COMPLEX, 3–15% SLOPES WHICH IS WELL DRAINED SOILS WITH A HYDROLOGIC SOIL GROUP RATING OF A.

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA A CLOSED DRAINAGE SYSTEM TO THE CITY OF PORTSMOUTH CLOSED DRAINAGE SYSTEM WHICH ULTIMATELY FLOWS TO THE NORTH MILL POND THEN TO THE PISCATAQUA RIVER.

GENERAL CONSTRUCTION NOTES

THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.

ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.

THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DUST CONTROL: DUST CONTROL MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.
IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.

SILTSOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILTSOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.

ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.

ALL NON–STRUCTURAL, SITE–FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.

FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.

FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.

DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.

THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.

ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
- A MINIMUM OF 3 INCHES OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
- EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
- IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.

STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY–ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA.

STABILIZATION MEASURES TO BE USED INCLUDE:
- TEMPORARY SEEDING;
- MULCHING.

1. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
2. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN THESE AREAS, SILTSOXX, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
3. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILTSOXX, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

MAINTENANCE AND PROTECTION

THE SILTSOXX BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.

SILTSOXX SHALL BE REMOVED ONCE SITE IS STABILIZED, AND DISTURBED AREAS RESULTING FROM SILTSOXX REMOVAL SHALL BE PERMANENTLY SEEDED.

THE CATCH BASIN INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.
SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

WINTER NOTES

ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.

ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;

AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;

STOCKPILES

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN–OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

CONCRETE WASHOUT AREA

THE FOLLOWING ARE THE ONLY NON–STORMWATER DISCHARGES ALLOWED. ALL OTHER NON–STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
1. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FAILTY;
2. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
3. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
4. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON–STORMWATER DISCHARGES

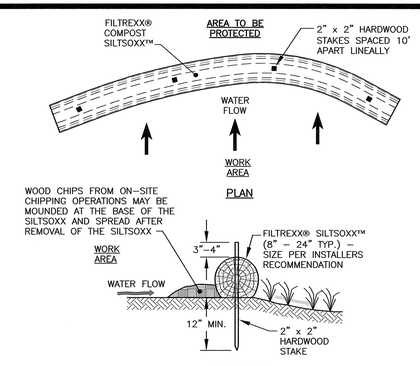
1. FIRE–FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL

1. WASTE MATERIAL
   - ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   - NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   - ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE
   - ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   - SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE
   - ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

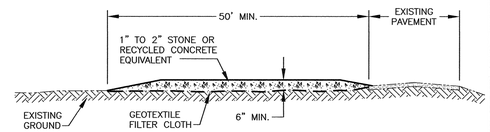
BLASTING NOTES

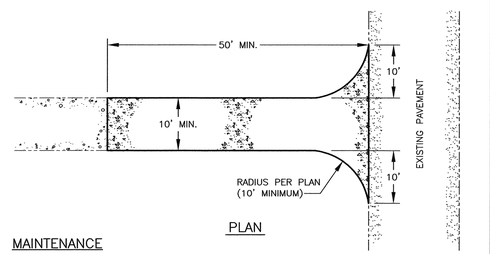
1. CONTRACTOR SHALL CONTACT THE NHDES AND/OR LOCAL JURISDICTION PRIOR TO COMMENCING ANY BLASTING ACTIVITIES.
2. FOR ANY PROJECT FOR WHICH BLASTING OF BEDROCK IS ANTICIPATED, THE APPLICANT SHALL SUBMIT A BLASTING PLAN THAT IDENTIFIES:
   - WHERE THE BLASTING ACTIVITIES ARE ANTICIPATED TO OCCUR;
   - THE ESTIMATED QUANTITY OF BLAST ROCK IN CUBIC YARDS; AND
   - SITE–SPECIFIC BLASTING BEST MANAGEMENT PRACTICES.



NOTES:
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILLTREXX SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTREXX INSTALLER.
3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
4. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
5. THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

A C3 FILTREXX® SILTSOXX™ FILTRATION SYSTEM
NTS





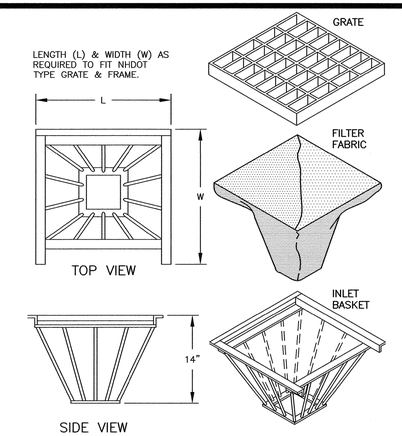
MAINTENANCE

1) MUD AND SOIL PARTICLES WILL EVENTUALLY CLOG THE VOIDS IN THE GRAVEL AND THE EFFECTIVENESS OF THE GRAVEL PAD WILL NOT BE SATISFACTORY. WHEN THIS OCCURS, THE PAD SHOULD BE TOP DRESSED WITH NEW STONE. COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY CLOGGED.
2) IF WASHING FACILITIES ARE USED, THE SEDIMENT TRAPS SHOULD BE CLEANED OUT AS OFTEN AS NECESSARY TO ASSURE THAT ADEQUATE TRAPPING EFFICIENCY AND STORAGE VOLUME IS AVAILABLE. VEGETATIVE FILTER STRIPS SHOULD BE MAINTAINED TO INSURE A VIGOROUS STAND OF VEGETATION AT ALL TIMES.

CONSTRUCTION SPECIFICATIONS

1) STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2) THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3) THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4) THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICHEVER IS GREATER.
5) GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
6) ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7) THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT–OF–WAY MUST BE REMOVED PROMPTLY.
8) WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY, WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

B C3 STABILIZED CONSTRUCTION ENTRANCE
NTS



1) INLET BASKETS SHALL BE INSTALLED IMMEDIATELY AFTER CATCH BASIN CONSTRUCTION IS COMPLETE AND SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL PAVEMENT BINDER COURSE IS COMPLETE.

2) FILTER FABRIC SHALL BE PUSHED DOWN AND FORMED TO THE SHAPE OF THE BASKET. THE SHEET OF FABRIC SHALL BE LARGE ENOUGH TO BE SUPPORTED BY THE BASKET FRAME WHEN HOLDING SEDIMENT AND, SHALL EXTEND AT LEAST 6" PAST THE FRAME. THE INLET GRATE SHALL BE PLACED OVER THE BASKET/FRAME AND WILL SERVE AS THE FABRIC ANCHOR.

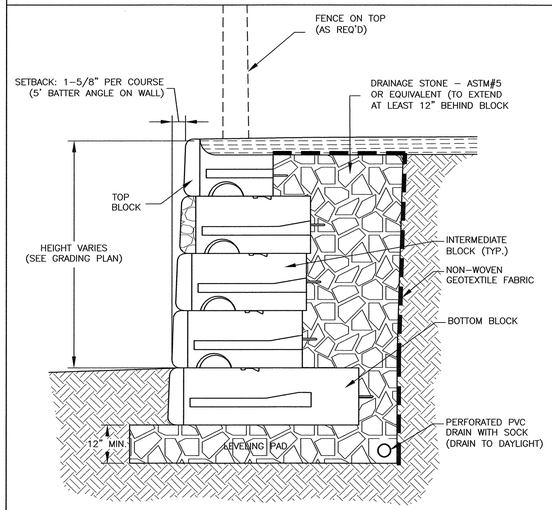
3) THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC; POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE, OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:
–RAB STRENGTH: 45 LB. MIN. IN ANY PRINCIPAL DIRECTION (ASTM D1682)
–MULLEN BURST STRENGTH: MIN. 60 psi (ASTM D774)

4) THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND A MINIMUM PERMEABILITY OF 120 gpm/s.f. (MULTIPLY THE PERMITTIVITY IN SEC.–1 FROM ASTM 54491–85 CONSTANT HEAD TEST USING THE CONVERSION FACTOR OF 74.)

5) THE INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.

6) SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

C C3 CATCH BASIN INLET BASKET
NTS



NOTE:
FINAL STAMPED WALL DESIGN PLANS SHALL BE SUBMITTED TO THE CITY FOR APPROVAL BEFORE CONSTRUCTION THE DESIGN SHALL ACCOUNT FOR HYDROSTATIC WALL PRESSURE.

D C2 BLOCK GRAVITY WALL DETAIL
28" REDI ROCK WALL (OR APPROVED EQUAL) NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1–888–DIG–SAFE (1–888–344–7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	10/3/23

REVISIONS

JOHN R. CHAGNON NO. 7051 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

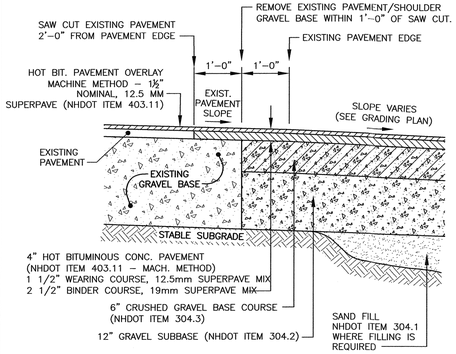
SCALE AS NOTED — OCTOBER 2023

EROSION CONTROL NOTES & DETAILS — **D1**

FB 394 PG 1

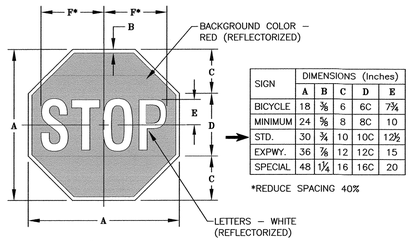
2360.01

P:\NH\501220–Chinburg_Ashlee\2360.01–686 Maplewood Ave, Portsmouth–PC\2023 Site Plan\Files & Specs\Dwg\2360 Details.dwg, 10/3/2023 1:20:22 PM, Portsmouth Plotter Canon TX3000Series.ctb



E C2 FULL DEPTH PAVEMENT SECTION AND PAVEMENT JOINT DETAIL

NTS



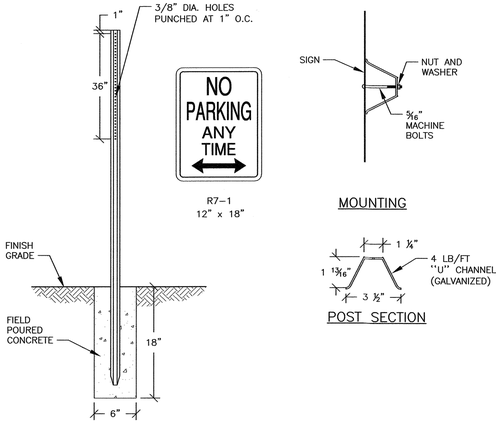
SIGN	DIMENSIONS (Inches)				
	A	B	C	D	E
BICYCLE	18	⅜	6	6C	7¾
MINIMUM	24	⅝	8	8C	10
STD.	30	¾	10	10C	12½
EXPWY.	36	⅞	12	12C	15
SPECIAL	48	1¼	16	16C	20

*REDUCE SPACING 40%

R1-1
A" x A"

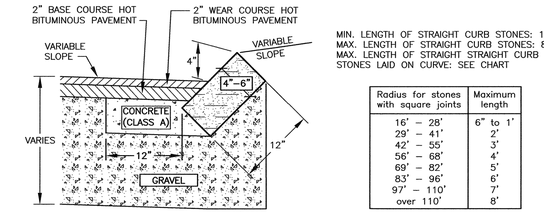
F C2 STOP SIGN DETAIL

NTS



G C2 SIGN & POST DETAIL

NTS

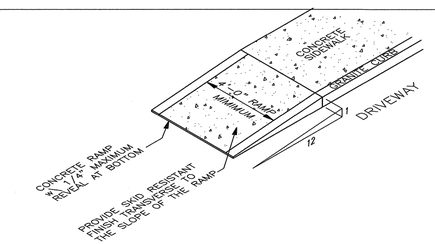


MIN. LENGTH OF STRAIGHT CURB STONES: 18"
MAX. LENGTH OF STRAIGHT CURB STONES: 8FT
MAX. LENGTH OF STRAIGHT STRAIGHT CURB STONES LAID ON CURVE: SEE CHART

Radius for stones with square joints	Maximum length
16' – 28'	6" to 1'
29' – 41'	2'
42' – 55'	3'
56' – 68'	4'
69' – 82'	5'
83' – 96'	6'
97' – 110'	7'
over 110'	8'

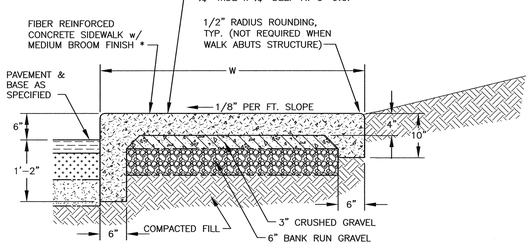
H C2 SLOPED GRANITE CURBING DETAILS

NTS



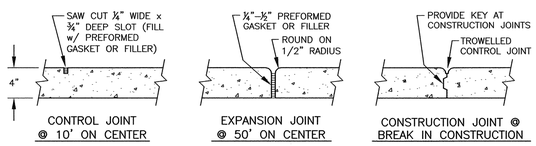
I C2 TYPICAL SIDEWALK TIP DOWN

NTS



*FIBER: 100% VIRGIN POLYPROPYLENE SUCH AS GRACE MICROFIBER, ASTM C1116, TYPE 111, PAR.4.1.3 OR EQUAL. APPLIED @ 1 LB. PER C.Y.

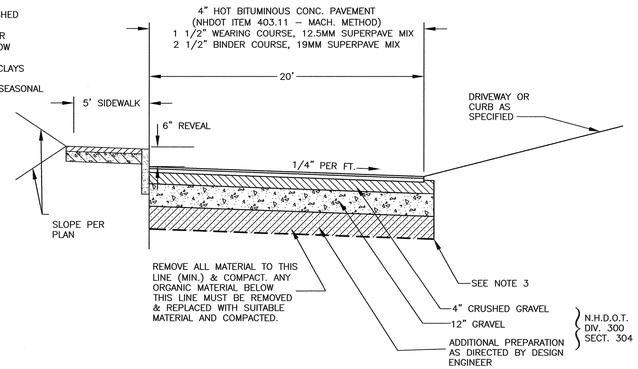
CROSS SECTION



J C2 CONCRETE WALK w/ CONCRETE CURB

NTS

NOTES:
1) REMOVE LEDGE TO 18" BELOW FINISHED SURFACE.
2) REMOVE CLAY, LOAM AND ANY OTHER UNSUITABLE MATERIALS TO 20" BELOW FINISHED SURFACE.
3) INSTALL GEOTEXTILE FABRIC ABOVE CLAYS AND SILTS OR IN AREAS WHERE EXCAVATION IS BELOW THE SEASONAL HIGH WATER TABLE.



K C2 TYPICAL DRIVEWAY SECTION

NTS

HORIZONTAL ANCHOR DIMENSIONS FOR PIPE INSTALLATION IN ROCK

UP TO 150 P.S.I. WORKING PRESSURE

PIPE SIZE	TEE OR TAP SLEEVE		90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND	
	H	L	H	L	H	L	H	L	H	L
* 4"	0'-9"	1'-0"	0'-9"	1'-0"	0'-9"	1'-0"	0'-9"	1'-0"	0'-9"	1'-0"
6"	0'-9"	1'-0"	0'-9"	1'-0"	0'-9"	1'-0"	0'-9"	1'-0"	0'-9"	1'-0"
8"	1'-2"	1'-2"	1'-2"	1'-2"	1'-0"	1'-0"	0'-9"	1'-0"	0'-9"	1'-0"
10"	1'-4"	1'-4"	1'-4"	1'-4"	1'-0"	1'-0"	0'-9"	1'-0"	0'-9"	1'-0'
12"	1'-8"	1'-8"	1'-8"	1'-8"	1'-3"	1'-3"	1'-0"	1'-0"	0'-9"	1'-0"

* – FOR 3" AND SMALLER PIPES

HORIZONTAL ANCHOR DIMENSIONS FOR AVERAGE SOIL CONDITIONS

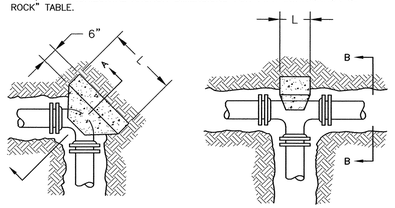
UP TO 150 P.S.I. WORKING PRESSURE

PIPE SIZE	TEE OR TAP SLEEVE		90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND	
	H	L	H	L	H	L	H	L	H	L
* 4"	1'-0"	2'-0"	1'-0"	2'-0"	1'-0"	1'-4"	0'-9"	1'-0"	0'-6"	1'-0"
6"	1'-0"	2'-0"	1'-0"	2'-0"	1'-0"	1'-4"	0'-9"	1'-0"	0'-6"	1'-0"
8"	1'-4"	2'-8"	1'-4"	2'-8"	1'-4"	1'-6"	1'-0"	1'-0"	0'-9"	1'-0"
10"	1'-8"	3'-4"	1'-8"	3'-4"	1'-8"	2'-0"	1'-3"	1'-3"	1'-0"	1'-0'
12"	2'-0"	4'-0"	2'-0"	4'-0"	2'-0"	2'-2"	1'-6"	1'-6"	1'-3"	1'-3"

* – FOR 3" AND SMALLER PIPES

NOTES:
1) TABLES ARE BASED ON AN ALLOWABLE SOIL PRESSURE OF 3000 PSF ON UNDISTURBED EARTH BEHIND THE ANCHOR BLOCK. WHERE SOIL HAS BEEN DISTURBED BY ADJACENT EXCAVATIONS OR WHERE SOIL CANNOT WITHSTAND SUCH A PRESSURE, THE TABLE DOES NOT APPLY.

2) WHERE ENTIRE DEPTH OF PIPE IS BELOW THE TOP SURFACE OF SOUND ROCK, USE "HORIZONTAL ANCHOR DIMENSIONS FOR PIPE INSTALLATION IN ROCK" TABLE.

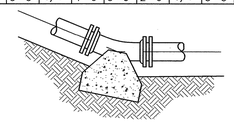


HORIZONTAL ANCHORING

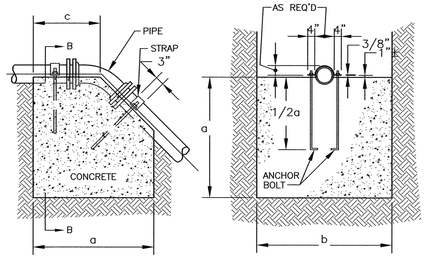
VERTICAL ANCHOR DIMENSIONS

UP TO 150 P.S.I. WORKING PRESSURE

PIPE SIZE	45° BEND				22 1/2° BEND				11 1/4° BEND			
	DIMENSION			ROD DIA.	DIMENSION			ROD DIA.	DIMENSION			ROD DIA.
	a	b	c		a	b	c		a	b	c	
4"	3'-0"	3'-0"	2'-0"	3/4"	2'-6"	2'-3"	1'-6"	3/4"	2'-0"	2'-0"	1'-6"	3/4"
6"	3'-0"	3'-0"	2'-0"	3/4"	2'-6"	2'-3"	1'-6"	3/4"	2'-0"	2'-0"	1'-6"	3/4"
8"	3'-6"	3'-6"	2'-6"	3/4"	3'-0"	3'-0"	1'-9"	3/4"	2'-6"	2'-6"	1'-3"	3/4"
10"	4'-3"	4'-0"	3'-0"	3/4"	3'-6"	3'-3"	2'-0"	3/4"	2'-9"	2'-9"	1'-6"	3/4"
12"	4'-9"	4'-6"	3'-3"	3/4"	4'-0"	3'-9"	2'-6"	3/4"	3'-3"	3'-3"	1'-9"	3/4"

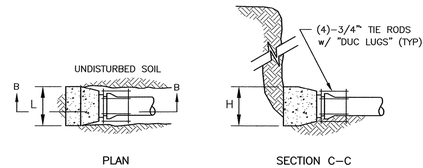


USE SAME DIMENSIONS AS FOR HORIZONTAL BEND ANCHORS



VERTICAL BEND

ALL EXPOSED PORTIONS OF ANCHOR STRAPS TO RECEIVE TWO FIELD COATS (MIN.) OF BITUMASTIC MATERIAL



RESTRAINED PLUG OR CAP

NOTE: SEE CHART "HORIZONTAL ANCHOR DIMENSIONS"
TIE RODS TO BE PROVIDED IN LIEU OF THRUST BLOCK

VERTICAL ANCHORING

L C4 PRESSURE PIPE ANCHORING DETAILS

INSTALL PER PORTSMOUTH REQUIREMENTS NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	10/3/23

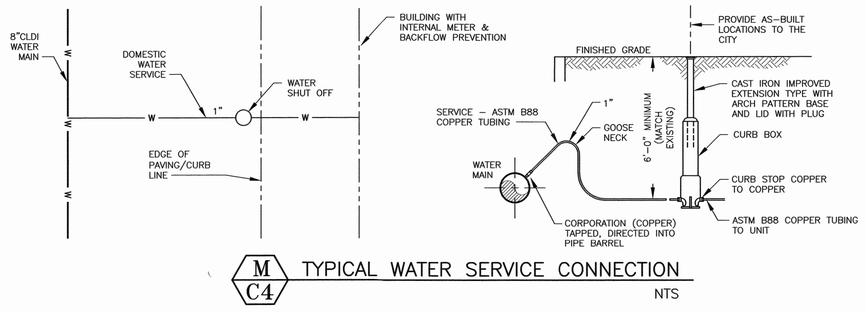
REVISIONS

STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON No. 7851 LICENSED PROFESSIONAL ENGINEER

SCALE AS NOTED | OCTOBER 2023

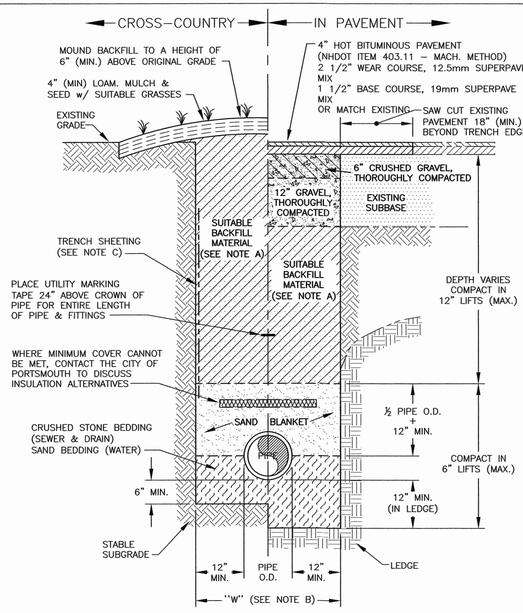
DETAILS | D2

2360



M C4 TYPICAL WATER SERVICE CONNECTION

NTS



TRENCH NOTES:

A) TRENCH BACKFILL:
- IN PAVED AREAS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIALS DEEMED TO BE UNACCEPTABLE BY THE ENGINEER.

- IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE.

B) "W" = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D..

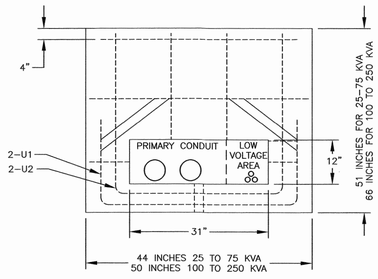
C) TRENCH SHEETING:
IF REQUIRED. WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.

D) MINIMUM PIPE COVER FOR UTILITY MAINS (UNLESS GOVERNED BY OTHER CODES):
- 6' MINIMUM FOR SEWER (IN PAVEMENT)
- 4' MINIMUM FOR SEWER (CROSS COUNTRY)
- 3' MINIMUM FOR STORMWATER DRAINS
- 5' MINIMUM FOR WATER MAINS

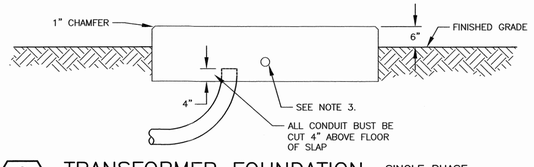
E) ALL PAVEMENT CUTS SHALL BE REPAIRED BY THE INFRARED HEAT METHOD.

N C4 TYPICAL PIPE TRENCH

NTS

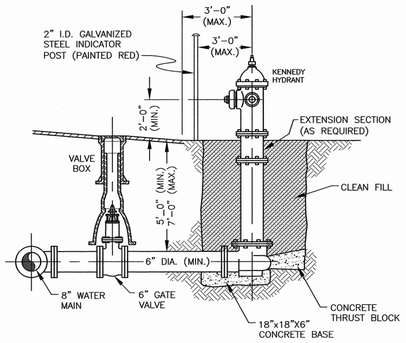


NOTES
1. SEE SHEET "REQUIREMENTS FOR PAD MOUNTED TRANSFORMER SLAB DETAILS", EVERSOURCE SPECIFICATIONS.
2. SEE DTR 56.223 FOR GROUNDING GRID.
3. 1" PVC CONDUIT SLEEVE FOR GROUND GRID LEADS.
4. ALL REBAR TO BE #6.
5. CONDUITS CUT 4" ABOVE SLAB BASE.



O C4 TRANSFORMER FOUNDATION SINGLE PHASE

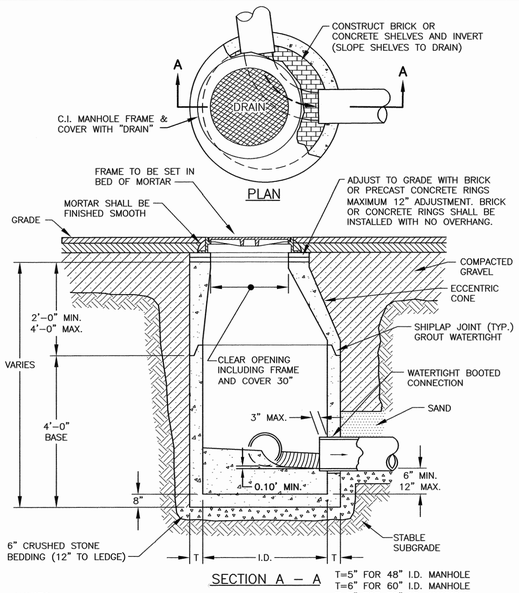
EVERSOURCE NTS



NOTES:
1. HYDRANTS SHALL BE INSTALLED A MAXIMUM DISTANCE OF 3 FEET CURB LINE TO OPERATING NUT.
2. THE PUMPER OUTLET NOZZLE SHALL FACE THE STREET.
3. CENTERLINE OF NOZZLES SHALL BE A MINIMUM OF 2 FEET ABOVE FINISHED GRADE OF STREET.
4. AREA AROUND HYDRANT SHALL BE GRADED TO ALLOW ANY SURFACE WATER TO DRAIN AWAY FROM HYDRANT.
5. HYDRANT SHALL BE FIRMLY SUPPORTED ALL AROUND THE STANDPIPE.
6. EARTH FILL SHALL BE TAMPED TO GIVE FIRM SUPPORT TO THE HYDRANT BARREL.
7. A GATE VALVE SHALL BE INSTALLED BETWEEN THE HYDRANT AND THE MAIN ON THE LATERAL.
8. HYDRANT LATERALS SHALL BE 6" INSIDE DIAMETER (MINIMUM).
9. HYDRANT LATERALS SHALL BE CONNECTED TO WATER MAINS 8 INCHES IN DIAMETER OR LARGER.
10. ALL JOINTS AT HYDRANT CONNECTION SHALL BE RESTRAINED MECHANICAL JOINTS.
11. INSTALLATION OF HYDRANTS IN AREAS OF HEAVY VEGETATIVE GROWTH SHALL HAVE A 10 FOOT RADIUS CLEAR AREA ALL AROUND THE OPERATING NUT OF THE HYDRANT.
12. THERE SHALL ALSO BE AN INDICATOR POST FABRICATED FROM 2 INCH INSIDE DIAMETER GALVANIZED STEEL PIPE, 7 FEET ABOVE FINISHED GRADE, AND SET 2 FEET BELOW GRADE IN CLASS "A" CONCRETE CONCRETE 6 INCHES ALL AROUND POST. THIS POST SHALL BE COATED WITH ZINC CHROMATE PRIMER AND PAINTED WITH HIGH VISIBILITY RED. THE INDICATOR POST SHALL BE NO CLOSER THAN 3 FEET FROM THE OPERATING NUT, AND SET ON THE SIDE OF THE HYDRANT FACING ONCOMING TRAFFIC. TOP OF POST SHALL BE THREADED AND CAPPED.
13. INSTALLATION OF HYDRANTS IN HEAVY GROWTH AREAS SHALL HAVE GATE BOXES RAISED 6 INCHES ABOVE GRADE AND SHALL BE PAINTED ORANGE FOR HIGH VISIBILITY.

P C4 FIRE HYDRANT INSTALLATION DETAIL

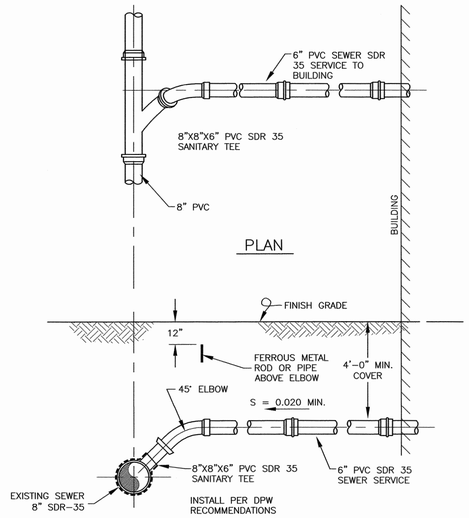
CITY OF PORTSMOUTH STANDARDS AS SPECIFIED BY DPW NTS



NOTES:
1. CONCRETE SHALL BE 4,000 P.S.I. AFTER 28 DAYS.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FOOT.
4. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
5. ALL MANHOLES SHALL BE 48" I.D. UNLESS SPECIFIED OTHERWISE ON THE PLANS.
6. MANHOLE SHALL BE DESIGNED AND CONSTRUCTED TO WITHSTAND H-20 LOADING.

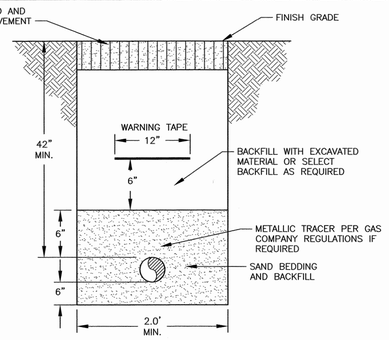
Q C4 DRAIN MANHOLE DETAIL

NTS



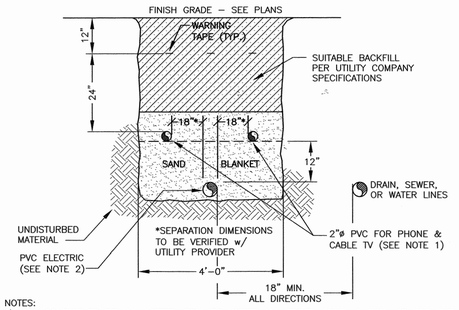
R C4 TYPE "A" SEWER SERVICE CONNECTION

NTS



S C4 GAS SERVICE TRENCH

NTS



NOTES:
1) ALL CONDUIT TO BE U.L. LISTED, SCH. 80 UNDER ALL TRAVEL WAYS, & SCH. 40 FOR THE REMAINDER.
2) NORMAL CONDUIT SIZES FOR PSNH ARE 3 INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4 INCH FOR THREE PHASE SECONDARY, AND 5 INCH FOR THREE PHASE PRIMARY.
3) ALL WORK TO CONFORM TO THE NATIONAL ELECTRICAL CODE (LATEST REVISION)
4) INSTALL A 200# PULL ROPE FOR EACH CONDUIT
5) VERIFY ALL CONDUIT SPECIFICATIONS WITH UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION.

T C4 UTILITY TRENCH

ELECTRIC/PHONE/CABLE NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

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3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) ALL WATER LINE INSTALLATION WORK SHALL BE TO CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS. DETAILS MAY OR MAY NOT BE UP-TO-DATE.

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	10/3/23

REVISIONS

STATE OF NEW HAMPSHIRE - JOHN R. CHAGNON NO. 7951 - LICENSED PROFESSIONAL ENGINEER

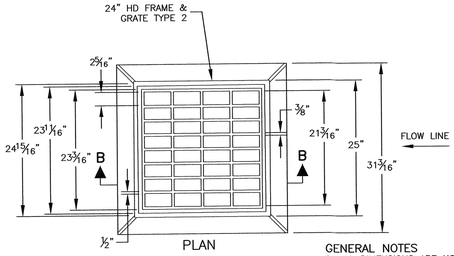
SCALE AS NOTED OCTOBER 2023

DETAILS

D3

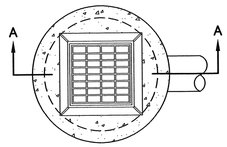
2360

P:\2650\2020-Chinburg_Builders\2650-21-686 Maplewood Ave, Portsmouth-NH\2023 Site Plan\Plans & Specs\Dtl\2650Details.dwg, 10/3/2023 1:39:13 PM, Portsmouth Plotter Canon 7000000fdw.pc3

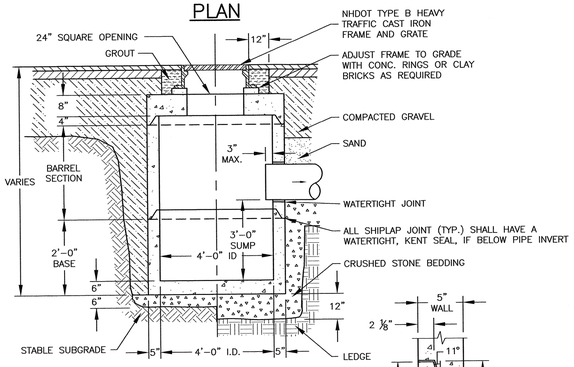


REFERENCE:
NHDOT STANDARD PLAN DR-1
PLATE 2 UPDATED 2015

GENERAL NOTES
1. ALL DIMENSIONS ARE NOMINAL.
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAME ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   C. ALL OTHER PERTINENT REQUIREMENTS ARE MET.
3. FRAME AVAILABLE IN 4" OR 8" HEIGHTS.
4. FREE OPEN AREA =2.55 SF
5. USE 3-FLANGE FRAME IS INSTALLED ADJACENT TO GRANITE CURB.



PLAN



SECTION A – A

NOTES:
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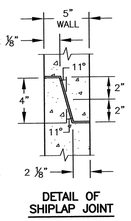
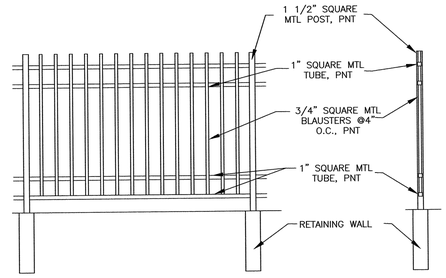
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. EACH CASTING TO HAVE LIFTING HOLES CAST IN.

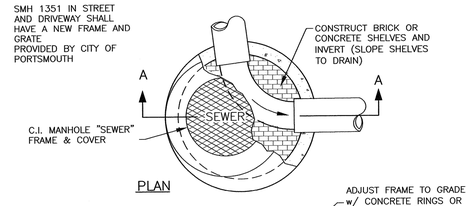


DETAIL OF SHIPLAP JOINT

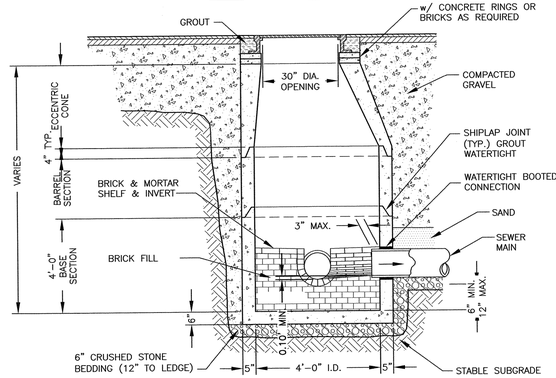
U C3 NHDOT GRATE TYPE B & CATCH BASIN
EJPRESCOTT, INC. NTS



V C2 METAL FENCE DETAILS
TOP OF RETAINING WALL NTS



PLAN



SECTION A – A

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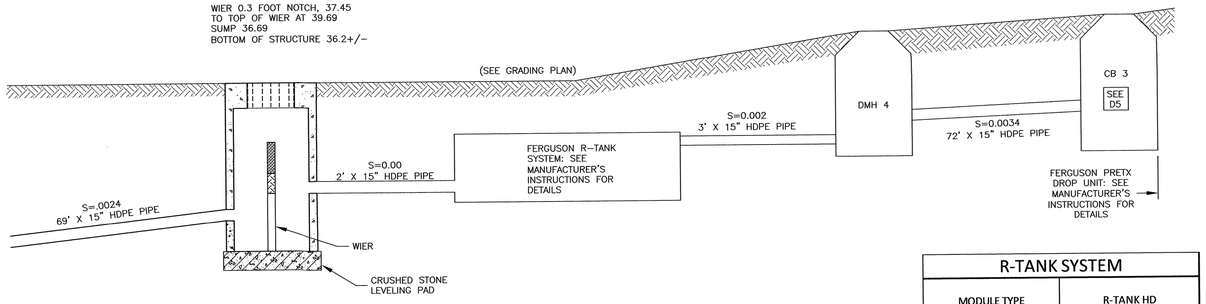
4) EACH PRECAST SECTION TO HAVE LIFTING HOLES CAST IN.
5) SEWER MANHOLE SHALL CONFORM TO NHDES AND CITY OF PORTSMOUTH STANDARDS.

W C4 SEWER MANHOLE
NTS

DMH 3
OUTLET
CONTROL STRUCTURE
RIM =44.0
INV. IN = 37.45
INV. OUT =37.45
WIER 0.3 FOOT NOTCH, 37.45
TO TOP OF WIER AT 39.69
SUMP 36.69
BOTTOM OF STRUCTURE 36.2+/-



R-TANK SYSTEM	
MODULE TYPE	R-TANK HD
TRAFFIC LOAD	PEDESTRIAN
# OF TANKS	680
TANK UNIT DIMENSIONS	2H X 17W X 20 L
TANK STORAGE	2805.6 cf
STONE STORAGE	1000.4 cf
TOTAL STORAGE	3805.9 cf
TOP OF COVER STONE	41.27
TOP OF R-TANK	40.27
BOTTOM OF TANK	37.45
STONE BASE INVERT	37.20

X C4 R-TANK SYSTEM
NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

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2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	10/23/23
0	ISSUED FOR COMMENT	10/3/23

REVISIONS

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
No. 15651
LICENSED PROFESSIONAL ENGINEER

AS NOTED — OCTOBER 2023

DETAILS — **D4**

2360

PRETX SPECIFICATIONS

A. GENERAL

1. PRETX SYSTEMS ARE A PRE-FILTER AND CRITICAL MAINTENANCE DEVICE THAT EXTENDS THE OPERATING LIFE AND REDUCES THE MAINTENANCE BURDEN OF BIORETENTION SYSTEMS, RAIN GARDENS, BIOSWALES AND OTHER TYPES OF SURFACE BEST MANAGEMENT PRACTICES BY FILTERING OUT SEDIMENT, TRASH AND DEBRIS AT THE INLET.

B. PRODUCTS

1. PRETX IS AVAILABLE IN 3 MODELS THAT MANAGE MOST BIORETENTIOIN INLET CONFIGURATIONS: CURB, DROP, AND INLINE.
2. PRETX-CURB IS FOR EDGE OF PAVEMENT RUNOFF AT A CURB CUT IN LIEU OF A STONE SPREADER.
3. PRETX-DROP IS FOR USE AS A DROP INLET CONFIGURATION ALONG A CURB LINE AND WOULD BE INSTALLED WITH A STANDARD DROP INLET GRATE.
4. PRETX-INLINE IS FOR USE WITH SUBSURFACE INLET AND OUTLET PIPE.
5. PRETX IS SIZED TO PRETREAT WATER QUALITY FLOWS AND BYPASS LARGER FLOWS THAT HAVE MINIMAL TRASH AND DEBRIS. PRETX CAN BE USED BOTH IN RETROFIT OR NEW INSTALLATIONS.
6. ACCEPTABLE SYSTEM SUPPLIER:
   CONVERGENT WATER TECHNOLOGIES, INC. OR ITS AUTHORIZED VALUE-ADDED RESELLER
   (800) 711-5428
   WWW.CONVERGENTWATER.COM

C. SUBMITTALS

1. SUBMIT PROPOSED LAYOUT DRAWINGS. DRAWINGS SHALL INCLUDE TYPICAL SECTION DETAILS ANNOTED WITH SYSTEM ELEVATIONS (E.G., RIM, PIPE INVERTS, OUTSIDE BOTTOM OF STRUCTURE, ETC.).
2. SUBMIT MATERIAL CERTIFICATES FOR FRAMES AND COVERS
3. ANY PROPOSED EQUAL ALTERNATE PRODUCT SUBSTITUION TO THIS SPECIFICATON MUST BE SUBMITTED FOR REVIEW AND APPROVED PRIOR TO BID OPENING.

D. EXECUTION

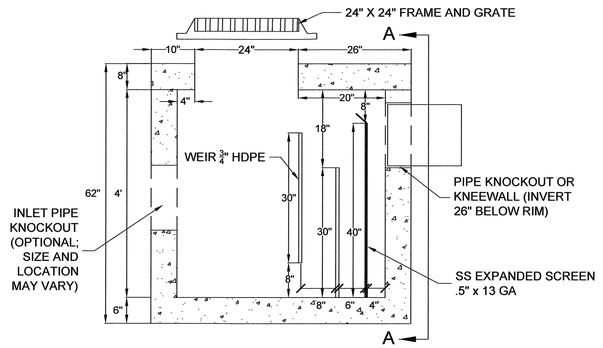
1. All PUBLIC STORM DRAINAGE SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS AND ACCORDING TO LOCAL MUNICIPAL REQ UIREME NTS.
2. All STORM DRAINAGE SYSTEM CONSTRUCTION IS SUBJECT TO INSPECTION AND APPROVAL BY THE PROJECT ENGINEER.
3. THE CONTRACTOR SHALL NOTIFYTHE PROJECT ENGINEER A MINIMUM OF TWO FULL BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTIO N.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND OBTAINING APPROVAL FROM DIG-SAFE AND DETERMINING THE LOCATION OF All UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION/ EXCAVATI ON AND SHALL NOTIFY THE PROJECT ENGINEER OF ANY POTENTIAL CONFLICTS.
5. TO PROTECT STORMWATER FLOW CONTROL AND QUALITY TREATMENT FACILITIES FROM SEDIMENTATION, THEY SHALL BE CONNECTED TO THE STORM CONVEYANCE SYSTEM ONLY AFTER ALL SITE WORK, ROAD CONSTRUCTION, UTILITY WORK AND LANDSCAPING ARE IN PLACE IN ALL AREAS ABOVE AND UPSTREAM OF THE FACILITY.
6. THE EXISTING STORM SEWER SYSTEM SHALL STAY ISOLATED FROM THE NEW SYSTEM UNTIL THE NEW SYSTEM IS CLEANED, AND APPROVED FOR USE. THERE SHALL BE NO DEBRIS IN THE LINES OR FURTHER CLEANING Will BE REQUIRED PRIOR TO ACCEPTANCE.
7. PROVIDE A 1.5" MINIMUM GAP BETWEEN THE KNOCKOUT WALL AND THE OUTSIDE OF THE PIPE. AFTER THE PIPE IS INSTALLED, FILL THE GAP WITH JOINT MORTAR
8. THE OPENING SHALL BE MEASURED ATTHE TOP OF THE PRECAST BASE SECTION.
9. All PICKUP HOLES SHALL BE GROUTED FULL AFTER THE BASIN HAS BEEN PLACED.
10. STANDARD CURB INLETS AND TIPDOWNS SHALL BE PRECAST CONCRETE OR ASPHALT.
11. PIPE ENDS SHALL BE FLUSH WITH THE INNER WALL OR 1" MAXIMUM INTRUSION. MASONRY, CINDER BLOCKS, OR SIMILIAR MATERIALS MA Y BE USED TO ADJUST THE RISERS TO GRADE PRIOR TO GROUTING.
12. GROUTING SHALL BE SUFFICIENTTO PREVENT LEAKS BETWEEN THE PRECAST COMPONENTS OF THE COMPLETED STRUCTURE & SHALL BE PERFORMED INSIDE, BETWEEN & OUTSIDE OF All RISERS, JOINTS & PIPE PENETRATIONS.
13. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS.
14. All REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. All PRECAST CONCRETE SHALL BE CLASS 4000.
15. RECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
16. MATING SURFACES OF MANHOLE RINGS AND COVERSSHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITIONS.

E. CONSTRUCTION AND SEQUENCING

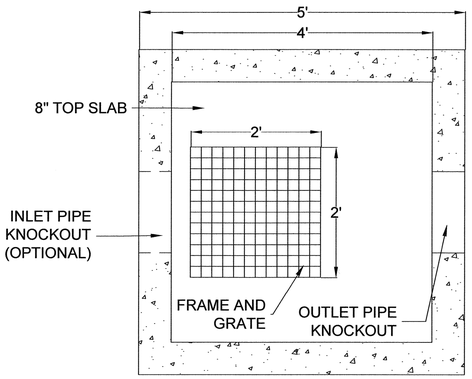
1. EXAMINATION
   A. VERIFY LAYOUT AND ORIENTATION OF PRE-TX SYSTEM AREA INCLUDING EDGE OF PAVEMENT, TIP DOWN, CURBS AND SIDEWALK, BIOFILTRATION SYSTEM, AND CONNECTIONS.
   B. VERIFY EXCAVATION BASE IS READY TO RECEIVE WORK AND EXCAVATIONS, DIMENSIONS, AND ELEVATIONS ARE AS INDICATED ON DRAWINGS.
2. PREPARATION
   A. CALL DIG SAFE AND RECEIVE APPROVAL BEFORE PERFORMING WORK.
   B. REQUEST UNDERGROUND UTILITIES TO BE LOCATED AND MARKED WITHIN AND SURROUNDING CONSTRUCTION AREAS.
   C. IDENTIFY REQUIRED LINES, LEVELS, CONTOURS, AND DATUM.
   D. CLEAR AND GRUB THE PROPOSED PRE-TX SYSTEM AREA.
3. EXCAVATION AND INSTALLATION
   A. THE FOLLOWING CONSTRUCTION SEQUENCE IS TO BE USED AS A GENERAL GUIDELINE. COORDINATE WITH THE OWNER, AND ENGINEERS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
   B. INSTALL TEMPORARY EROSION AND SEDIMENT CONTROLS TO DIVERT STORM WATER AWAY FROM THE PRE-TX SYSTEM AREA.
   C. EXCAVATE TO THE BOTTOM INVERT OF THE SYSTEM.
   D. TO MINIMIZE COMPACTION OF ADJACENT BIOFILTRATION SYSTEMS, WORK EXCAVATORS OR BACKHOES FROM THE SIDES TO EXCAVATE THE PRE-TX SYSTEM AREA TO ITS APPROPRIATE DESIGN DEPTH AND DIMENSIONS.
   E. ROUGH GRADE THE PRE-TX SYSTEM AREA DURING GENERAL CONSTRUCTION. EXCAVATE THE PRE-TX SYSTEM FACILITIES TO WITHIN 1 FOOT OF STRUCTURE BOTTOM .
   F. PLACE 1 FOOT BED OF COARSE STONE TO ELEVATION OF BASE OF STRUCTURE.
   G. ESTABLISH ELEVATIONS FOR ADJACENT CURBS, EDGE OF PAVEMENT AND TIP DOWN, SIDEWALK, PIPE INVERTS FOR INLETS AND OUTLETS AS INDICATED ON DRAWINGS.
4. INSTALLATION
   A. PLACE THE PRECAST SYSTEM TO NECESSARY ELEVATION.
   B. VERIFY ELEVATIONS FOR ADJACENT CURBS, EDGE OF PAVEMENT, PAVEMENT GRADING FOR INLET GRATE FOR PRETX-DROP, SIDEWALK, PIPE INVERTS FOR INLETS AND OUTLETS, OUTLET INVERT FOR KNEE WALL.
   C. FOR PRETX-SURFACE:
      a. VERIFY ELEVATIONS FOR ADJACENT CURBS.
      b. VERIFY EDGE OF PAVEMENT TIP DOWN PAVEMENT GRADING FOR INLET GRATE.
      c. VERIFY CURB ELEVATION IN RELATION TO PAVEMENT AND TIP DOWN.
      d. VERIFY OUTLET INVERT FOR KNEE WALL IN RELATION TO FILTER MEDIA.
   D. FOR PRETX-DROP:
      a. VERIFY ALL INLET PIPES ENTER THE STRUCTURE UPSTREAM OF BAFFLE.
      b. VERIFY FRAME AND GRATE OFFSET ON INLET SIDE AND UPSTREAM OF BAFFLE.
      c. VERIFY CURB LOCATION WITH RESPECT TO FRAME AND GRATE ORIENTATION.
   E. INSTALL BAFFLES, WEIR, AND SCREENS AS INDICATED ON DRAWINGS.
   F. VERIFY MAINTENANCE ACCESS THROUGH GRATE OR COVER AND CLEARANCE FOR VACTOR.
   G. INSTALL TOP OF STRUCTURE LEVEL WITH ADJACENT CURB OR SIDEWALK AS PER MANUFACTURERS SPECIFICATIONS. ENGINEER FIELD VISIT REQUIRED PRIOR TO BACKFILLING.
5. BACKFILLING
   A. BACKFILL WITH APPROVED SOIL AND STONE TO THE DESIGN GRADE AS SPECIFIED IN THE DRAWINGS.
   B. BACKFILL WITH 12" OF NO. 57 STONE AROUND REAR, LEFT, AND RIGHT SIDES TO LEVEL WITH TOP OF HDPE SCREEN.
   C. BACKFILL WITH BIORETENTION SOIL MIX BEYOND STONE BACKFILL TO EQUAL ELEVATION OF THE TOP OF HDPE SCREEN.
   D. DO NOT BACKFILL SOIL OR STONE AGAINST STAINLESS SCREEN.
   E. DO NOT COMPACT ADJACENT FILTRATION SYSTEM SOIL WITH MECHANICAL EQUIPMENT.
   F. STABILIZE All REMAINING DISTURBED AREAS AND SIDE SLOPES WITH SEEDING, HYDROSEEDING, AND/ OREROSION CONTROL BLANKETS AS INDICATED ON DRAWINGS.
6. CLEAN UP
   A. AFTER COMPLETION OF THE WORK, REMOVE AND PROPERLY DISPOSE ALL DEBRIS, CONSTRUCTION MATERIA LS, RUBBISH, EXCESS SOIL, ETC., FROM THE PROJECT SITE. REPAIR PROMPTL Y ANY IDENTIFIED DEFICIENCIES AND LEAVE THE PROJECT SITE IN A CLEAN AND SATISFACTORY CONDITION.

PRETX–DROP ELEVATION GUIDE

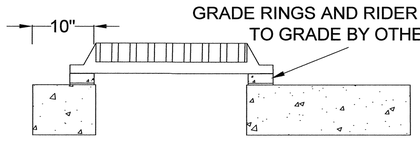
POINT	DESCRIPTION	HEIGHT IN REFERENCE TO PT. A
A	OUTSIDE OF TOP SLAB	0"
B	EDGE OF PAVEMENT	5", MIN.
C	PIPE INVERT	25.5" FOR 12" PIPE, 21" FOR 8" PIPE, 19" FOR 6" PIPE
D	SUMP INVERT	56"
E	OUTSIDE BOTTOM	62"
F	OPTIONAL INLET PIPE KNOCKOUT	VARIES



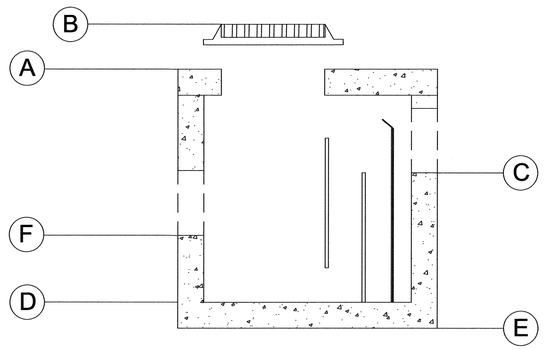
PRETREATMENT CATCH BASIN
CROSS SECTION VIEW
NOT TO SCALE



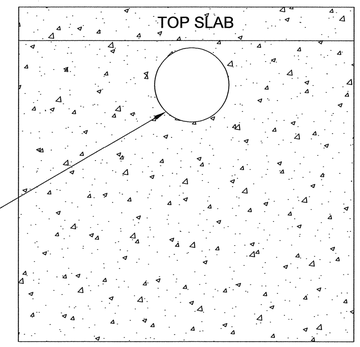
PLAN VIEW DETAIL
NOT TO SCALE



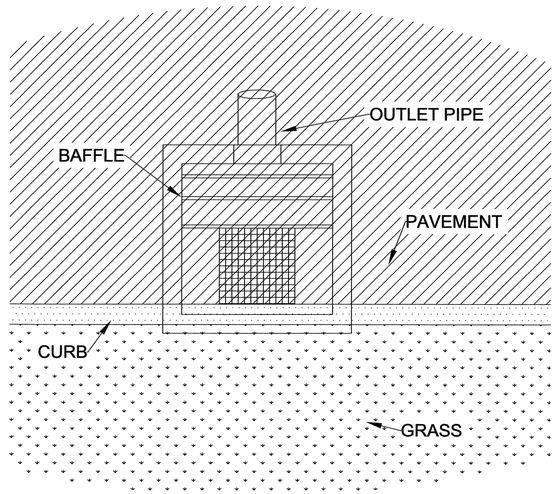
PRETX DROP SIDE DETAIL
NOT TO SCALE



KEY TO ELEVATION GUIDE
NOT TO SCALE



SECTION A-A
NOT TO SCALE



PRETX DROP OUTLET CONFIGURATION
NOT TO SCALE

Y C4 PRETX–DROP INLET
NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1–888–DIG–SAFE (1–888–344–7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	10/23/23

REVISIONS

AS NOTED — OCTOBER 2023

DETAILS — D5

M-5131-001
November 22, 2023

Mr. Peter Britz, Director of Planning & Sustainability
City of Portsmouth Planning & Sustainability Department
1 Junkins Avenue
Portsmouth NH, 03801

Re: Request for Site Review, Development Site Conditional Use & Wetland Conditional Use Permits
Proposed Multi-Family Development, 815 Lafayette Road, Portsmouth, NH

Dear Peter,

On behalf of Prospect North 815, LLC (owner/applicant) we are pleased to submit one (1) set of hard copies and one electronic file (.pdf) of the following information to support a request for a Site Review Permit, a Development Site Conditional Use Permit, and a Wetland Conditional Use Permit for the above referenced project:

- One (1) 22x34 & one (1) 11x17 copy of the Site Plan Set, last revised November 22, 2023;
- TAC Comment Response Report, dated November 22, 2023;
- Drainage Analysis, dated October 23, 2023;
- Long-Term Operation & Maintenance Plan, dated October 23, 2023;
- Grade Plane Exhibit, dated October 23, 2023;
- Wetland Buffer Impervious Surface Exhibit, last revised November 22, 2023;
- Wetland Delineation Report, dated November 22, 2022;
- Invasive Species Removal Plan, dated October 23, 2023
- Community Space Exhibit, last revised November 22, 2023;
- Truck Turning Exhibit, last revised November 22, 2023;
- Traffic Impact Study, dated October 23, 2023;
- Unitil Will Service Letter, dated October 19, 21023;
- Green Energy Statement, dated October 23, 2023;
- Site Review Checklist, dated October 23, 2023;
- Application Fee Calculation Form;
- Owners Authorization, dated June 1, 2023

PROJECT SUMMARY

Existing Conditions

The proposed project is located at 815 Lafayette Road (US Route 1) which is identified as Map 245 Lot 3 on the City of Portsmouth Tax Maps. The site was previously home to the WHEB radio station which no longer operates at this location. The property is a 19.6-acre parcel of land that is located in the Gateway District (G1). The property is bound to the west by Route 1 and the abutting Lafayette Plaza shopping center property, to the north and east by the Winchester Place property and to the south by Sagamore Creek.

Proposed Redevelopment

The proposed project consists of the demolition of the existing building along Sagamore Creek and the construction of three 4-story, 24-unit multi-family buildings (72 total units) with ground floor parking. The project will include associated site improvements such as parking, pedestrian access, utilities, stormwater management, lighting, and landscaping. The site will be accessed via the existing driveway on Route 1.

The project met with the Zoning Board of Adjustments (ZBA) at its regularly scheduled meeting on September 26, 2023, at which the board granted two variances. The first is a variance from Section 10.5B33.20 (front build-out) to permit a front build-out of less than 50% of the total front yard width and the second is a variance from Section 10.5B33.30 (Façade Orientation) to permit an orientation that is not parallel with the front property line.

Open Space & Buffer Enhancement

The proposed project results in work within the 100-foot Tidal Buffer and therefore is subject to conditional use approval for demolition and construction activities. The 100-foot tidal buffer within the development area includes impervious parking surfaces, walkways, patio, concrete pads, and a building. The project will provide an overall improvement by removing all impervious cover within the 100-foot tidal buffer. The impervious surface impacts from the proposed project are shown in Table 1. In addition to the summary in Table 1 below, detailed calculations of the impervious surfaces within the buffer for the existing and proposed condition are depicted in the enclosed Wetland Buffer Impervious Surface Exhibit.

The projects landscape plan proposes to replace existing impervious areas with native grass mix and plant native trees in an effort to enhance the previously disturbed wetlands buffer.

Table 1. 815 Lafayette Road, Wetland Buffer Impervious Surfaces

Buffer Segment	Existing Impervious (SF)	Final Impervious (SF)
0-25 feet	218	0
25-50 feet	1,937	0
50-100 feet	9,583	0
Total	11,738	0
Net Impervious Surface	**-11,738**	

Section 10.1017.24 of the Zoning Ordinance which indicates "Where feasible, the application shall include removal of impervious surfaces at least equal in area to the area of impervious surface impact. The intent of this provision is that the project will not result in a net loss of pervious surface within a jurisdictional wetland buffer." As shown in Table 1, the proposed project exceeds this requirement by providing an 11,738 SF reduction in impervious surface.

LAND USE PERMIT APPLICATIONS

Site Plan Review Permit

The project will require a Site Plan Review Permit for the site improvements described above in the project summary. The project has previously met with the Planning Board for Conceptual Consultation and the Technical Advisory Committee (TAC) and Conservation Commission (CC).

Development Site Conditional Use Permit

Under Section 10.5B41.10 Development Site Standards are "allowed by Conditional Use Permit approval from the Planning Board, a development site is any lot or group of contiguous lots owned or controlled by the same person or entity, assembled for the purpose of a single development and including more than one principal building or building type". As the proposed development includes more than one principal building, a CUP to allow the use of the Development Site Standards is being requested for this proposed project.

Conditional Use Permit Criteria

Based on the above described and enclosed materials, the following addresses how the Project warrants the granting of a Conditional Use Permit for a Development Site by satisfying the following four (4) criteria for approval in Section 10.5B43.10 of the Zoning Ordinance:

(1) The development project is consistent with the Portsmouth Master Plan.

The Project is consistent with several goals identified in the Master Plan.

- Goal 1.2 is to encourage walkable mixed-use development along existing commercial corridors. The proposed project has been designed to promote alternative modes of transportation such as walking and bicycling by incorporating both public and private bicycle storage spaces as well as maintaining a sidewalk connection to the existing sidewalks along Lafayette Road.
- Goal 2.1 is to ensure that new development complements and enhances its surroundings. The proposed residential buildings will further enhance the continued success of the adjacent commercial, retail, and restaurants located in the Lafayette Plaza and surrounding parcels.
- Goal 2.3 is to maintain and establish usable public access to and along the waterfront. The proposed project includes the restoration and enhancement of the 100' wetland buffer along Sagamore Creek and grants public access by way of the proposed community greenway trail along the waterfront.
- Goal 5.3 is to promote effective stewardship to enhance the city's natural resources. Action 5.3.2 under goal 5.3 says protect and care for existing trees, native vegetation, and woodlands and identify areas for new planting. The proposed work includes the removal of invasive species along the waterfront to promote the health of native vegetation and has opted to field delineate the proposed community trail to avoid the removal of existing well-established trees. Additionally, the entire portion of the wetland buffer that is currently impervious surfaces will be restored to a natural state using native trees, shrubs, and grasses.

(2) The development project has been designed to allow uses that are appropriate for its context and consistent with City's planning goals and objectives for the area.

The Project has been designed to be complementary to the abutting uses. Residential buildings are an allowed use within the zone and the addition of public access is consistent with goals laid out in the City's Master Plan as described in criteria item 1.

(3) The project includes measures to mitigate or eliminate anticipated impacts on traffic safety and circulation, demand on municipal services, stormwater runoff, natural resources, and adjacent neighborhood character.

The Project will have a negligible impact on traffic due to the existing large traffic volumes on Lafayette Drive. A traffic study has been prepared and is being reviewed by NHDOT.

The development site has been designed to mitigate stormwater runoff with the use of detention and filtration stormwater treatment practices. The proposed project is a significant improvement over existing conditions as there is no stormwater treatment on site.

The Project as designed will be complementary to the abutting commercial uses.

(4) The project is consistent with the purpose and intent set forth in Section 10.5B11.

Section 10.5B11.10 states that *"The purpose of Article 5B is to implement and support the goals of the City's Master Plan and Housing Policy to encourage walkable mixed-use development and continued economic vitality in the City's primary gateway areas, ensure that new development complements and enhances its surroundings, provide housing stock that is suited for changing demographics, and accommodate the housing needs of the City's current and future workforce."*

As described in Criteria 1 – 3 the Project is consistent with *the goals of the City's Master Plan including* Goal 1.2 to encourage walkable mixed-use development along existing commercial corridors, Goal 2.1 to ensure that new development complements and enhances its surroundings, and Goal 2.3 to maintain and establish usable public access to and along the waterfront.

The Project will also provide additional and much needed housing stock to the City in an area outside of the downtown core, with easy access to abutting retail and commercial areas, and public transportation.

Wetland Conditional Use Permit

Jurisdictional wetland areas, including 2,782+/- linear feet of tidal wetlands and buffers along Sagamore Creek. A Conditional Use Permit for Wetland Buffer Impact will be required for the project for work within the 100 ft wetland buffer. Proposed work within the 100 ft wetland buffer is limited to the removal of existing impervious surfaces, existing leach field and septic system, and the restoration and enhancement of these areas with native grasses, shrubs, and trees. The project received a recommendation for approval from the Conservation Commission at their November 8, 2023, meeting.

Conditional Use Permit Criteria

Based on the above described and enclosed materials, the following addresses how the proposed project warrants the granting of a Wetland Conditional Use Permit by satisfying the following six (6) criteria for approval in Section 10.1017.50 of the Zoning Ordinance:

(1) The land is reasonably suited to the use, activity or alteration.

The land is currently a previously disturbed site that consists of the former WHEB Radio Station building. The proposed project design is an allowed use within the Gateway Neighborhood Mixed Use District. Additionally, the proposed project site consists of a previously disturbed tidal buffer area which has historically been used as a commercial area. Work to be performed requiring a conditional use permit

under this section includes the removal of existing impervious surfaces, removal of the existing leach field and septic system, and the restoration and enhancement of these areas with native grasses, shrubs, and trees. The proposed work results in the removal of all impervious surfaces from the buffer, the restoration and enhancement of these areas, and will provide public access in the upland area along Sagamore Creek.

(2) There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration.

The placement of the proposed buildings and parking areas was done in a manner to remove all impervious surfaces within the 25-, 50-, and 100-foot tidal buffers and proposes to replace existing impervious surfaces with native grass mix and plant native trees and shrubs.

(3) There will be no adverse impact on the wetland functional values of the site or surrounding properties;

There will be no adverse impact on the wetland functional values of the site as the existing condition is previously disturbed and consists of buildings, parking area, concrete pads, sidewalks, a leach field and septic system. The proposed project intends to remove all impervious surfaces from the wetland buffer area. The remainder of the buffer will be enhanced by the removal of invasive species and enhance the existing vegetation with native vegetation. The proposed project design site and landscape plans enhance the previously disturbed tidal buffer area given the existing condition and provide added value by creating public open space for recreation along the upland bank of Sagamore Creek.

(4) Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals; and

The proposed project design proposes minimal alteration to the natural woodland to the greatest extent practical. This alteration includes the removal of invasive species and the construction of a wood chip greenway community trail, which is an allowed use under Section 10.1016.10(1) of the Zoning Ordinance. The construction of the wood chip trail is intended to minimize disturbance of the natural vegetative state by field alignment of the proposed trail around existing large native trees.

(5) The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this Section.

The proposed project design does not have an adverse impact on the site as it would enhance the buffer by improving water quality through stormwater treatment and providing public access to the upland bank of Sagamore Creek. Impervious surfaces within the 25-foot, 50-foot, and 100-foot tidal buffers have been removed by eliminating buildings, parking, sidewalks, patios, and concrete pads in addition to the removal of the existing leach field and septic system.

(6) Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.

The proposed project design within the vegetated buffer strip is limited to the removal of impervious areas and selective invasive species removal. The landscape plan proposes replacing the existing disturbed areas within the 25-foot wetland buffer with a native grass mix, mown as required to avoid incursions of

invasive species, and the addition of several native trees and shrubs on the water side of the wood chip path.

CONCLUSION

As shown in the enclosed information, the proposed plan will remove impervious surface within the buffer area, improve stormwater management, enhance the Sagamore Creek tidal wetland buffer and provide public benefit in the form of open space along the upland bank of Sagamore Creek.

To date the applicant has attended the following meetings with the local land-use boards related to the Site Plan:

- June 15, 2023 – Planning Board Conceptual Consultation
- September 12, 2023 – Technical Advisory Committee Work Session
- September 13, 2023 – Conservation Commission Work Session
- September 26, 2023 – Zoning Board of Adjustment
- November 7, 2023 – Technical Advisory Committee Meeting
- November 8, 2023 – Conservation Commission Meeting

The enclosed information has been prepared to address comments and feedback received to date from these land-use boards.

We respectfully request to be placed on the TAC meeting agenda for December 5, 2023. If you have any questions or need any additional information, please contact me by phone at (603) 433-8818 or by email at NAHansen@tighebond.com.

Sincerely,

TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Vice President

Neil A. Hansen, PE
Project Manager

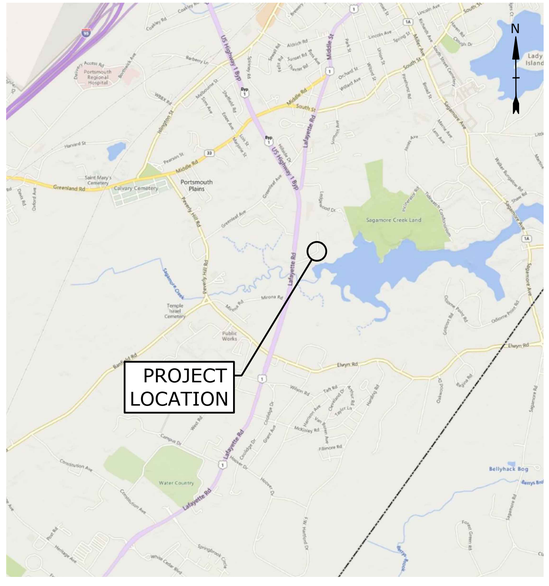
Copy: Prospect North 815, LLC

J:\M\M5131 MB2 Development, LLC\001 815 Lafayette Road\Reports\Applications\City of Portsmouth\20231122_TAC Resubmission\M-5131-001_ Cover Letter.docx

815 LAFAYETTE ROAD
PROPOSED MULTI-FAMILY DEVELOPMENT
PORTSMOUTH, NEW HAMPSHIRE
DATE: OCTOBER 23, 2023
LAST REVISED: NOVEMBER 22, 2023

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	11/22/2023
1 OF 1	STANDARD BOUNDARY SURVEY	2/17/2023
C1	EXISTING CONDITIONS PLAN	10/20/2023
C2	EXISTING CONDITIONS PLAN	10/20/2023
G-100	GENERAL NOTES AND LEGEND	11/22/2023
C-101	EXISTING CONDITIONS AND DEMOLITION PLAN	11/22/2023
C-102	OVERALL SITE PLAN	11/22/2023
C-102.1	SITE PLAN	11/22/2023
C-103	GRADING, DRAINAGE, AND EROSION CONTROL PLAN	11/22/2023
C-104	UTILITY PLAN	11/22/2023
C-105	PHOTOMETRIC PLAN	11/22/2023
C-201	EASEMENT PLAN	11/22/2023
L-100	LANDSCAPE SCHEDULE AND NOTES	11/22/2023
L-101	LANDSCAPE PLAN	11/22/2023
C-501	EROSION CONTROL NOTES AND DETAILS SHEET	11/22/2023
C-502	DETAILS SHEET	11/22/2023
C-503	DETAILS SHEET	11/22/2023
C-504	DETAILS SHEET	11/22/2023
C-505	DETAILS SHEET	11/22/2023
C-506	DETAILS SHEET	11/22/2023
C-507	DETAILS SHEET	11/22/2023
1 OF 2	BUILDING ELEVATIONS	8/29/2023
2 OF 2	TYPICAL FLOOR PLANS	8/29/2023

LIST OF PERMITS		
LOCAL	STATUS	DATE
SITE PLAN REVIEW PERMIT	PENDING	
CONDITIONAL USE PERMIT - DEVELOPMENT SITE	PENDING	
CONDITIONAL USE PERMIT - WETLAND BUFFER	PENDING	
ZONING BOARD OF ADJUSTMENTS	APPROVED	9/26/2023
STATE		
NHDES - SEWER CONNECTION PERMIT	NOT SUBMITTED	
NHDES - ALTERATION OF TERRAIN PERMIT	NOT SUBMITTED	
NHDES - SHORELAND PERMIT	NOT SUBMITTED	
NHDES - WETLAND PERMIT	NOT SUBMITTED	
FEDERAL		
NPDES - CONSTRUCTION GENERAL PERMIT	NOT SUBMITTED	



LOCATION MAP
SCALE: 1" = 2000'

CONSTRUCTION NOTES:
1. THE CONTRACTOR SHALL NOT RELY ON SCALED DIMENSIONS AND SHALL CONTACT THE ENGINEER FOR CLARIFICATION IF A REQUIRED DIMENSION IS NOT PROVIDED ON THE PLANS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, AND FOR SITE CONDITIONS THROUGHOUT CONSTRUCTION. NEITHER THE PLANS NOR THE SEAL OF THE ENGINEER AFFIXED HEREON EXTEND TO OR INCLUDE SYSTEMS REQUIRED FOR THE SAFETY OF THE CONTRACTOR, THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND IMPLEMENTING SAFETY PROCEDURES AND SYSTEMS AS REQUIRED BY THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND ANY STATE OR LOCAL SAFETY REGULATIONS.
3. TIGHE & BOND ASSUMES NO RESPONSIBILITY FOR ANY ISSUES LEGAL OR OTHERWISE, RESULTING FROM CHANGES MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION OF TIGHE & BOND.

PREPARED BY:
Tighe&Bond
177 CORPORATE DRIVE
PORTSMOUTH, NH 03801
603-433-8818

APPLICANT:
PROSPECT NORTH 815, LLC
PO Box 372
Greenland, NH 04840

ARCHITECT:
MICHAEL J. KEANE ARCHITECTS, PLLC
101 Kent Place
Newmarket, NH 03857

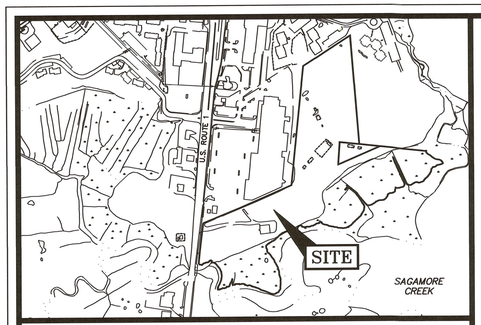
SURVEYOR:
AMBIT ENGINEERING, INC.
200 Griffin Road - Unit 3
Portsmouth, NH 03801

STATE OF NEW HAMPSHIRE – NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER – 11/22/2023

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 11/22/2023

811 DigSafe MA-ME-NH-RI-VT

TAC RESUBMISSION
COMPLETE SET 23 SHEETS



LOCATION MAP SCALE: 1"=500'

LEGEND:

N/F	NOW OR FORMERLY
RP	RECORD OF PROBATE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
11/21	MAP 11 / LOT 21
	BOUNDARY
	SETBACK
	RAILROAD SPIKE FOUND
	IRON ROD/PIPE FOUND
	DRILL HOLE FOUND
	STONE/CONCRETE BOUND FOUND
	RAILROAD SPIKE SET
	IRON ROD SET
	DRILL HOLE SET
	GRANITE BOUND SET
	EDGE OF PAVEMENT (EP)
	WOODS / TREE LINE
	UTILITY POLE (w/ GUY)
G W E	METER (GAS, WATER, ELECTRIC)
TYP.	TYPICAL
LSA	LANDSCAPED AREA
	PERPETUAL EASEMENT
	DETERMINABLE EASEMENT

LENGTH TABLE

LINE	BEARING	DISTANCE
L1	N05°26'56"E	92.87'
L2	N06°34'36"E	194.98'
L3	N67°59'01"E	273.67'
L4	N66°37'14"E	370.70'
L5	N05°59'07"E	792.74'
L6	N57°24'25"E	90.94'
L7	N66°41'14"E	8.54'
L8	N56°24'15"E	54.03'
L9	N51°51'18"E	3.74'
L10	N57°31'35"E	212.27'
L11	S04°29'13"E	719.99'
L12	N84°02'00"W	129.90'
L13	S04°07'00"W	148.50'
L14	N66°37'20"E	302.87'
L15	S84°02'00"E	271.46'
L16	S84°02'00"E	138.90'

TIE LINE LENGTH TABLE

LINE	BEARING	DISTANCE
T1	S62°48'20"W	1668.11'

(NOT A BOUNDARY LINE–FOR CLOSURE PURPOSES ONLY)

ADDITIONAL ABUTTERS:

228/1 N/F
CITY OF PORTSMOUTH DPW
1 JUNKINS AVENUE
PORTSMOUTH, NH 03802
2237/1506

229/3 N/F
CITY OF PORTSMOUTH SCH
1 JUNKINS AVENUE
PORTSMOUTH, NH 03801
1985/0379

251/1 N/F
STATE OF NEW HAMPSHIRE
P.O. BOX 856
CONCORD, NH 03301
2260/1484

PLAN REFERENCES:

1) PLAN OF LAND PORTSMOUTH, N.H. FOR BONOBEST DEVELOPMENT CORP., SCALE 1IN. = 40FT., DATED JAN. 1964, PREPARED BY JOHN W. DURGIN C.E., RCRD PLAN#161

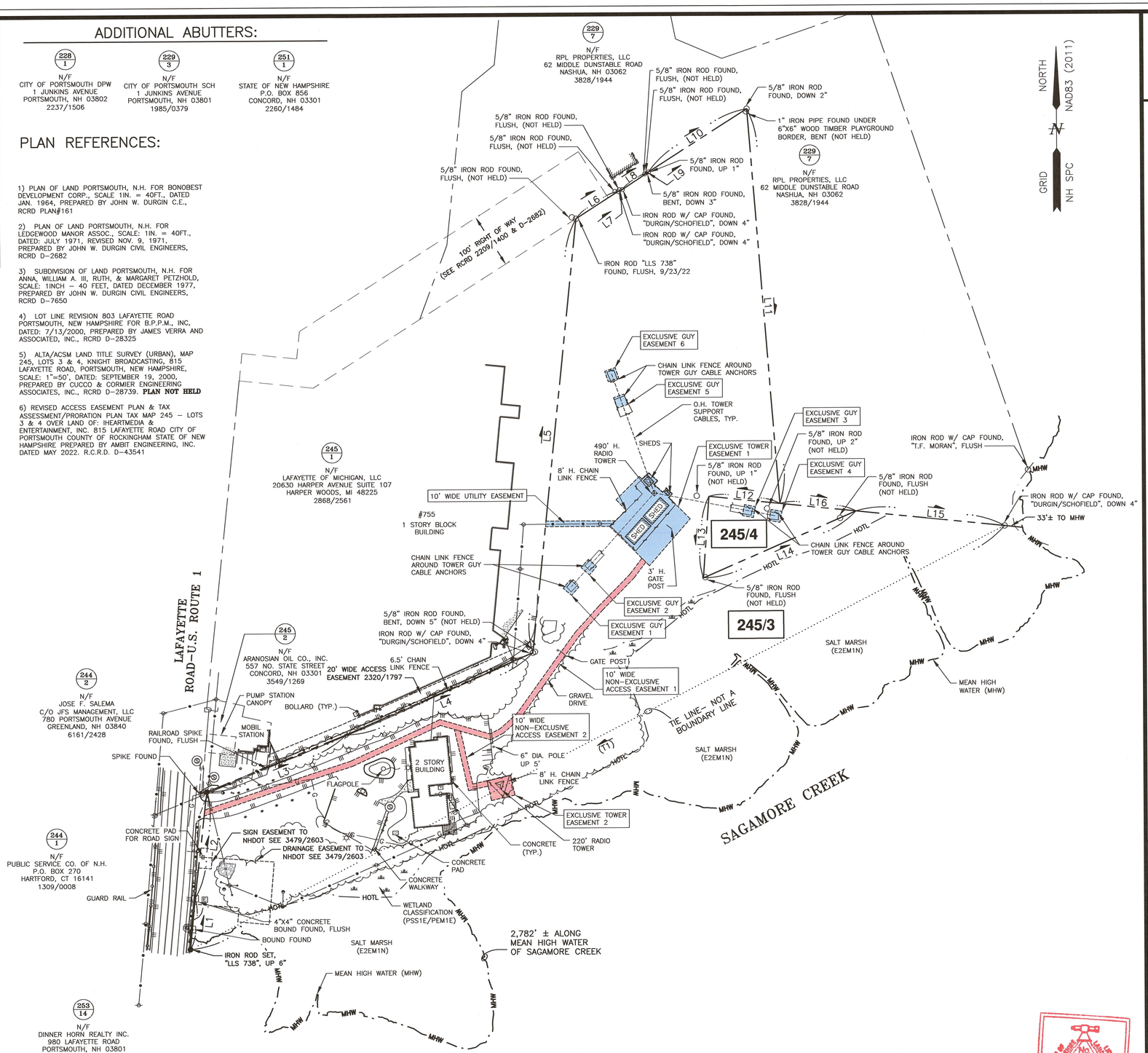
2) PLAN OF LAND PORTSMOUTH, N.H. FOR LEDGEWOOD MANOR ASSOC., SCALE: 1IN. = 40FT., DATED: JULY 1971, REVISED NOV. 9, 1971, PREPARED BY JOHN W. DURGIN CIVIL ENGINEERS, RCRD D–2682

3) SUBDIVISION OF LAND PORTSMOUTH, N.H. FOR ANNA, WILLIAM A. III, RUTH, & MARGARET PETZHOLD, SCALE: 1INCH – 40 FEET, DATED DECEMBER 1977, PREPARED BY JOHN W. DURGIN CIVIL ENGINEERS, RCRD D–7650

4) LOT LINE REVISION 803 LAFAYETTE ROAD PORTSMOUTH, NEW HAMPSHIRE FOR B.P.P.M., INC, DATED: 7/13/2000, PREPARED BY JAMES VERRA AND ASSOCIATED, INC., RCRD D–28325

5) ALTA/ACSM LAND TITLE SURVEY (URBAN), MAP 245, LOTS 3 & 4, KNIGHT BROADCASTING, 815 LAFAYETTE ROAD, PORTSMOUTH, NEW HAMPSHIRE, SCALE: 1"=50', DATED: SEPTEMBER 19, 2000, PREPARED BY CUCCO & CORMIER ENGINEERING ASSOCIATES, INC., RCRD D–28739. **PLAN NOT HELD**

6) REVISED ACCESS EASEMENT PLAN & TAX ASSESSMENT/PRORATION PLAN TAX MAP 245 – LOTS 3 & 4 OVER LAND OF: IHEARTMEDIA & ENTERTAINMENT, INC. 815 LAFAYETTE ROAD CITY OF PORTSMOUTH COUNTY OF ROCKINGHAM STATE OF NEW HAMPSHIRE PREPARED BY AMBIT ENGINEERING, INC. DATED MAY 2022. R.C.R.D. D–43541



I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION WHICH HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000.

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

JOHN R. CHAGNON, LLS 738

2.17.23
DATE

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
Portsmouth, N.H. 03801–7114
Tel (603) 430–9282
Fax (603) 436–2315

NOTES:

1) PARCELS ARE SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 245 AS LOTS 3 AND 4.

2) OWNER OF RECORD:
PROSPECT NORTH 815 LLC
PO BOX 372
GREENLAND, NH 03840
6443/665

3) PARCEL IS PARTIALLY IN A SPECIAL FLOOD HAZARD AREA (ZONE AE) AS SHOWN ON FIRM PANEL 33015C0270F. EFFECTIVE DATE JANUARY 29, 2021.

4) EXISTING LOT AREA:

MAP 245 LOT 3	MAP 245 LOT 4
855,562 S.F ± (TO MHW)	19,948 S.F.
19.6410 AC ± (TO MHW)	0.4579 ACRES

5) PARCELS ARE LOCATED IN THE GATEWAY CORRIDOR (G1) ZONING DISTRICT.

6) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE RESULTS OF A STANDARD BOUNDARY SURVEY OF ASSESSOR'S MAP 245 LOTS 3 & 4 IN THE CITY OF PORTSMOUTH.

8) THE BOUNDARY SHOWN HEREON IS DERIVED FROM ORIGINAL MONUMENTS CORRELATING TO REFERENCE PLANS 1, 2, 3, & 4. ADDITIONAL MONUMENTATION CORRELATING TO REFERENCE PLAN 5 WERE FOUND AND NOT HELD.

9) SEE AMENDED AND RESTATED EASEMENT AGREEMENT AND RESTRICTIVE COVENANTS AT RCRD 6443/639.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	1/26/23

REVISIONS

STANDARD BOUNDARY SURVEY TAX MAP 245 – LOTS 3 & 4

OWNER:
PROSPECT NORTH 815 LLC
815 LAFAYETTE ROAD
CITY OF PORTSMOUTH
COUNTY OF ROCKINGHAM
STATE OF NEW HAMPSHIRE

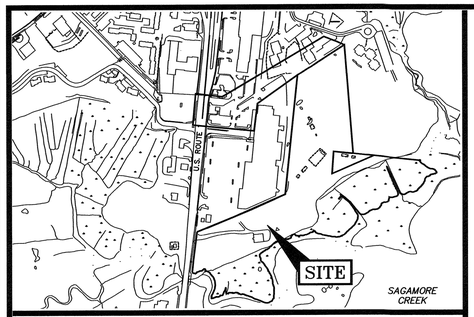
SCALE: 1"=100' JANUARY 2023

FB 414 PG 1

3458

STATE OF NEW HAMPSHIRE LAND SURVEYOR NO. 738 JOHN R. CHAGNON

J:\JOBS\3K 3400's\3400's\3458\2022 Survey\Plans & Specs\3458 Survey 2023.dwg, STANDARD BOUNDARY SURVEY

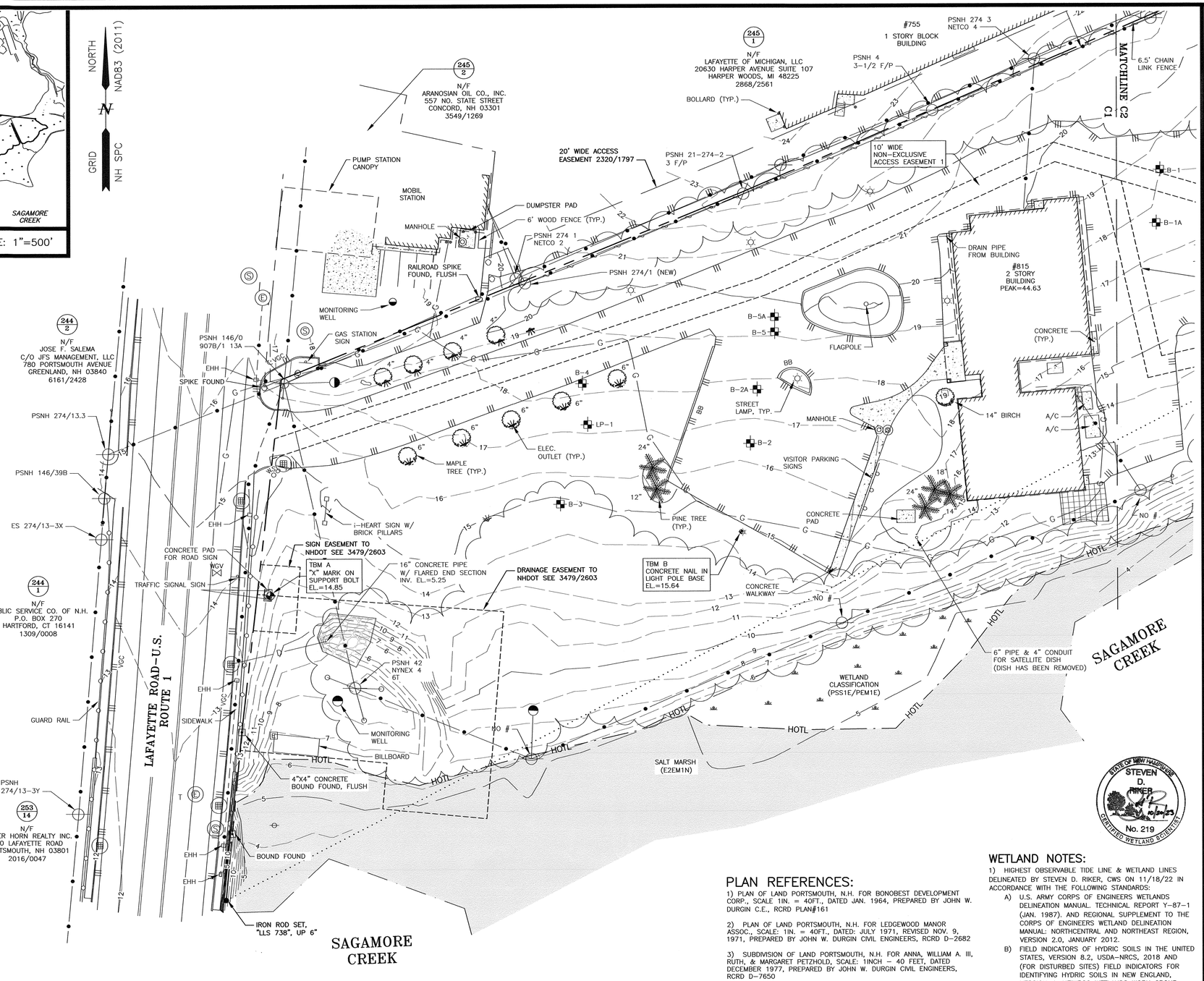


LOCATION MAP SCALE: 1"=500'

NORTH NAD83 (2011) GRID NH SPC

LEGEND:

N/F	NOW OR FORMERLY
RP	RECORD OF PROBATE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
11/21	MAP 11 / LOT 21
	BOUNDARY
	SETBACK
HOTL	HIGHEST OBSERVABLE TIDE LINE
	RAILROAD SPIKE FOUND
	IRON ROD/PIPE FOUND
	DRILL HOLE FOUND
	STONE/CONCRETE BOUND FOUND
	RAILROAD SPIKE SET
	IRON ROD SET
	DRILL HOLE SET
	GRANITE BOUND SET
	EDGE OF PAVEMENT (EP)
	UNDERGROUND ELECTRIC
	OVERHEAD ELECTRIC/WIRES
100	CONTOUR
	WOODS / TREE LINE
WSO	WATER SHUT OFF/CURB STOP
GSO	GAS SHUT OFF/CURB STOP
WGV	WATER GATE VALVE
GGV	GAS GATE VALVE
	UTILITY POLE (w/ GUY)
G E	METER (GAS, WATER, ELECTRIC)
	CATCH BASIN
E	ELECTRIC MANHOLE
S	SEWER MANHOLE
T	TELEPHONE/COMMUNICATIONS MANHOLE
	LIGHTPOLE
	SIGNS
TYP.	TYPICAL
LSA	LANDSCAPED AREA
EHH	ELECTRIC HANDHOLE
MW	MONITORING WELL
TH	THRESHOLD
EL.	ELEVATION
TBM	TEMPORARY BENCHMARK
VGC	VERTICAL GRANITE CURB
BC	BITUMINOUS CURB
INV.	INVERT
.ORN	ORNAMENTAL TREE



I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, WHICH HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000.

JOHN R. CHAGNON, LLS 738 — DATE 10.20.23

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN R. CHAGNON SIGNATURE

GRAPHIC SCALE

30 0 50 100 120 FEET
10 5 0 10 20 30 METERS

PLAN REFERENCES:

1) PLAN OF LAND PORTSMOUTH, N.H. FOR BONOBEST DEVELOPMENT CORP., SCALE 1IN. = 40FT., DATED JAN. 1964, PREPARED BY JOHN W. DURGIN C.E., RCRD PLAN#161

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5) ALTA/ACSM LAND TITLE SURVEY (URBAN), MAP 245, LOTS 3 & 4, KNIGHT BROADCASTING, 815 LAFAYETTE ROAD, PORTSMOUTH, NEW HAMPSHIRE, SCALE: 1"=50', DATED: SEPTEMBER 19, 2000, PREPARED BY CUCCO & CORMIER ENGINEERING ASSOCIATES, INC., RCRD D-28739. **PLAN NOT HELD**

6) REVISED ACCESS EASEMENT PLAN & TAX ASSESSMENT/PRORATION PLAN TAX MAP 245 – LOTS 3 & 4 OVER LAND OF: iHEARTMEDIA & ENTERTAINMENT, INC. 815 LAFAYETTE ROAD CITY OF PORTSMOUTH COUNTY OF ROCKINGHAM STATE OF NEW HAMPSHIRE PREPARED BY AMBIT ENGINEERING, INC. DATED MAY 2022. R.C.R.D. D-43541

WETLAND NOTES:

1) HIGHEST OBSERVABLE TIDE LINE & WETLAND LINES DELINEATED BY STEVEN D. RIKER, CWS ON 11/18/22 IN ACCORDANCE WITH THE FOLLOWING STANDARDS:

A) U.S. ARMY CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL. TECHNICAL REPORT Y-87-1 (JAN. 1987). AND REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2012.

B) FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2, USDA–NRCS, 2018 AND (FOR DISTURBED SITES) FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4. NEIWPCC WETLANDS WORK GROUP (2019).

C) NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: NORTHEAST (REGION 1). USFWS (MAY 1988).

D) CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES. USFW MANUAL FWS/OBS-79/31 (1997).

E) "IDENTIFICATION AND DOCUMENTATION OF VERNAL POOLS IN NEW HAMPSHIRE" (1997). NEW HAMPSHIRE FISH AND GAME DEPARTMENT.

2) HOTL & WETLAND WERE FIELD LOCATED BY AMBIT ENGINEERING, INC.

STATE OF NEW HAMPSHIRE STEVEN D. RIKER 10/20/23 No. 219 CERTIFIED WETLAND SCIENTIST

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) PARCELS ARE SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 245 AS LOTS 3 AND 4.

2) OWNER OF RECORD:
PROSPECT NORTH 815 LLC
PO BOX 372
GREENLAND, NH 03840
6443/665

3) PARCEL IS PARTIALLY IN A SPECIAL FLOOD HAZARD AREA (ZONE AE) AS SHOWN ON FIRM PANEL 33015C0270F. EFFECTIVE DATE JANUARY 29, 2021.

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MAP 245 LOT 3	MAP 245 LOT 4
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7) THE PURPOSE OF THIS PLAN IS TO SHOW THE RESULTS OF EXISTING CONDITIONS SURVEY OF ASSESSOR'S MAP 245 LOTS 3 & 4 IN THE CITY OF PORTSMOUTH.

8) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

9) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

10) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

SITE DEVELOPMENT
815 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ADD WETLAND NOTES	10/20/23
0	ISSUED FOR COMMENT	2/2/23

REVISIONS

SCALE: 1" = 30' JANUARY 2023

EXISTING CONDITIONS PLAN C1

FB 441 PG 1 3458

P:\NHS\01015-MBZ_Development\3458-Lafayette Rd-JRC\2022 Survey\Plans & Specs\Site\3458 Exis Cond 2023.dwg, C1 EXIS COND, 10/20/2023 7:14:25 AM

NORTH NAD83 (2011)
GRID NH SPC

#755
1 STORY BLOCK BUILDING

245/1
N/F
LAFAYETTE OF MICHIGAN, LLC
20630 HARPER AVENUE SUITE 107
HARPER WOODS, MI 48225
2868/2561

245/4

245/3

10' WIDE UTILITY EASEMENT

LEDGE (TYP.)

C3 MATCHLINE C2

C2 MATCHLINE C1

TOWER SUPPORT CABLES, (TYP.)

6" PVC INV. EL=19.34

BOULDER RETAINING WALL

4' CHAINLINK GATE & POSTS

CHAIN LINK FENCE AROUND TOWER GUY CABLE ANCHORS

NET&T 6

EXCLUSIVE GUY EASEMENT 2

EXCLUSIVE GUY EASEMENT 1

PILE OF DIRT & ASPHALT

INV. EL=14.29

HEADWALL

12" PVC

INV. EL=11.72

5/8" IRON ROD FOUND, FLUSH (NOT HELD)

5/8" IRON ROD FOUND, BENT, DOWN 5" (NOT HELD)

IRON ROD W/ CAP FOUND, "DURGIN/SCHOFIELD", DOWN 4"

BOLLARD (TYP.)

PSNH 274 4 10T NETCO 907 5 W/ CONDUIT

PSNH 907B 4.5

PSNH 21-274-2 3-1/2 907B/4-1/2 NET&T

6.5' CHAIN LINK FENCE

GATE

10' WIDE NON-EXCLUSIVE ACCESS EASEMENT 1

GRAVEL DRIVE

LP-2

B-6

B-1

B-1A

6" DIA. POLE UP 5'

10' WIDE NON-EXCLUSIVE ACCESS EASEMENT 2

EXCLUSIVE TOWER EASEMENT 2

8' H. CHAIN LINK FENCE

220' RADIO TOWER

NO #

WETLAND CLASSIFICATION (PSS1E/PEM1E)

SALT MARSH (E2EM1N)

SALT MARSH (E2EM1N)

HOTL

SAGAMORE CREEK

229/3
N/F
CITY OF PORTSMOUTH SCH
1 JUNKINS AVENUE
PORTSMOUTH, NH 03801
1985/0379

228/1
N/F
CITY OF PORTSMOUTH DPW
1 JUNKINS AVENUE
PORTSMOUTH, NH 03802
2237/1506

GRAPHIC SCALE
30 0 50 100 120 FEET
10 5 0 10 20 30 METERS

WETLAND NOTES:

1) HIGHEST OBSERVABLE TIDE LINE & WETLAND LINES DELINEATED BY STEVEN D. RIKER, CWS ON 11/18/22 IN ACCORDANCE WITH THE FOLLOWING STANDARDS:

A) U.S. ARMY CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL. TECHNICAL REPORT Y-87-1 (JAN. 1987). AND REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2012.

B) FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2, USDA-NRCS, 2018 AND (FOR DISTURBED SITES) FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4. NEIWPCC WETLANDS WORK GROUP (2019).

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2) HOTL & WETLAND WERE FIELD LOCATED BY AMBIT ENGINEERING, INC.

STATE OF NEW HAMPSHIRE STEVEN D. RIKER 10/20/23 No. 219 CERTIFIED WETLAND SCIENTIST

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN R. CHAGNON SIGNATURE

I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, WHICH HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000.

JOHN R. CHAGNON, LLS 738

10.20.23
DATE

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

SITE DEVELOPMENT
815 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ADD WETLAND NOTES	10/20/23
0	ISSUED FOR COMMENT	2/2/23

REVISIONS

SCALE: 1" = 30' JANUARY 2023

EXISTING CONDITIONS PLAN

C2

FB 441 PG 1

3458

P:\AMB\501015-1482_Development\1482-Lafayette Rd.-RC\2022 Survey\Plans & Specs\Site\1482 Site Cond 2023.dwg, C2 EXIS COND, 10/20/2023 8:34:26 AM

GENERAL NOTES:

1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
2. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
3. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
4. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES AND COMPLY WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
6. THE CONTRACTOR SHALL OBTAIN AND PAY FOR AND COMPLY WITH ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
7. THE CONTRACTOR SHALL PHASE DEMOLITION AND CONSTRUCTION AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO EXISTING BUSINESSES AND HOMES THROUGHOUT THE CONSTRUCTION PERIOD. EXISTING BUSINESS AND HOME SERVICES INCLUDE, BUT ARE NOT LIMITED TO ELECTRICAL, COMMUNICATION, FIRE PROTECTION, DOMESTIC WATER AND SEWER SERVICES. TEMPORARY SERVICES, IF REQUIRED, SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. CONTRACTOR SHALL PROVIDE DETAILED CONSTRUCTION SCHEDULE TO OWNER PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITIES AND SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
9. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
10. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
11. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
12. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.

DEMOLITION NOTES:

1. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
2. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
3. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
4. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
5. SAW CUT AND REMOVE PAVEMENT ONE (1) FOOT OFF PROPOSED EDGE OF PAVEMENT OR EXISTING CURB LINE IN ALL AREAS WHERE PAVEMENT TO BE REMOVED ABUTS EXISTING PAVEMENT OR CONCRETE TO REMAIN.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
7. UTILITIES SHALL BE TERMINATED AT THE MAIN LINE PER UTILITY COMPANY AND CITY OF PORTSMOUTH STANDARDS. THE CONTRACTOR SHALL REMOVE ALL ABANDONED UTILITIES LOCATED WITHIN THE LIMITS OF WORK UNLESS OTHERWISE NOTED.
8. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
9. PAVEMENT REMOVAL LIMITS ARE SHOWN FOR CONTRACTOR'S CONVENIENCE. ADDITIONAL PAVEMENT REMOVAL MAY BE REQUIRED DEPENDING ON THE CONTRACTOR'S OPERATION. CONTRACTOR TO VERIFY FULL LIMITS OF PAVEMENT REMOVAL PRIOR TO BID.
10. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT, CURBS, LIGHTING, MANHOLES, CATCH BASINS, UNDER GROUND PIPING, POLES, STAIRS, SIGNS, FENCES, RAMPS, WALLS, BOLLARDS, BUILDING SLABS, FOUNDATION, TREES AND LANDSCAPING.
11. REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
12. CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
13. PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
15. THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.
16. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL UTILITIES TO BE REMOVED AND PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.
17. THE CONTRACTOR SHALL REMOVE AND SALVAGE EXISTING GRANITE CURB FOR REUSE.

SITE NOTES:

1. PAVEMENT MARKINGS SHALL BE INSTALLED AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, FIRE LANES, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES. ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE PAVEMENT MARKINGS. ALL THERMOPLASTIC PAVEMENT MARKINGS INCLUDING LEGENDS, ARROWS, CROSSWALKS AND STOP BARS SHALL MEET THE REQUIREMENTS OF AASHTO M249. ALL PAINTED PAVEMENT MARKINGS INCLUDING CENTERLINES, LANE LINES AND PAINTED MEDIANS SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F".
2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
3. SEE DETAILS FOR PAVEMENT MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES.
5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
6. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE, WHITE THERMOPLASTIC AND CONFORM TO CURRENT MUTCD STANDARDS.
7. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
8. SEE ARCHITECTURAL/BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
10. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
11. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
12. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
13. GATE SHALL BE EQUIPPED WITH KNOX BOX. COORDINATE WITH THE CITY OF PORTSMOUTH FIRE DEPARTMENT.
14. THE PROPERTY MANAGER WILL BE RESPONSIBLE FOR TIMELY SNOW REMOVAL FROM ALL PRIVATE SIDEWALKS, DRIVEWAYS, AND PARKING AREAS. SNOW REMOVAL WILL BE HAULED OFF-SITE AND LEGALLY DISPOSED OF WHEN SNOW BANKS EXCEED 3 FEET IN HEIGHT.
15. CONTRACTOR SHALL COORDINATE WITH OWNER AND ELECTRICAL DRAWINGS FOR THE PROPOSED DUAL ELECTRIC VEHICLE CHARGING STATION TYPE, ELECTRICAL REQUIREMENTS AND CONDUIT LAYOUT PRIOR TO CONSTRUCTION.

GRADING AND DRAINAGE NOTES:

1. COMPACTION REQUIREMENTS:

BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%

* ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.

2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL) OR RCP CLASS IV, UNLESS OTHERWISE SPECIFIED.
3. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
4. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
5. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
6. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
7. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS AND 4' SUMPS.

EROSION CONTROL NOTES:

1. SEE SHEET C-501 FOR GENERAL EROSION CONTROL NOTES AND DETAILS.

UTILITY NOTES:

1. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
   - NATURAL GAS - UNITIL
   - WATER - CITY OF PORTSMOUTH
   - SEWER - CITY OF PORTSMOUTH
   - ELECTRIC - EVERSOURCE
   - COMMUNICATIONS - CONSOLIDATED COMM/FAIRPOINT/COMCAST
2. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE.
3. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE CITY OF PORTSMOUTH WATER DEPARTMENT.
4. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
5. CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH DPW STANDARDS.
6. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
7. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
8. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
9. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
10. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
11. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
12. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.
13. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
14. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
15. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
16. ALL SEWER PIPE WITH LESS THAN 6' OF COVER IN PAVED AREAS OR LESS THAT 4' OF COVER IN UNPAVED AREAS SHALL BE INSULATED.
17. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
18. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER.
19. CONTRACTOR SHALL CONSTRUCT ALL UTILITIES AND DRAINS TO WITHIN 10' OF THE FOUNDATION WALLS AND CONNECT THESE TO SERVICE STUBS FROM THE BUILDING.
20. CONTRACTOR SHALL FIELD VERIFY EXISTING SEWER LINE LOCATION, INVERT AND DIAMETER PRIOR TO CONSTRUCTION AND SHALL SUBMIT FIELD INFORMATION TO ENGINEER FOR REVIEW. MODIFICATIONS TO THE NEW SEWER CONNECTION LOCATION AND ELEVATION MAY BE NECESSARY BASED ON THE OBSERVED EXISTING CONDITIONS.

EXISTING CONDITIONS PLAN NOTES:

1. EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY AMBIT ENGINEERING, INC. DATED 01/26/2023.

LEGEND

- APPROXIMATE LIMIT OF SAWCUT
- LIMIT OF WORK
- APPROXIMATE LIMIT OF PAVEMENT TO BE REMOVED
- EXISTING TREES TO BE REMOVED
- EXISTING BUILDING TO BE REMOVED
- LOCATION OF PROPOSED BUILDING
- PROPERTY LINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED GRAVEL PAVEMENT SECTION
- PROPOSED PAVEMENT SECTION
- PROPOSED WOOD CHIP TRAIL
- PROPOSED CONCRETE
- PROPOSED PATIO PAVERS
- 25 PROPOSED MAJOR CONTOUR LINE
- 24 PROPOSED MINOR CONTOUR LINE
- D EXISTING STORM DRAIN
- XD APPROXIMATE STORM DRAIN
- EXISTING DRAIN CATCH BASIN
- S EXISTING SANITARY SEWER
- XS APPROXIMATE SANITARY SEWER
- W EXISTING WATER
- W EXISTING WATER TBR
- G EXISTING GAS
- G EXISTING GAS TBR
- E EXISTING UNDERGROUND ELECTRIC
- OHW EXISTING OVERHEAD UTILITY
- EXISTING SEWER MANHOLE
- EXISTING HYDRANT
- WV EXISTING WATER VALVE
- EXISTING ELECTRIC MANHOLE
- EXISTING TELEPHONE MANHOLE
- PROPOSED DRAIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED JELLY FISH FILTER
- PROPOSED INLET PROTECTION BARRIER
- PROPOSED DRAINLINE
- PROPOSED SEWER MANHOLE
- PS PROPOSED SEWER LINE
- G PROPOSED GAS LINE
- PW PROPOSED WATER LINE
- PROPOSED WATER VALVE
- PROPOSED THRUST BLOCK
- PE PROPOSED UNDERGROUND ELECTRIC LINE
- T PROPOSED TRANSFORMER

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
AC	ACRES
ADA	AMERICANS WITH DISABILITIES ACT
AGGR	AGGREGATE
BLDG	BUILDING
BC	BOTTOM OF CURB
CB	CATCH BASIN
CONST	CONSTRUCT
COORD	COORDINATE
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DMH	DRAINAGE MANHOLE
DWG	DRAWING
ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EV	ELECTRIC VEHICLE
FF	FINISHED FLOOR
FGC	FLUSH GRANITE CURB
HDPE	HIGH DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
HYD	HYDRANT
ID	INSIDE DIAMETER
INV	INVERT
L	LENGTH
LF	LINEAR FEET
MAX	MAXIMUM
MIN	MINIMUM
OC	ON CENTER
PCB	PROPOSED CATCH BASIN
PDMH	PROPOSED DRAINAGE MANHOLE
POS	PROPOSED OUTLET STRUCTURE
PROP	PROPOSED
PSMH	PROPOSED SEWER MANHOLE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT OF WAY
SGC	SLOPED GRANITE CURB
SF	SQUARE FEET
STD	STANDARD
TBR	TO BE REMOVED
TC	TOP OF CURB
TYP	TYPICAL
UD	UNDERDRAIN
W	WIDTH
W/	WITH
YD	YARD DRAIN

Tighe&Bond

STATE OF NEW HAMPSHIRE – NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER
11/22/2023

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
11/22/2023

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD
PORTSMOUTH,
NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
B	11/22/2023	TAC Resubmission
A	10/23/2023	TAC Submission

PROJECT NO:	M5131-001
DATE:	10/23/2023
FILE:	M5131-001-DSGN.dwg
DRAWN BY:	CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

GENERAL NOTES

SCALE: AS SHOWN

G-100

245/1
N/F
LAFAYETTE OF MICHICAN, LLC
20630 HARPER AVENUE SUITE 107
HARPER WOODS, MI 48225
2868/2561

245/2
N/F
ARANOSIAN OIL CO., INC.
557 NO. STATE STREET
CONCORD, NH 03301
3549/1269

#755
1 STORY BLOCK BUILDING

#815
2 STORY BUILDING PEAK=44.63

MAP 245 LOT 3

10' WIDE NON-EXCLUSIVE ACCESS EASEMENT 1

20' WIDE ACCESS EASEMENT 2320/1797

10' WIDE NON-EXCLUSIVE ACCESS EASEMENT 2

EXCLUSIVE TOWER EASEMENT 2

LAFAYETTE ROAD-U.S. ROUTE 1

PILE OF DIRT & ASPHALT

INV. EL=14.29

HEADWALL

12" PVC

INV. EL=11.72

WETLAND CLASSIFICATION (PSS1E/PEM1E)

SALT MARSH (E2EM1N)

SAGAMORE CREEK

WETLAND CLASSIFICATION (PSS1E/PEM1E)

BOLLARD (TYP.)

6.5' CHAIN LINK FENCE

6' CHAIN LINK FENCE

END SILT SOCK

EXISTING GATE TO BE REMOVED

GATE

EXISTING 10' WIDE NON-EXCLUSIVE ACCESS EASEMENT 1 TO BE MODIFIED (SEE SHEET C-201)

APPROXIMATE LIMIT OF TREE LINE TO BE REMOVED

15' REAR YARD SETBACK

GRAVEL DRIVE

EXISTING GRAVEL TO BE REMOVED

EXISTING CHAIN LINK FENCE TO BE REMOVED

LOCATION OF PROPOSED BUILDING (TYP)

PROPOSED SILT SOCK

APPROXIMATE LIMIT OF TREE LINE TO BE REMOVED

6" DIA. POLE UP 5'

EXISTING BUILDING TO BE REMOVED

DRAIN PIPE FROM BUILDING

EXISTING FLAGPOLE TO BE REMOVED

FLAGPOLE

EXISTING 10' WIDE NON-EXCLUSIVE ACCESS EASEMENT 2 TO BE ABANDONED

EXISTING CONCRETE PAD TO BE REMOVED

CONCRETE (TYP.)

EXISTING EXCLUSIVE TOWER EASEMENT 2 TO BE ABANDONED

APPROXIMATE LIMIT OF WORK

EXISTING PAVEMENT TO BE REMOVED

EXISTING LIGHT TO BE REMOVED (TYP)

EXISTING MAPLE TREES TO BE REMOVED (TYP)

EXISTING GAS LINE TO BE REMOVED (TYP)

EXISTING CONCRETE SIDEWALK TO BE REMOVED (TYP OF 3)

MANHOLE

EXISTING ELECTRIC OUTLET TO BE REMOVED (TYP)

APPROXIMATE LIMIT OF SAW CUT

PROPOSED INLET PROTECTION BARRIER (TYP)

GAS STATION SIGN

PUMP STATION CANOPY

MOBIL STATION

MANHOLE

DUMPSTER PAD

6' WOOD FENCE (TYP.)

MONITORING WELL

EXISTING LIGHT TO BE REMOVED (TYP)

APPROXIMATE LIMIT OF SAW CUT

EXISTING SIGN WITH BRICK PILLARDS TO BE REMOVED

HEART SIGN W/ BRICK PILLARS

EXISTING PINE TREE TO BE REMOVED (TYP OF 2)

VISITOR PARKING SIGNS

EXISTING SIGN TO BE REMOVED (TYP OF 3)

EXISTING PINE TREE TO BE REMOVED (TYP OF 3)

EXISTING PATIO TO BE REMOVED

BEGIN SILT SOCK

EXISTING LIGHT TO BE REMOVED

CONCRETE WALKWAY

CONCRETE PAD TBR

EXISTING UTILITY POLE TBR (TYP)

EXISTING OVERHEAD WIRE TBR (TYP)

EXISTING GUY WIRE TBR (TYP)

CONCRETE PAD FOR ROAD SIGN

SIGN EASEMENT TO NHDOT SEE 3479/2603

16" CONCRETE PIPE W/ FLARED END SECTION INV. EL=5.25

MONITORING WELL

SIDEWALK

BILLBOARD

DRAINAGE EASEMENT TO NHDOT SEE 3479/2603

SALT MARSH (E2EM1N)

100' WETLAND BUFFER

50' WETLAND BUFFER

25' WETLAND BUFFER

SEE SHEET G-100 FOR DEMOLITION NOTES AND LEGEND

N

0 30' 60'
GRAPHIC SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED PROFESSIONAL ENGINEER
11/22/2023

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED PROFESSIONAL ENGINEER
11/22/2023

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
B	11/22/2023	TAC Resubmission
A	10/23/2023	TAC Submission

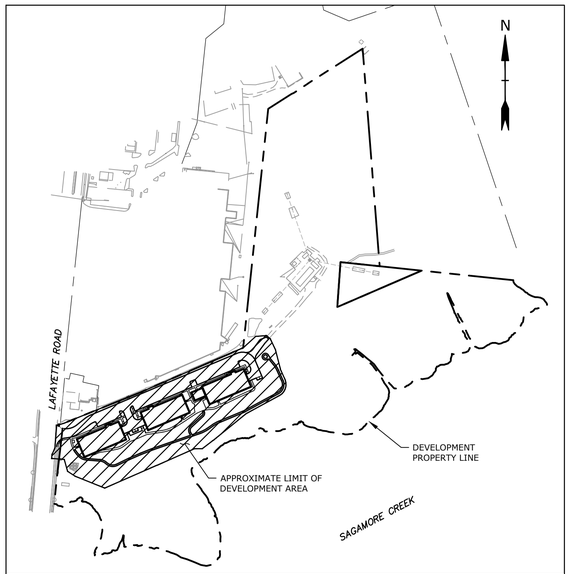
PROJECT NO:	M5131-001
DATE:	10/23/2023
FILE:	M5131-001-DSGN.dwg
DRAWN BY:	CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: AS SHOWN

C-101

Last Saved: 11/21/2023
Plotted: Nov 22, 2023 -7:57am By: Ckrzeuik
Tighe & Bond:J:\W\M5131 MB2 Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-DSGN.dwg



SITE DEVELOPMENT PLAN

0 250' 500'
GRAPHIC SCALE

SITE DATA:
LOCATION: TAX MAP 245, LOT 3
815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

ZONING DISTRICT: GATEWAY DISTRICT (G1)

PROPOSED USE: MULTIFAMILY

DIMENSIONAL REQUIREMENTS:	REQUIRED	PROPOSED
MINIMUM LOT AREA:	10,000 SF	±855,567 SF
MINIMUM SITE WIDTH:	75 FT	±265 FT
MINIMUM SITE LENGTH:	100 FT	±983 FT
MINIMUM COMMUNITY SPACE:	10%	10%
MINIMUM STREET FRONTAGE:		
APARTMENT BUILDING:	100 FT	±267 FT
FRONT YARD SETBACK:		
LAFAYETTE ROAD SETBACK	70-90 FT	±90 FT
MIN. SIDE YARD SETBACK		
APARTMENT BUILDING:	15 FT	±56 FT
MIN. REAR YARD SETBACK		
APARTMENT BUILDING:	20 FT	±370 FT
MAXIMUM BUILDING HEIGHT		
APARTMENT BUILDING:	50 FT	45.89 FT
MAXIMUM BUILDING COVERAGE:	50%	±3.6%
FRONT LOT LINE BUILD OUT:	50%	±0%(1)
MINIMUM OPEN SPACE:	20%	±91%

(1) - VARIANCE GRANTED BY ZONING BOARD OF ADJUSTMENTS ON SEPTEMBER 26, 2023, FROM SECTION 10.5B33.20, 50% FRONT LOT LINE BUILD OUT, AND SECTION 10.5B33.30, PRIMARY FACADE BUILT PARALLEL TO A FRONT LOT LINE.

PARKING CALCULATIONS:

PARKING SPACE REQUIREMENTS:

REQUIRED PARKING SPACES	
1.3 SPACES PER UNIT x 72 UNITS	= 94 SPACES
+1 VISITOR PER 5 UNITS	= 15 SPACES
TOTAL REQUIRED PARKING	= 109 SPACES
PROVIDED PARKING SPACES	
SURFACE SPACES	= 49 SPACES
INTERNAL SPACES	= 72 SPACES
TOTAL PROVIDED SPACES	= 121 SPACES

	REQUIRED	PROPOSED
ACCESSIBLE PARKING SPACES:	5 SPACES	9 SPACES

DIMENSIONAL REQUIREMENTS:		
STANDARD 90° STALL :		
WIDTH	8.5 FT MIN	8.5 FT
LENGTH	19 FT MIN	19 FT
DRIVE AISLE WIDTH:		
90° (2-WAY TRAFFIC)	24 FT	26 FT (MIN)

N

CHAIN LINK FENCE AROUND TOWER GUY CABLE ANCHORS

#755 1 STORY BLOCK BUILDING

245/1 N/F LAFAYETTE OF MICHIGAN, LLC 20630 HARPER AVENUE SUITE 107 HARPER WOODS, MI 48225 2868/2561

EXCLUSIVE GUY EASEMENT 2

EXCLUSIVE GUY EASEMENT 1

10' WIDE NON-EXCLUSIVE ACCESS EASEMENT 1

4' CHAINLINK GATE & POSTS

50' LIMITED CUT BUFFER

100' TIDAL BUFFER

25' VEGETATED BUFFER

HOTL

BOLLARD (TYP.)

983'

49 SPACES

26' TYP

8.5' TYP

19' TYP

56'

24 SPACES

BUILDING 3
4-STORY
24 RESIDENTIAL UNITS
± 9,750 SF FOOTPRINT

LEASING OFFICE
± 1,200 SF FOOTPRINT

BUILDING 2
4-STORY
24 RESIDENTIAL UNITS
± 9,750 SF FOOTPRINT

BUILDING 1
4-STORY
24 RESIDENTIAL UNITS
± 9,750 SF FOOTPRINT

MAP 245 LOT 3

DUMPSTER PAD

PUMP STATION CANOPY

MOBIL STATION

6' WOOD FENCE (TYP.)

90'

114'

58'

267'

CONCRETE PAD FOR ROAD SIGN

SIGN EASEMENT TO NHDOT SEE 3479/2603

DRAINAGE EASEMENT TO NHDOT SEE 3479/2603

GUARD RAIL

WETLAND CLASSIFICATION (PSS1E/PEM1E)

370'

SALT MARSH (E2EM1N)

SAGAMORE CREEK

244/2 N/F JOSE F. SALEMA C/O JFS MANAGEMENT, LLC 780 PORTSMOUTH AVENUE GREENLAND, NH 03840 6161/2428

244/1 N/F PUBLIC SERVICE CO. OF N.H. P.O. BOX 270 HARTFORD, CT 16141 1309/0008

253/14 N/F DINNER HORN REALTY INC. 980 LAFAYETTE ROAD PORTSMOUTH, NH 03801 2016/0047

228/1 N/F CITY OF PORTSMOUTH DPW 1 JUNKINS AVENUE PORTSMOUTH, NH 03802 2237/1506

SITE RECORDING NOTES:

1. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
2. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
3. THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH.

SEE SHEET G-100 FOR SITE NOTES AND LEGEND

Tighe&Bond

STATE OF NEW HAMPSHIRE — NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER — 11/22/2023

STATE OF NEW HAMPSHIRE — PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER — 11/22/2023

0 40' 80'
GRAPHIC SCALE

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
B	11/22/2023	TAC Resubmission
A	10/23/2023	TAC Submission

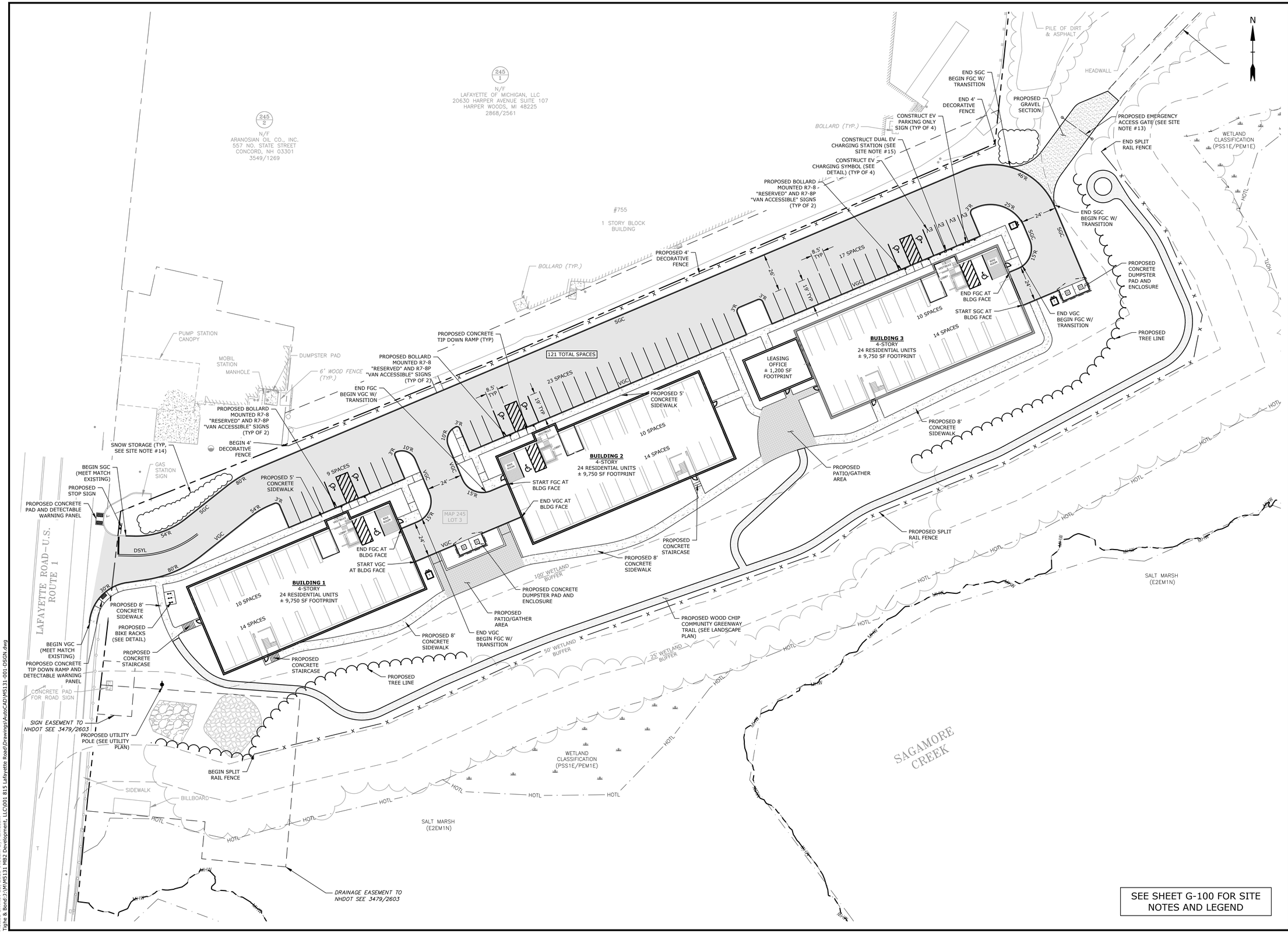
PROJECT NO:	M5131-001
DATE:	10/23/2023
FILE:	M5131-001-DSGN.dwg
DRAWN BY:	CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

OVERALL SITE PLAN

SCALE: AS SHOWN

C-102

Last Saved: 11/22/2023
Printed: 11/22/2023 9:15am By: CKrzeuik
Tighe & Bond:J:\M\M5131 MB2 Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-DSGN.dwg



SEE SHEET G-100 FOR SITE NOTES AND LEGEND

Tighe&Bond

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED PROFESSIONAL ENGINEER
11/22/2023

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED PROFESSIONAL ENGINEER
11/22/2023

0 30' 60'
GRAPHIC SCALE

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

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SITE PLAN

SCALE: AS SHOWN

C-102.1

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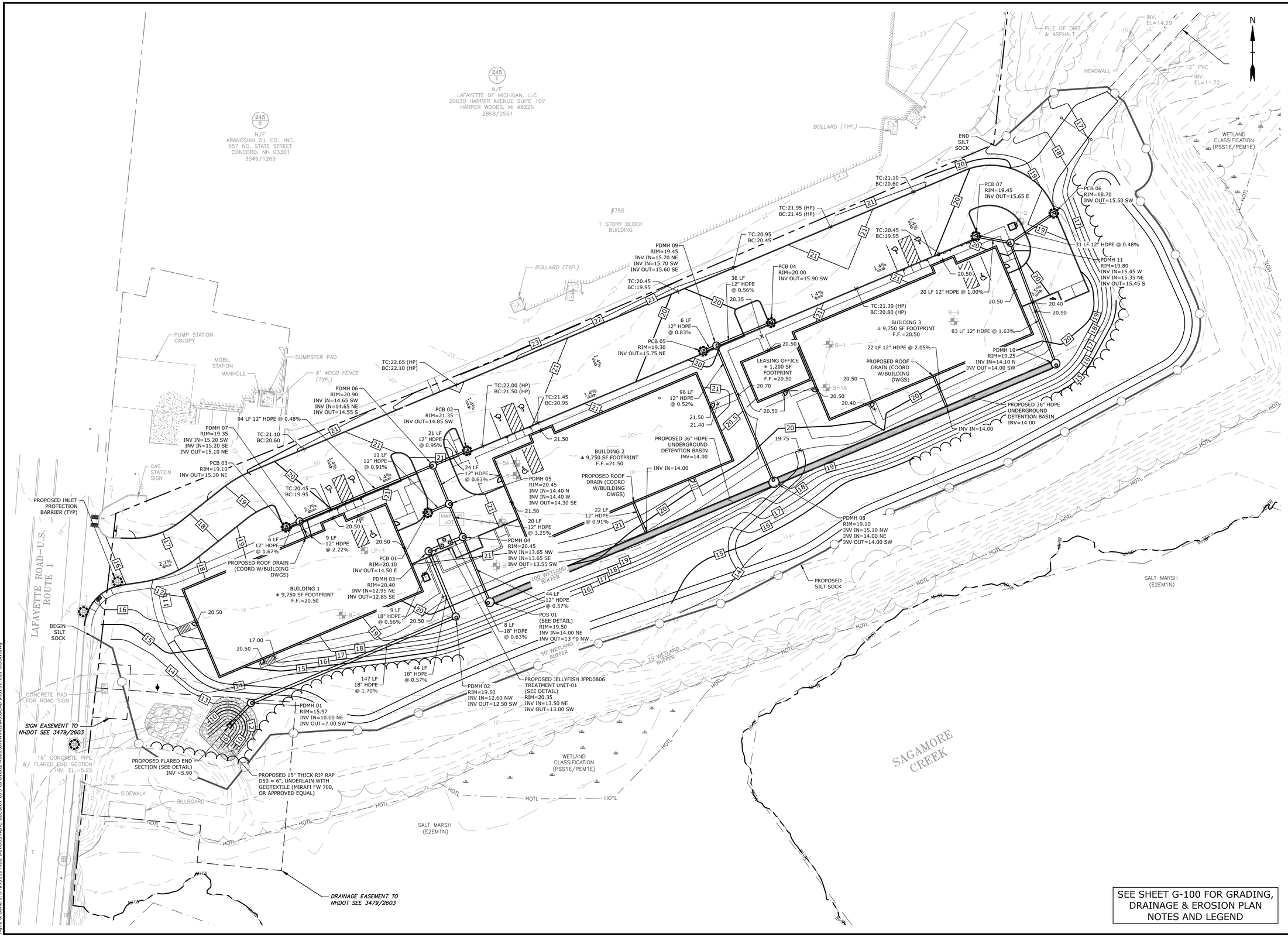

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GRADING, DRAINAGE & EROSION CONTROL PLAN

SCALE: AS SHOWN

C-103

Last Saved: 11/22/2023
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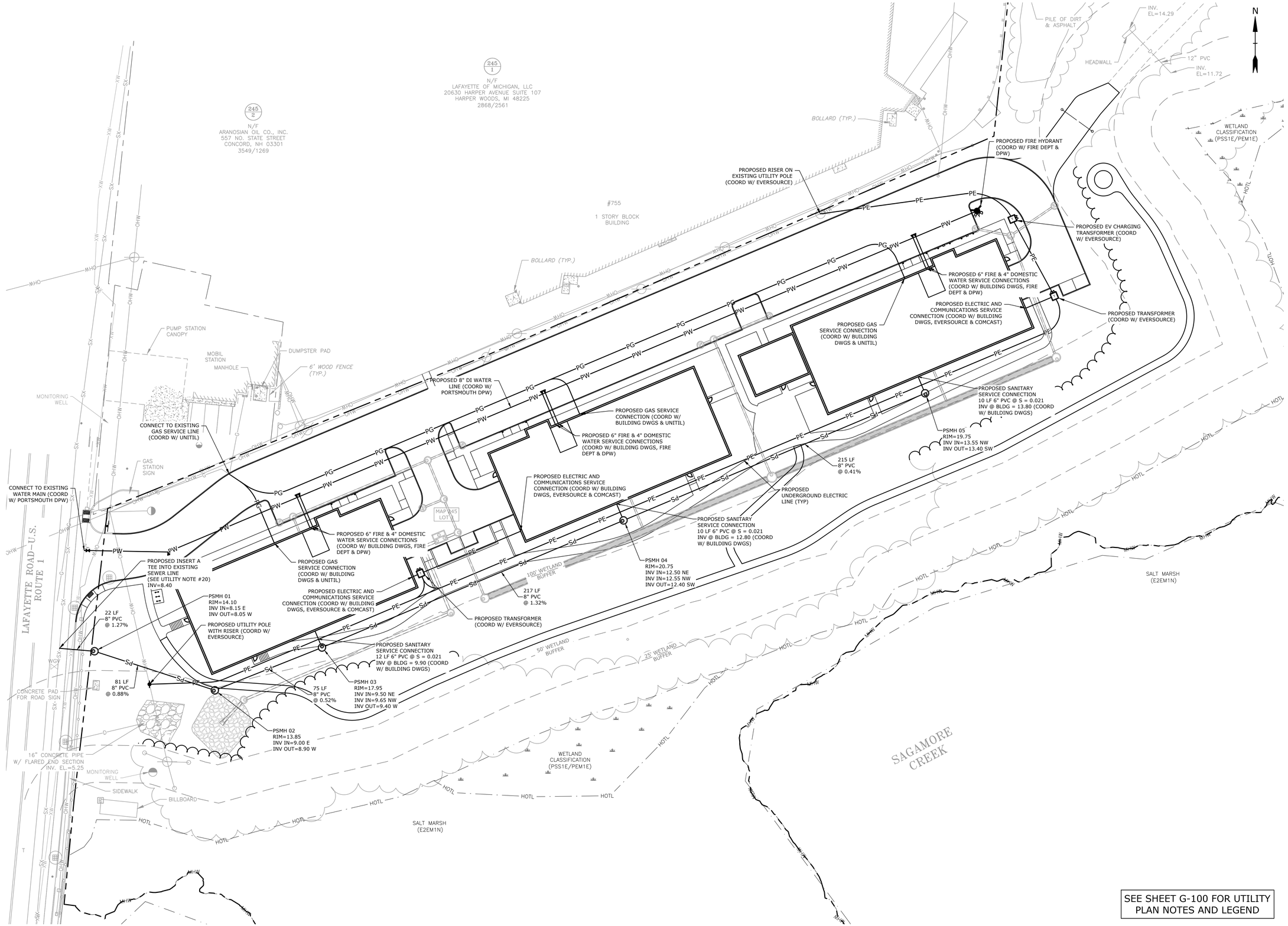

SEE SHEET G-100 FOR UTILITY PLAN NOTES AND LEGEND

Tighe&Bond

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NEIL A. HANSEN
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11/22/2023

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0 30' 60'
GRAPHIC SCALE

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UTILITY PLAN

SCALE: AS SHOWN

C-104

Last Saved: 11/22/2023 8:16am By: CKreizulk
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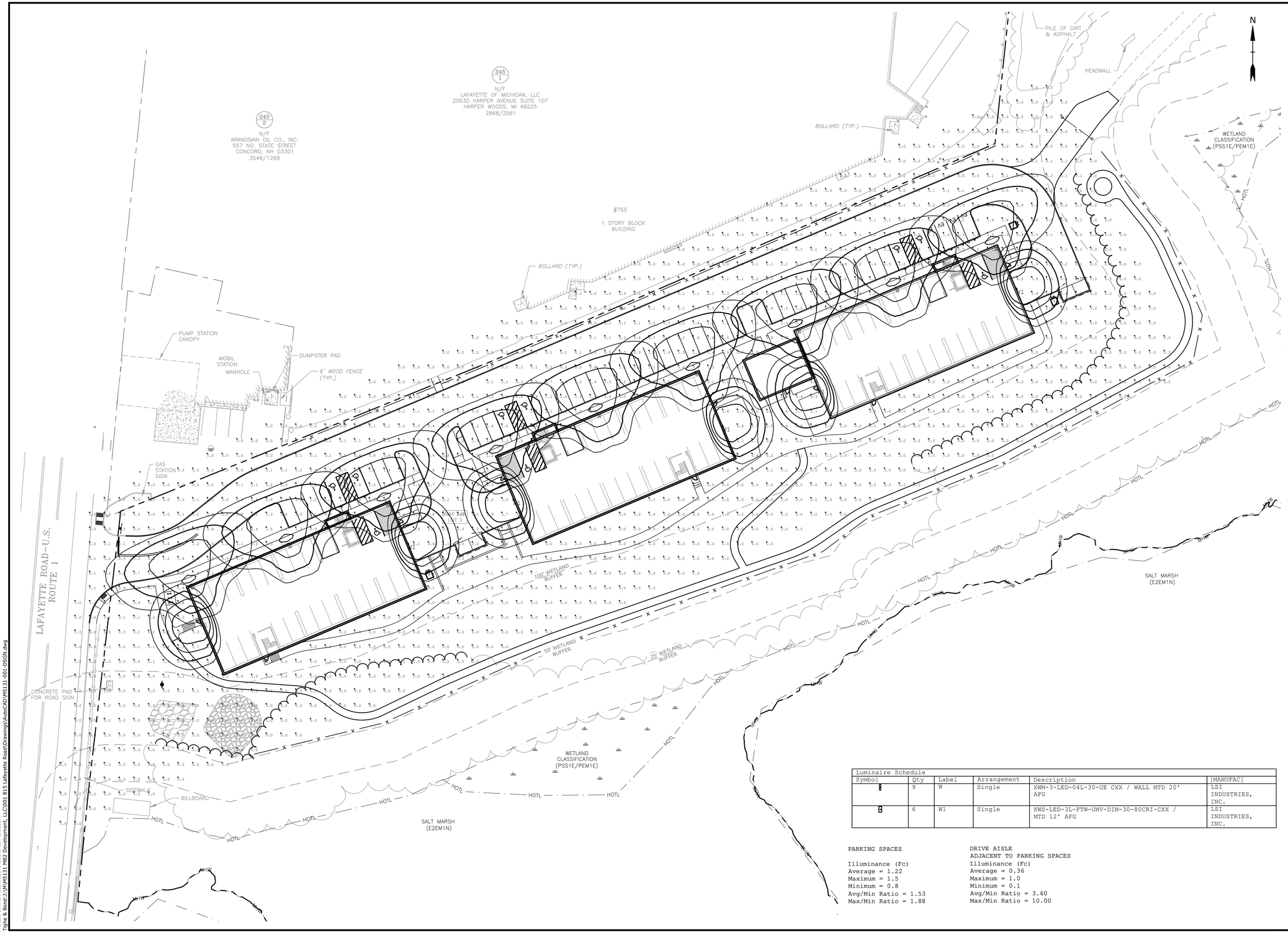

Luminaire Schedule					
Symbol	Qty	Label	Arrangement	Description	[MANUFAC]
	9	W	Single	XWM-3-LED-04L-30-UE CXX / WALL MTD 20' AFG	LSI INDUSTRIES, INC.
	6	W1	Single	XWS-LED-3L-FTW-UNV-DIM-30-80CRI-CXX / MTD 12' AFG	LSI INDUSTRIES, INC.

PARKING SPACES

Illuminance (Fc)
Average = 1.22
Maximum = 1.5
Minimum = 0.8
Avg/Min Ratio = 1.53
Max/Min Ratio = 1.88

DRIVE AISLE
ADJACENT TO PARKING SPACES
Illuminance (Fc)
Average = 0.36
Maximum = 1.0
Minimum = 0.1
Avg/Min Ratio = 3.60
Max/Min Ratio = 10.00

Tighe&Bond

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11/22/2023

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PROSPECT NORTH 815, LLC

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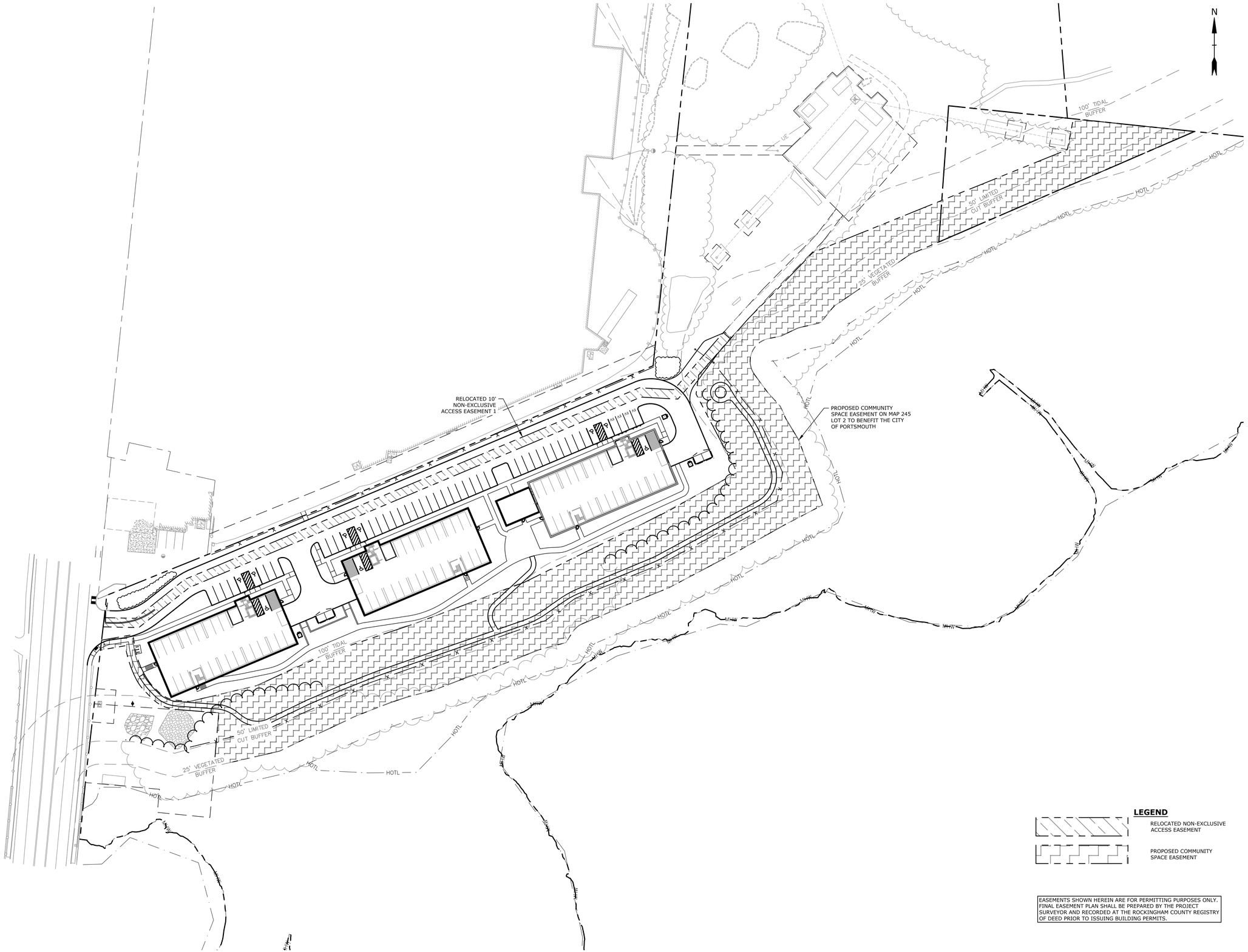
PHOTOMETRIC PLAN

SCALE: AS SHOWN

C-105



Tighe&Bond

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LICENSED PROFESSIONAL ENGINEER
11/22/2023

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11/22/2023

0 50' 100'
GRAPHIC SCALE

PROPOSED MULTI-FAMILY DEVELOPMENT

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PORTSMOUTH, NEW HAMPSHIRE

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EASEMENT PLAN

SCALE: AS SHOWN

C-201

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL FURNISH AND PLANT ALL PLANTS IN QUANTITIES AS SHOWN ON THIS PLAN. NO SUBSTITUTIONS WILL BE PERMITTED UNLESS APPROVED BY OWNER. ALL PLANTS SHALL BE NURSERY GROWN.
2. ALL PLANTS SHALL BE NURSERY GROWN AND PLANTS AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS, INCLUDING BUT NOT LIMITED TO SIZE, HEALTH, SHAPE, ETC., AND SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO ARRIVAL ON-SITE AND AFTER PLANTING.
3. PLANT STOCK SHALL BE GROWN WITHIN THE HARDINESS ZONES 4 THRU 7 ESTABLISHED BY THE PLANT HARDINESS ZONE MAP, MISCELLANEOUS PUBLICATIONS NO. 814, AGRICULTURAL RESEARCH SERVICE, UNITED STATES DEPARTMENT AGRICULTURE, LATEST REVISION.
4. PLANT MATERIAL SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE PRIOR TO DIGGING.
5. THE NUMBER OF EACH INDIVIDUAL PLANT TYPE AND SIZE PROVIDED IN THE PLANT LIST OR ON THE PLAN IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. IF A DISCREPANCY EXISTS BETWEEN THE NUMBER OF PLANTS ON THE LABEL AND THE NUMBER OF SYMBOLS SHOWN ON THE DRAWINGS, THE GREATER NUMBER SHALL APPLY.
6. NO SUBSTITUTION OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
7. THE CONTRACTOR SHALL LOCATE, VERIFY AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTING AND UTILITIES SHALL IMMEDIATELY BE REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED, SHALL RECEIVE 6" OF LOAM AND SEED. NO FILL SHALL BE PLACED IN ANY WETLAND AREA.
9. THREE INCHES (3") OF BARK MULCH IS TO BE USED AROUND THE TREE AND SHRUB PLANTING AS SPECIFIED IN THE DETAILS. WHERE BARK MULCH IS TO BE USED IN A CURBED ISLAND THE BARK MULCH SHALL MEET THE TOP INSIDE EDGE OF THE CURB. ALL OTHER AREAS SHALL RECEIVE 6" INCHES OF LOAM AND SEED.
10. LANDSCAPING SHALL BE LOCATED WITHIN 150 FT OF EXTERIOR HOSE ATTACHMENT OR SHALL BE PROVIDED WITH AN IRRIGATION SYSTEM.
11. SEE PLANTING DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
12. TREE STAKES SHALL REMAIN IN PLACE FOR NO LESS THAN 6 MONTHS AND NO MORE THAN 1 YEAR.
13. PLANTING SHALL BE COMPLETED FROM APRIL 15TH THROUGH OCTOBER 1ST. NO PLANTING DURING JULY AND AUGUST UNLESS SPECIAL PROVISIONS ARE MADE FOR DROUGHT.
14. PARKING AREA PLANTED ISLANDS TO HAVE MINIMUM OF 1'-0" TOPSOIL PLACED TO WITHIN 3 INCHES OF THE TOP OF CURB ELEVATION. REMOVE ALL CONSTRUCTION DEBRIS BEFORE PLACING TOPSOIL.
15. TREES SHALL BE PRUNED IN ACCORDANCE WITH THE LATEST EDITION OF ANSI A300 'TREES, SHRUBS AND OTHER WOOD PLANT MAINTENANCE STANDARD PRACTICES.
16. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN, IF NECESSARY DURING THE FIRST GROWING SEASON. LANDSCAPE CONTRACTOR SHALL COORDINATE WATERING SCHEDULE WITH OWNER DURING THE ONE (1) YEAR GUARANTEE PERIOD.
17. EXISTING TREES AND SHRUBS SHOWN ON THE PLAN ARE TO REMAIN UNDISTURBED. ALL EXISTING TREES AND SHRUBS SHOWN TO REMAIN ARE TO BE PROTECTED WITH A 4-FOOT SNOW FENCE PLACED AT THE DRIP LINE OF THE BRANCHES OR AT 8 FEET MINIMUM FROM THE TREE TRUNK. ANY EXISTING TREE OR SHRUB SHOWN TO REMAIN, WHICH IS REMOVED DURING CONSTRUCTION, SHALL BE REPLACED BY A TREE OF COMPARABLE SIZE AND SPECIES TREE OR SHRUB.
18. THE CONTRACTOR SHALL GUARANTEE ALL PLANTINGS TO BE IN GOOD HEALTHY, FLOURISHING AND ACCEPTABLE CONDITION FOR A PERIOD OF ONE (1) YEAR BEGINNING AT THE DATE OF ACCEPTANCE OF SUBSTANTIAL COMPLETION. ALL GRASSES, TREES AND SHRUBS THAT, IN THE OPINION OF THE LANDSCAPE ARCHITECT, SHOW LESS THAN 80% HEALTHY GROWTH AT THE END OF ONE YEAR PERIOD SHALL BE REPLACED BY THE CONTRACTOR.
19. UPON EXPIRATION OF THE CONTRACTOR'S ONE YEAR GUARANTEE PERIOD, THE OWNER SHALL BE RESPONSIBLE FOR LANDSCAPE MAINTENANCE INCLUDING WATERING DURING PERIODS OF DROUGHT
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL THE FORMAL ACCEPTANCE OF ALL THE PLANTINGS.
21. PRE-PURCHASE PLANT MATERIAL AND ARRANGE FOR DELIVERY TO MEET PROJECT SCHEDULE AS REQUIRED IT MAY BE NECESSARY TO PRE-DIG CERTAIN SPECIES WELL IN ADVANCE OF ACTUAL PLANTING DATES.

COMMUNITY TRAIL NOTES:

1. THE COMMUNITY TRAIL DEPICTED ON THIS PLAN IS INTENDED FOR PERMITTING PURPOSES ONLY. FINAL TRAIL ALIGNMENT SHALL BE FIELD DELINEATED AND VERIFIED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.
   1.1. THE TRAIL SHALL BE LAID OUT IN MANNER THAT PROTECTS EXISTING NATIVE WELL ESTABLISHED TREES GREATER THAN 3 INCHES IN DIAMETER.
   1.2. TRAIL WIDTH SHALL HAVE A MINIMUM WIDTH OF APPROXIMATELY 5' AND A MAXIMUM WIDTH OF 6'.
   1.3. IN NO INSTANCE SHALL SOIL BE CUT OR FILLED TO CONSTRUCT THE TRAIL IN EXISTING WOODLAND RESTORATION AREA.
   1.4. TRAIL ALIGNMENT SHALL BE LIMITED TO THE UPLAND PORTION OF LAND BETWEEN THE 50 FT AND 100 FT WETLAND BUFFER.
   1.5. TRAIL ALIGNMENT SHALL BE COORDINATED WITH THE INVASIVE SPECIES REMOVAL TO BE STRATEGICALLY PLACED WHERE EXISTING VEGETATION HAS BEEN DISTURBED.
2. THE TRAIL SHALL CONSIST OF 2 INCHES OF NATIVE WOOD CHIPS LAID DIRECTLY ON EXISTING FORESTED LAND OR PLACED LOAM.
3. CONTRACTOR SHALL PRIORITIZE THE USE OF WOOD CHIPS FROM THE NATIVE TREES ON SITE REQUIRED TO BE REMOVED FOR CONSTRUCTION ACTIVITIES.
4. SHOULD ADDITIONAL WOOD CHIPS BE NEEDED, THEY SHALL BE NON INVASIVE NATIVE WOOD CHIPS.
5. FINAL ALIGNMENT OF THE TRAIL IS SUBJECT TO REVIEW AND APPROVAL BY THE PLANNING AND SUSTAINABILITY DIRECTOR AND ANY SUBSEQUENT MODIFICATION WILL BE SUBJECT TO THE PB APPROVAL AS A SITE PLAN AMENDMENT.

WOODLAND RESTORATION NOTES

1. INVASIVE PLANT MATERIALS WILL BE REMOVED IN ACCORDANCE WITH THE INVASIVE SPECIES REMOVAL PLAN. INVASIVE REMOVAL WILL BE CONDUCTED USING MECHANICAL WHOLE PLANT REMOVAL STRATEGIES AND CHIPPED AND COMPOSTED AT AN APPROPRIATE FACILITY OR BURNED ON SITE ACCORDING TO LOCAL FIRE DEPARTMENT RULES AND REGULATIONS.
2. AN EXISTING TREE SURVEY WILL BE COMPLETED FOR THE PROJECT AS PART OF THE NHDES SHORELAND PERMITTING PROCESS AT WHICH TIME ALL EXISTING TREES ALONG THE SHORELAND WILL BE IDENTIFIED BY SPECIES AND SIZE.
3. EXISTING TREES THAT ARE DEEMED IN GOOD HEALTH WILL BE IDENTIFIED ON THE LANDSCAPE PLAN AS TO REMAIN.
4. TREES DEEMED TO BE IN POOR HEALTH BY THE PROJECT ENVIRONMENTAL SCIENTIST OR INUNDATED BY INVASIVE SPECIES WILL BE REMOVED AND REPLACED IN KIND WITH A NATIVE TREE.
5. ADDITIONAL LANDSCAPE BUFFER ENHANCEMENT MAY BE ADDED TO THE PROPOSED LANDSCAPE PLAN TO FURTHER ENHANCE THE WETLAND BUFFER.
6. INVASIVE SPECIES REMOVAL WILL BE LIMITED TO THE UPLAND AREA OUTSIDE OF MEAN HIGH WATER LINE AND OR TO THE TOP OF THE STEEP BANK SLOPES TO MAINTAIN VEGETATION FOR SOIL STABILIZATION MEASURES.

RESTORATION PLANTING NOTES

1. INVASIVE PLANT MATERIALS WILL BE REMOVED USING MECHANICAL WHOLE PLANT REMOVAL STRATEGIES AND CHIPPED AND COMPOSTED AT AN APPROPRIATE FACILITY OR BURNED ON SITE ACCORDING TO LOCAL FIRE DEPARTMENT RULES AND REGULATIONS.
2. DISTURBED SOILS WILL BE AUGMENTED AS NEEDED WITH A CUSTOM BLENDED SOIL OF ONE PART LOAM, ONE PART COMPOST AND ONE PART CLEAN SAND.
3. SEEDED AREAS ARE TO BE COVERED WITH SALT MARSH HAY TO RETAIN SOIL MOISTURE AND PROTECT AGAINST SEED PREDATION BY BIRDS AND SMALL ANIMALS.
4. NATIVE PLANT MATERIAL WILL BE LAID OUT AND INSTALLED BY AN ECOLOGICAL RESTORATION SPECIALIST OR PERSONS TRAINED IN HORTICULTURAL PRACTICES. EXACT PLANT LOCATIONS WILL BE DETERMINED IN THE FIELD BASED ON SITE SPECIFIC PLANTING CONDITIONS AND MICROTOPOGRAPHY.
5. THE NEW PLANTINGS WILL BE WATERED FOR ONE FULL GROWING SEASON OR UNTIL SEED AND PLANT MATERIALS ARE ESTABLISHED.
6. MONTHLY INSPECTIONS WILL BE CONDUCTED DURING THE FIRST GROWING SEASON AND TREATMENT/REMOVAL OF INVASIVE SPECIES WILL BE IMPLEMENTED AS NEEDED DURING THE ESTABLISHMENT PERIOD.
7. CARE IS TO BE TAKEN IN REMOVING ANY NEW COLONIZING INVASIVE PLANT MATERIAL TO MINIMIZE DISTURBANCE TO ESTABLISHING NATIVE PLANT SPECIES.
8. PRACTICES REGARDING USE OF FERTILIZERS AND PESTICIDES WILL COMPLY WITH ORDINANCES 10.1018.24 AND 10.1018.25.

CITY OF PORTSMOUTH BUFFER VEGETATION NOTES

1. REMOVAL OR CUTTING OF VEGETATION
   1.1. CHEMICAL CONTROL OF VEGETATION IS PROHIBITED IN ALL AREAS OF A WETLAND OR WETLAND BUFFER.
   1.2. THE REMOVAL OR CUTTING OF VEGETATION IS PROHIBITED IN A WETLAND OR VEGETATED BUFFER STRIP, EXCEPT THAT NON-CHEMICAL CONTROL OF PLANTS DESIGNATED BY THE STATE OF NEW HAMPSHIRE AS "NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES" IS PERMITTED.
   1.3. THE REMOVAL OF MORE THAN 50% OF TREES GREATER THAN 6" DIAMETER AT BREAST HEIGHT (DBH) IS PROHIBITED IN THE LIMITED CUT AREA.
2. FERTILIZERS
   2.1. THE USE OF ANY FERTILIZER IS PROHIBITED IN A WETLAND, VEGETATED BUFFER STRIP OR LIMITED CUT AREA.
   2.2. THE USE OF FERTILIZERS OTHER THAN LOW PHOSPHATE AND SLOW RELEASE NITROGEN FERTILIZERS IS PROHIBITED IN ANY PART OF A WETLAND BUFFER.
3. PESTICIDES AND HERBICIDES
   3.1. THE USE OF PESTICIDES OR HERBICIDES IS PROHIBITED IN A WETLAND OR WETLAND BUFFER, EXCEPT THAT APPLICATION OF PESTICIDES BY A PUBLIC AGENCY FOR PUBLIC HEALTH PURPOSES IS PERMITTED.

Symbol	Botanical Name	Common Name	Size	Spacing
TREES				
AA	*Acer rubrum 'Armstrong'*	Armstrong Red Maple	2.5-3" Cal.	
AG	*Amelanchier 'Autumn Brilliance'*	Autumn Brilliance Serviceberry	2.5-3" Cal.	
AF	*Acer X freemanii 'Autumn Blaze'*	Autumn Blaze Maple	2.5-3" Cal.	
AR	*Acer rubrum*	Red Maple	3-3.5" Cal.	
BN	*Betula nigra 'Heritage'*	Heritage River Birch	3-3.5" Cal.	
JC	*Juniperus chinensis 'Robusta Green'*	Robusta Green Juniper	7-8' Ht.	
JV	*Juniperus virginiana*	Eastern Red Cedar	7-8' Ht.	
PG	*Picea glauca*	White Spruce	8-10' Ht.	
QB	*Quercus bicolor*	Swamp White Oak	3-3.5" Cal.	
QP	*Quercus palustris*	Pin Oak	3-3.5" Cal.	
TN	*Thuja occidentalis 'Nigra'*	Dark American Arborvitae	7-8' Ht.	
TS	*Thuja occidentalis "Smaragd'*	Emerald Green Arborvitae	5-6' Ht.	
SHRUBS				
CA	*Clethra alnifolia*	Summersweet	5 Gal.	30" oc
CP	*Comptonia peregrina*	Sweet Fern	5 Gal.	30" oc
CR	*Cornus racemosa*	Gray Dogwood	7 Gal.	30" oc
IF	*Iva futescens*	Bigleaf Marsh Elder	5 Gal.	30" oc
IG	*Ilex glabra 'Shamrock'*	Shamrock Inkberry	5 Gal.	30" oc
IJ	*Ilex verticillata 'Jim Dandy'*	Jim Dandy Winterberry	3 Gal.	30" oc
IV	*Ilex verticillata 'Red Sprite'*	Red Sprite Winterberry	5 Gal.	30" oc
MP	*Myrica pennsylvanica*	Northern Bayberry	5 Gal.	30" oc
RG	*Rhus aromatica 'Grow-Low'*	Gro-Low Fragrant Sumac	3 Gal.	30" oc
ST	*Spirea tomentosa*	Steeplebush	5 Gal.	30" oc
VD	*Viburnum dentatum*	Arrowwood Viburnum	5 Gal.	30" oc
PERENNIALS				
AM	*Amsonia tabernontana 'Walter'*	Eastern Bluestar	2 Gal.	18" oc
AN	*Aster nova-angiae*	New England Aster	2 Gal.	18" oc
AT	*Asclepias tuberosa*	Butterfly Weed	2 Gal.	18" oc
BA	*Baptisia australis*	Blue False Indigo	2 Gal.	18" oc
DP	*Dennstaedtia punctilobula*	Hay Scented Fern	1 Gal.	18" oc
EF	*Eupatorium fistulosum*	Joe Pye Weed	2 Gal.	18" oc
EP	*Echinacia purpurea*	Purple Coneflower	2 Gal.	18" oc
OS	*Onoclea sensibilis*	Sensitive Fern	2 Gal.	18" oc
SS	*Solidago sempervirens*	Seaside Goldenrod	2 Gal.	18" oc
ORNAMENTAL GRASSES				
AP	*Agrostis pernans*	Upland Bentgrass	2 Gal.	
BC	*Bouteloua curtipendula*	Side of Oats Grama	2 Gal.	
SC	*Schizachyrium scoparium*	Little Bluestem	2 Gal.	
SN	*Sorgastrum nutans*	Indian Grass	2 Gal.	
SEED MIXES				
Buffer Seed Mix 1	*Ernst Seed Riparian Buffer Mix*			
Buffer Seed Mix 2	*Ernst Seed Fescue Mix composed of 45% Creeping Red Fescue / 27.5% Hard Fescue 'Minimua' / 27.5% Hard Fescue 'Beacon'*			
Lawns	*70% "Rebel II" Tall Fescue, 10% "Baron" Kentucky Bluegrass, & 20% "Palmer" Perennial Ryegrass*			

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11/22/2023

LICENSED LANDSCAPE ARCHITECT
RALPH GORDON LEEDY, JR
007
STATE OF NEW HAMPSHIRE
11/22/2023

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

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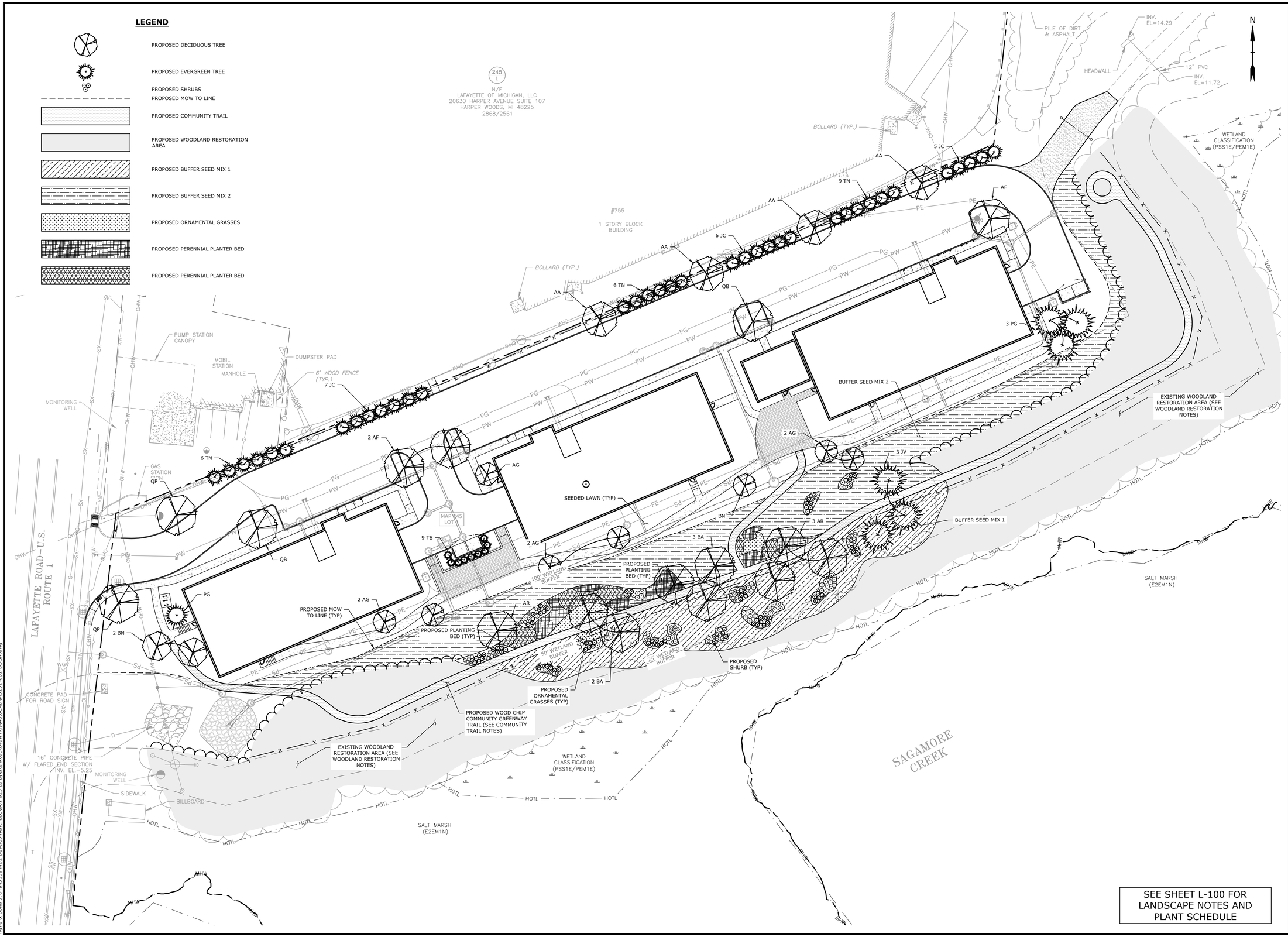
LANDSCAPE SCHEDULE AND NOTES

SCALE: AS SHOWN

L-100

LEGEND

- PROPOSED DECIDUOUS TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUBS
- PROPOSED MOW TO LINE
- PROPOSED COMMUNITY TRAIL
- PROPOSED WOODLAND RESTORATION AREA
- PROPOSED BUFFER SEED MIX 1
- PROPOSED BUFFER SEED MIX 2
- PROPOSED ORNAMENTAL GRASSES
- PROPOSED PERENNIAL PLANTER BED
- PROPOSED PERENNIAL PLANTER BED



SEE SHEET L-100 FOR LANDSCAPE NOTES AND PLANT SCHEDULE

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STATE OF NEW HAMPSHIRE — PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER — 11/22/2023

LICENSED LANDSCAPE ARCHITECT — RALPH GORDON LEEDY, JR 007 STATE OF NEW HAMPSHIRE — 11/22/2023

0 30' 60'
GRAPHIC SCALE

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
B	11/22/2023	TAC Resubmission
A	10/23/2023	TAC Submission

PROJECT NO:	M5131-001
DATE:	10/23/2023
FILE:	M5131-001-DSGN.dwg
DRAWN BY:	CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

LANDSCAPE PLAN

SCALE: AS SHOWN

L-101

GENERAL PROJECT INFORMATION
PROJECT APPLICANT: PROSPECT NORTH 815, LLC
PROJECT NAME: PROPOSED DEVELOPMENT
PROJECT ADDRESS: 815 LAFAYETTE ROAD, PORTSMOUTH NH
PROJECT MAP / LOT: TAX MAP 245, LOT 3
PROJECT LATITUDE: 43°-03'-06.32"N
PROJECT LONGITUDE: 70°-46'-07.81"W

PROJECT DESCRIPTION
THE PROPOSED PROJECT CONSISTS OF REDEVELOPING THE EXISTING WHEB SITE TO A MULTI-FAMILY HOUSING SITE. THE SITE WILL CONSIST OF THREE PRIMARY BUILDING, ALL HAVING A SQUARE FOOTAGE 9,750 SF WITH 24 DWELLING UNITS IN EACH.

DISTURBED AREA
THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 3.99 ACRES.

SOIL CHARACTERISTICS
BASED ON THE NRCS WEB SOIL SURVEY FOR STRAFFORD COUNTY - NEW HAMPSHIRE, THE SOILS ON SITE CONSIST OF URBAN LAND-CANTON GRAVELLY FINE SANDY LOAM SOILS WHICH HAVE A FAST INFILTRATION RATE WHEN THOROUGHLY WET. THESE SOILS HAVE A HYDROLOGIC SOIL GROUP RATING OF D.

NAME OF RECEIVING WATERS
THE STORM WATER RUNOFF WILL ULTIMATELY DISCHARGE INTO THE SAGAMORE CREEK TO THE SOUTH OF THE SITE.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:
1. CUT AND CLEAR TREES.
2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
   - NEW CONSTRUCTION
   - CONTROL OF DUST
   - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
   - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
4. CLEAR AND DISPOSE OF DEBRIS.
5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
6. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
7. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
8. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
9. SEDIMENT TRAPS AND/OR BASINS SHALL BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.
10. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
11. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
12. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
13. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:
1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

EROSION CONTROL NOTES:
1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
2. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
3. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALES, SILT FENCES, MULCH BERMS, SILT SACKS AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
4. SILT SACK INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
5. PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
6. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
7. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
8. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
9. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

STABILIZATION:
1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.;
   E. IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.
2. WINTER STABILIZATION PRACTICES:
   A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
   B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
   C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
   A. TEMPORARY SEEDING;
   B. MULCHING.
4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
5. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
6. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY NOVEMBER 15.

DUST CONTROL:
1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

STOCKPILES:
1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:
1. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

VEGETATION:
1. TEMPORARY GRASS COVER:
   A. SEEDBED PREPARATION:
      a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
   B. SEEDING:
      a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
      b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
      c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
   C. MAINTENANCE:
      a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
2. VEGETATIVE PRACTICE:
   A. FOR PERMANENT MEASURES AND PLANTINGS:
      a. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 7.6;
      b. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20 FERTILIZER;
      c. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH;
      d. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH;
      e. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE;
      f. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED;
      g. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
      h. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE APPLIED AT THE INDICATED RATE:

SEED MIX	APPLICATION RATE
CREEPING RED FESCUE	20 LBS/ACRE
TALL FESCUE	20 LBS/ACRE
REDTOP	2 LBS/ACRE

IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.
3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
   A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

CONCRETE WASHOUT AREA:
1. THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
   A. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FACILITY;
   B. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
   C. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
   D. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES:
1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:
1. WASTE MATERIAL:
   A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE:
   A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE:
   A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION:
1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
   A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
      a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
      b. ALL MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE;
      c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
      d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
      e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
      f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
   B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
      g. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
      h. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
      i. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
   C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
      a. PETROLEUM PRODUCTS:
         - ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
         - PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
      b. FERTILIZERS:
         - FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
         - ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
         - STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
      c. PAINTS:
         - ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
         - EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
         - EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
   D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
      a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
      b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
      c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY AND REPORTED TO PEASE DEVELOPMENT AUTHORITY;
      d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
      e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
      f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
   E. VEHICLE FUELING AND MAINTENANCE PRACTICE:
      a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPMENT/VEHICLE FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
      b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
      c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
      d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
      e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
      f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

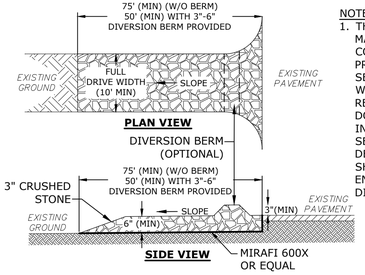
EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES
THIS PROJECT EXCEEDS ONE (1) ACRE OF DISTURBANCE AND THUS REQUIRES A SWPPP.

THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
1. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
2. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
3. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT;
4. AN NPDES NOTICE OF INTENT SHALL BE SUBMITTED.

CITY OF PORTSMOUTH BUFFER VEGETATION NOTES
1. REMOVAL OR CUTTING OF VEGETATION
   1.1. CHEMICAL CONTROL OF VEGETATION IS PROHIBITED IN ALL AREAS OF A WETLAND OR WETLAND BUFFER.
   1.2. THE REMOVAL OR CUTTING OF VEGETATION IS PROHIBITED IN A WETLAND OR VEGETATED BUFFER STRIP, EXCEPT THAT NON-CHEMICAL CONTROL OF PLANTS DESIGNATED BY THE STATE OF NEW HAMPSHIRE AS "NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES" IS PERMITTED.
   1.3. THE REMOVAL OF MORE THAN 50% OF TREES GREATER THAN 6" DIAMETER AT BREAST HEIGHT (DBH) IS PROHIBITED IN THE LIMITED CUT AREA.
2. FERTILIZERS
   2.1. THE USE OF ANY FERTILIZER IS PROHIBITED IN A WETLAND, VEGETATED BUFFER STRIP OR LIMITED CUT AREA.
   2.2. THE USE OF FERTILIZERS OTHER THAN LOW PHOSPHATE AND SLOW RELEASE NITROGEN FERTILIZERS IS PROHIBITED IN ANY PART OF A WETLAND BUFFER.
3. PESTICIDES AND HERBICIDES
   3.1. THE USE OF PESTICIDES OR HERBICIDES IS PROHIBITED IN A WETLAND OR WETLAND BUFFER, EXCEPT THAT APPLICATION OF PESTICIDES BY A PUBLIC AGENCY FOR PUBLIC HEALTH PURPOSES IS PERMITTED.

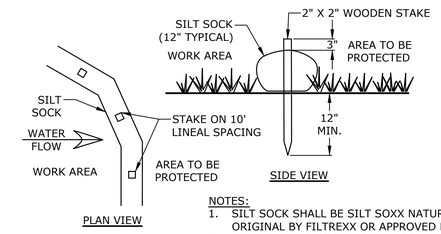
NOTES:
1. CONCRETE WASHOUT SHALL BE "JESCRAFT" STACKABLE CONCRETE WASHOUT PAN (72"x72"x14") OR APPROVED EQUAL.
2. INSTALL AND MAINTAIN CONCRETE WASHOUT IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. CONCRETE WASHOUT SHALL NOT BE PLACED WITHIN 100' WETLAND BUFFER.

CONCRETE WASHOUT DETAIL
NO SCALE



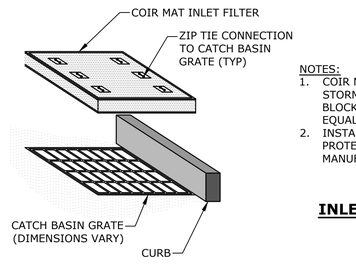
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS

STABILIZED CONSTRUCTION EXIT
NO SCALE



NOTES:
1. SILT SOCK SHALL BE SILT SOXX NATURAL ORIGINAL BY FILTREXX OR APPROVED EQUAL.
2. INSTALL SILT SOCK IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

SILT SOCK
NO SCALE



NOTES:
1. COIR MAT INLET FILTER SHALL BE STORM WATER INLET FILTER BY BLOCKSOM & CO. OR APPROVED EQUAL.
2. INSTALL AND MAINTAIN INLET PROTECTION IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

INLET PROTECTION
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED
PROFESSIONAL ENGINEER
11/22/2023

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
11/22/2023

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
B	11/22/2023	TAC Resubmission
A	10/23/2023	TAC Submission

PROJECT NO:	M5131-001
DATE:	10/23/2023
FILE:	M5131-001-DTLS.dwg
DRAWN BY:	CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

EROSION CONTROL NOTES & DETAILS

SCALE: AS SHOWN

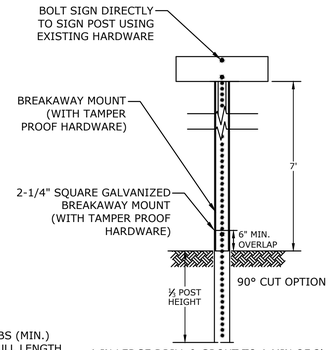
C-501

Last Saved: 11/15/2023
Plot Date: 11/22/2023 2:01pm By: CKrzciuk
Tighe & Bond:J:\M\M5131 MB2 Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-DTLS.dwg

R1-1
30"X30"
WHITE ON RED

R7-8
12"X18"
BLUE AND
GREEN ON
WHITE

R7-8A
6"X12"
BLUE AND GREEN
ON WHITE

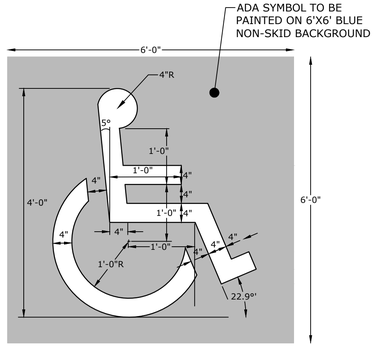


* IN LEDGE DRILL & GROUT TO A MIN OF 2'

LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 7/16" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070 - 1080)
FINISH: STREET SIGNS - GALVANIZED STEEL ALL OTHER - SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN BAKED ON OR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

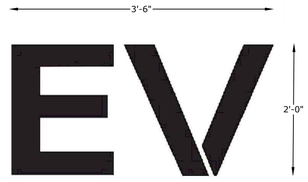
NOTES:
ALL SIGNS TO BE CONSTRUCTED PER THE LATEST EDITION OF THE FHWA STANDARD HIGHWAY SIGNS MANUAL AND INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

SIGN LEGEND & SIGN POST
NO SCALE



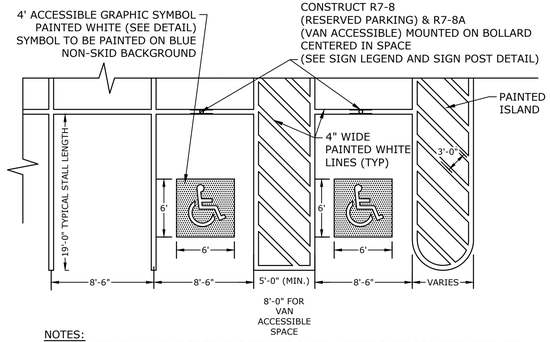
NOTES:
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

ACCESSIBLE SYMBOL
NO SCALE



NOTES:
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ELECTRIC VEHICLE SPACES USING FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST STATE AND LOCAL REQUIREMENTS.

EV CHARGING SYMBOL
NO SCALE



NOTES:
1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
3. FINISH PAVEMENT GRADES AT ALL HANDICAP ACCESSIBLE STALLS AND PAINTED ACCESS AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.

PARKING STALL/PAINTED ISLAND STRIPING
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED
PROFESSIONAL ENGINEER
11/22/2023

STATE OF NEW HAMPSHIRE
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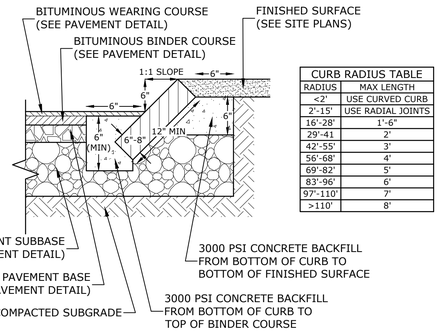
APPROVED BY:	PMC

DETAILS

SCALE: AS SHOWN

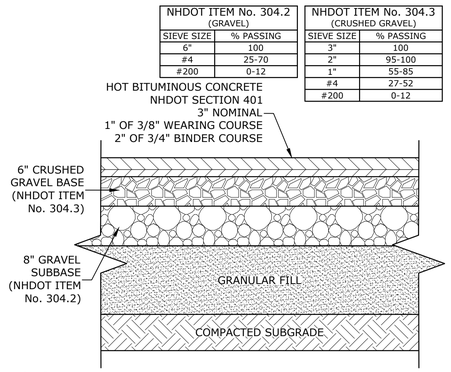
C-502



CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<2'	USE CURVED CURB
2'-15'	USE RADIAL JOINTS
16'-28'	1'-5"
29'-41	2'
42'-55'	3'
56'-68'	4'
69'-82'	5'
83'-96'	6'
97'-110'	7'
>110'	8'

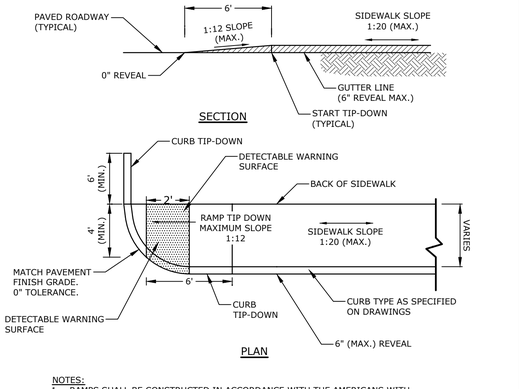
NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

SLOPED GRANITE CURB
NO SCALE



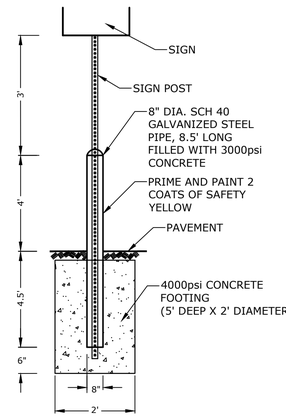
NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.

TYPICAL PAVEMENT SECTION
NO SCALE

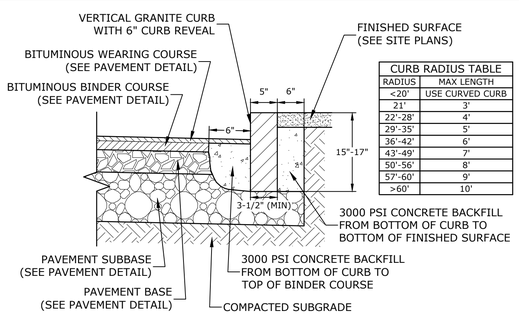


NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. PROVIDE 6" COMPACTED CRUSHED GRAVEL BASE BENEATH RAMPS.
3. DETECTABLE WARNING STRIP SHALL BE ADA SOLUTIONS, INC. CAST IN PLACE RAMP. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

CONCRETE SIDEWALK TIP-DOWN RAMP
NO SCALE



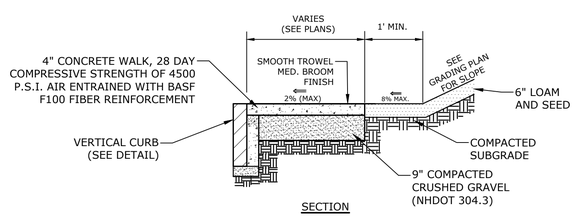
BOLLARD MOUNTED SIGN DETAIL
NO SCALE

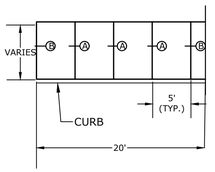


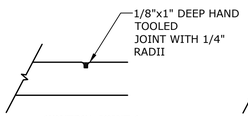
CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<20'	USE CURVED CURB
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

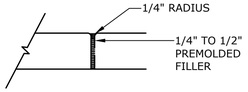
NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

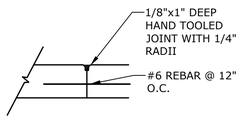
VERTICAL GRANITE CURB
NO SCALE





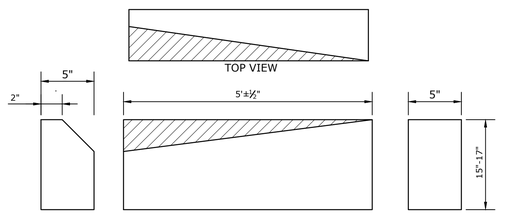






NOTES:
1. SIDEWALK SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH STANDARDS

CONCRETE SIDEWALK WITH GRANITE CURB
NO SCALE



MOUNTABLE VERTICAL GRANITE CURB TO VERTICAL GRANITE CURB

NOTES:
1. THE INTENT OF THIS ITEM IS TO PROVIDE A SMOOTH TRANSITION BETWEEN VERTICAL GRANITE CURB AND MOUNTABLE VERTICAL GRANITE CURB WITHOUT REQUIRING FIELD CHIPPING DURING INSTALLATION. THE MOUNTABLE VERTICAL GRANITE CURB MAY REQUIRE ADJUSTMENTS TO MEET THE TRANSITION PIECE HEIGHT. TRANSITION SLOPE CURB TO STANDARD REVEAL AS QUICKLY AS POSSIBLE TO PROVIDE FOR THIS SMOOTH TRANSITION.

CURB TRANSITION
NO SCALE

Last Saved: 11/15/2023
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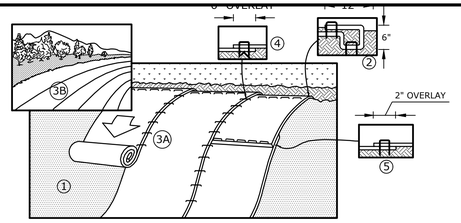
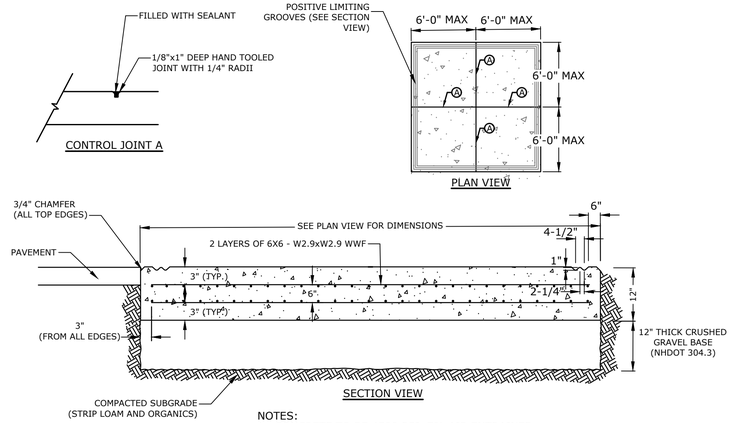
Tighe & Bond:J:\M\M5131 MB2 Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-DTLS.dwg



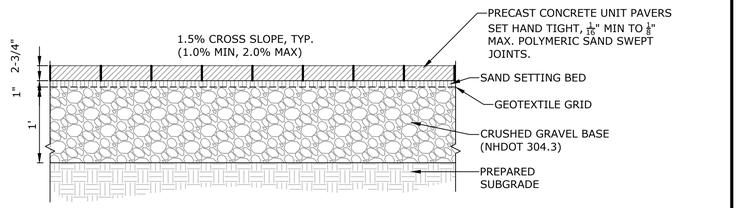
NOTES:
1. EROSION CONTROL BLANKET SHALL BE AN ALL NATURAL PRODUCT WITH NO PHOTO DEGRADABLE COMPONENTS, NORTH AMERICAN GREEN SC150BN OR APPROVED EQUAL.
2. STAKES SHALL BE BIODEGRADABLE BIOSTAKES OR ALL NATURAL WOOD ECOSTAKES OR APPROVED EQUAL. THE LENGTH OF STAKES SHALL BE BASED OFF OF THE MANUFACTURERS RECOMMENDATION.
3. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, COMPOST AND SEED.
4. BEGIN AT THE TOP OF THE SLOPE, 36" OVER THE GRADE BREAK, BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UPSLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAKES IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAKING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAKES ACROSS THE WIDTH OF THE BLANKET.
5. ROLL THE BLANKETS DOWN THE SLOPE. ALL BLANKETS MUST BE SECURELY FASTENED TO THE SOIL SURFACE BY PLACING STAKES IN APPROPRIATE LOCATIONS AS SHOWN ON THE MANUFACTURERS PATTERN GUIDE.
6. THERE SHALL BE NO PLASTIC, OR MULTI-FILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN 1/8 INCHES MATERIAL UTILIZED.

EROSION CONTROL BLANKET
NO SCALE



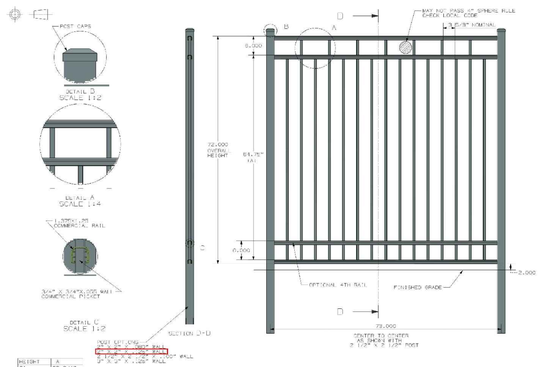
NOTES:
1. CONCRETE TO BE 4500 PSI, 7% AIR ENTRAINED
2. STANDARD BROOM FINISH.

DUMPSTER PAD
NO SCALE



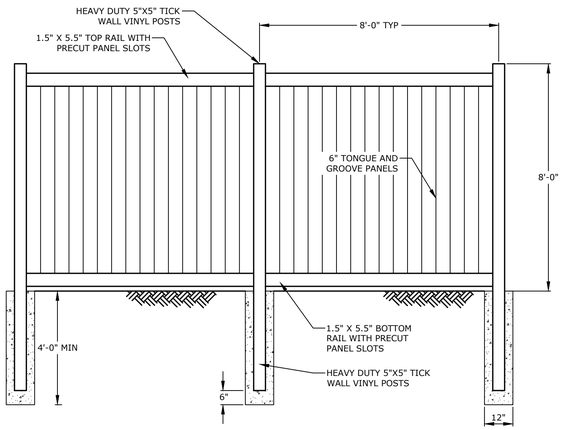
NOTES:
1. PROVIDE A METAL EDGE RESTRAINT AT ALL LOCATIONS WHERE EDGE OF PAVERS MEETS SEEDED LAWN OR PLANT BED.

UNIT PAVERS DETAIL
NO SCALE



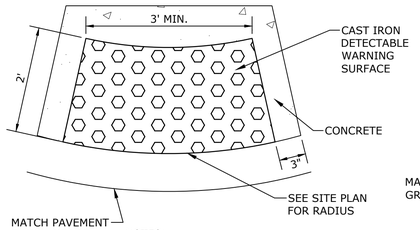
NOTES:
1. FENCE SHALL BE UAF-220 FLAT TOP FLUSH BOTTOM, NO SPEAR, FENCE BY ULTRA ALUMINUM MANUFACTURING, INC. OR APPROVED EQUAL.
2. VINYL DUMPSTER ENCLOSE SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
3. COORDINATE FINAL COLOR AND STYLE WITH OWNER PRIOR TO CONSTRUCTION.

4' DECORATIVE FENCE DETAIL
NO SCALE

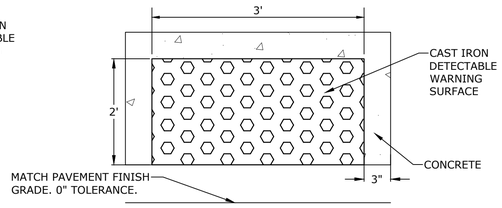


NOTES:
1. VINYL DUMPSTER ENCLOSE SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
2. COORDINATE FINAL COLOR AND STYLE WITH OWNER PRIOR TO CONSTRUCTION.

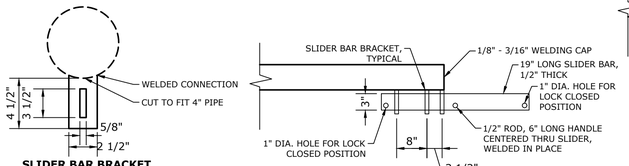
DUMPSTER PAD ENCLOSURE
NO SCALE

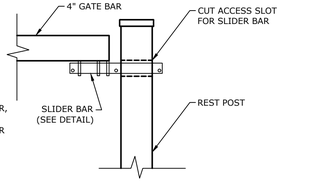


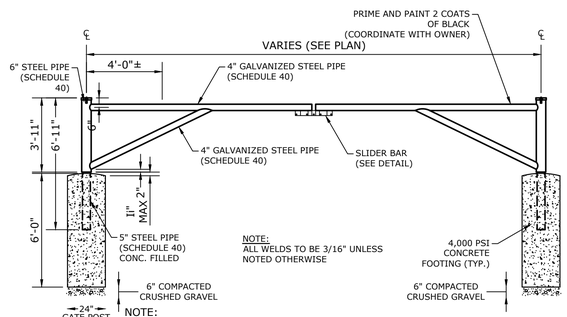
NOTES:
1. DETECTABLE WARNING SURFACE SHALL BE 2' X 3' CAST IRON PANEL SET IN CONCRETE.
2. DETECTABLE WARNING SURFACE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.



CAST IRON DETECTABLE WARNING SURFACE
NO SCALE



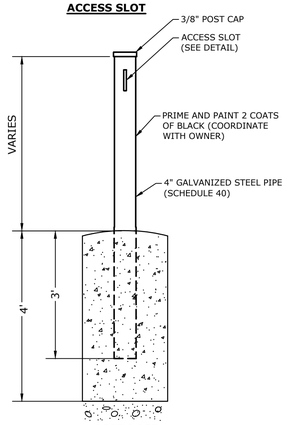




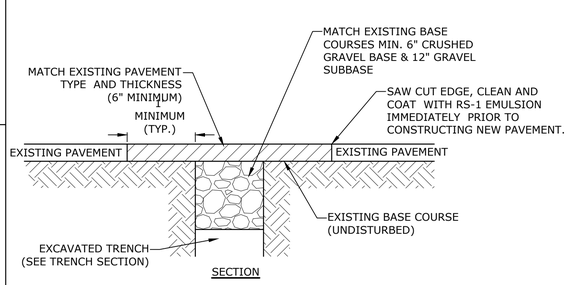
NOTE:
ALL WELDS TO BE 3/16" UNLESS NOTED OTHERWISE

NOTE:
CONTRACTOR SHALL SUPPLY THE OWNER THE NECESSARY AMOUNT OF GATE PARTS AND ACCESSORIES FOR THE INTENDED PROPER FUNCTIONALITY OF THE GATE AND SLIDER BAR LATCH AS SHOWN ON THE PLANS AT SOLE DISCRETION OF THE OWNER.

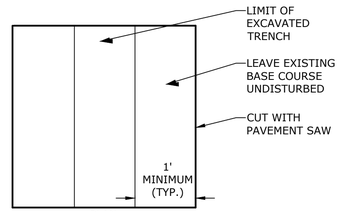
DOUBLE SWING GATE
NO SCALE



REST POST
NOT TO SCALE



SECTION



PLAN

NOTE:
1. COORDINATE AND OBTAIN APPROVAL FOR ALL TRENCHING AND PATCHING WITHIN CITY RIGHT OF WAY WITH CITY OF PORTSMOUTH DPW PRIOR TO COMMENCING WORK.

ROADWAY TRENCH PATCH
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE — NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER — 11/22/2023

STATE OF NEW HAMPSHIRE — PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER — 11/22/2023

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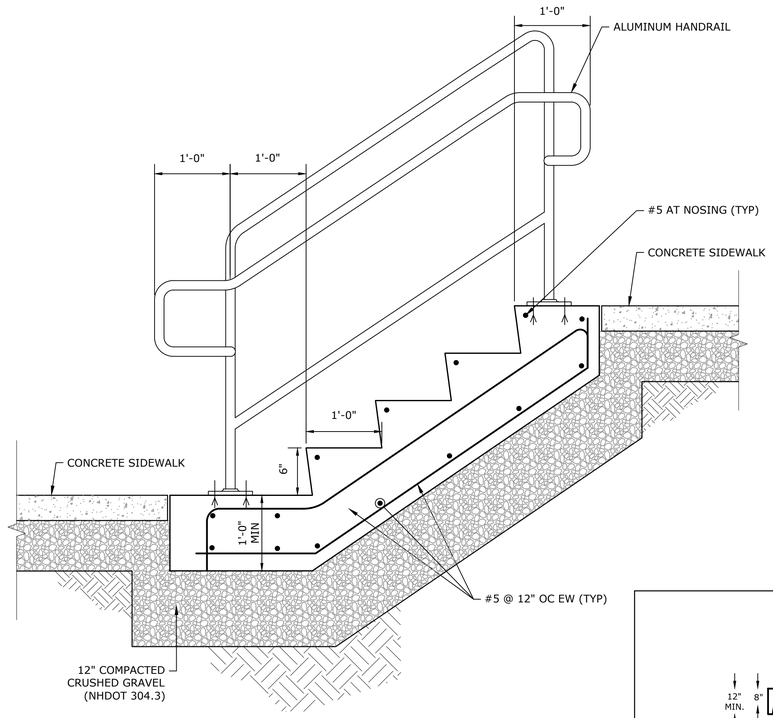
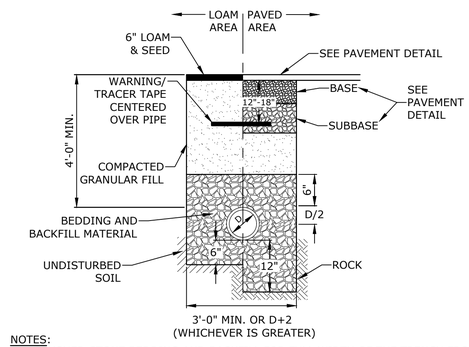
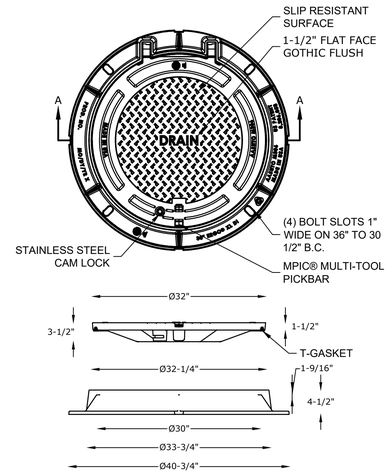


CONCRETE STAIRS AND HANDRAIL
NO SCALE



NOTES:
1. CRUSHED STONE BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 6" ABOVE TOP OF PIPE.
2. ALL UTILITIES SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE CITY OF PORTSMOUTH.
3. DRAIN LINE SHALL BE INSULATED WHERE THERE IS LESS THAN 6' OF COVER IN PAVED AREAS AND LESS THAN 4' OF COVER IN NON-PAVED AREAS.

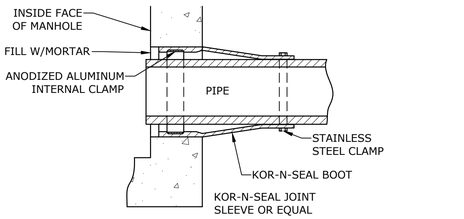
STORM DRAIN TRENCH
NO SCALE



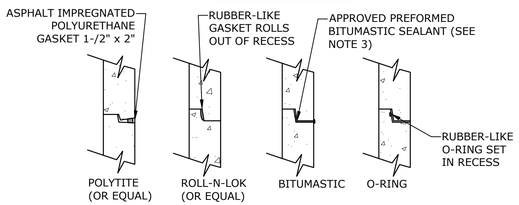
SECTION A-A

NOTES:
1. MANHOLE FRAME AND COVER SHALL BE 32" HINGED ERGO XL BY EJ CO.
2. ALL DIMENSIONS ARE NOMINAL.
3. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
4. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN HE CENTER OF THE COVER.

DRAIN MANHOLE FRAME & COVER
NO SCALE



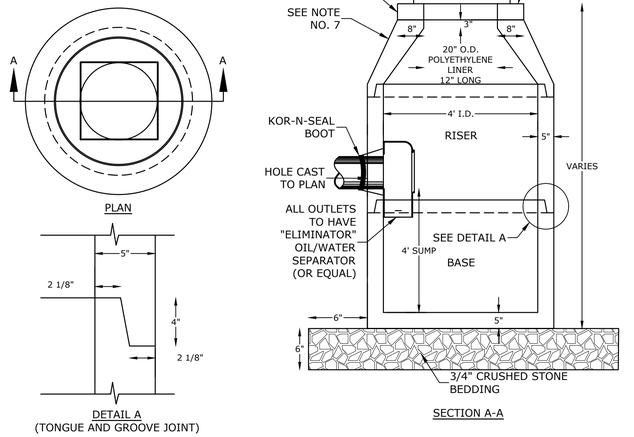
PIPE TO MANHOLE JOINTS



HORIZONTAL JOINTS

NOTES:
1. HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER CITY OF PORTSMOUTH DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.
3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY.
4. ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

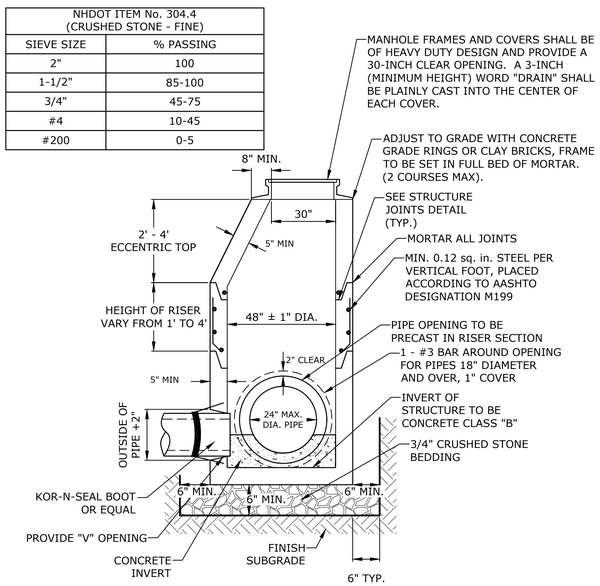
MANHOLE JOINTS
NO SCALE



NOTES:
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
7. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
8. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
9. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
11. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
12. "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASIN.

4' DIAMETER CATCHBASIN
NO SCALE

NHDOT ITEM No. 304.4 (CRUSHED STONE - FINE)	
SIEVE SIZE	% PASSING
2"	100
1-1/2"	85-100
3/4"	45-75
#4	10-45
#200	0-5



NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZNTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

4' DIAMETER DRAIN MANHOLE
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – NEIL A. HANSEN No. 15227 – LICENSED PROFESSIONAL ENGINEER
11/22/2023

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 – LICENSED PROFESSIONAL ENGINEER
11/22/2023

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
B	11/22/2023	TAC Resubmission
A	10/23/2023	TAC Submission

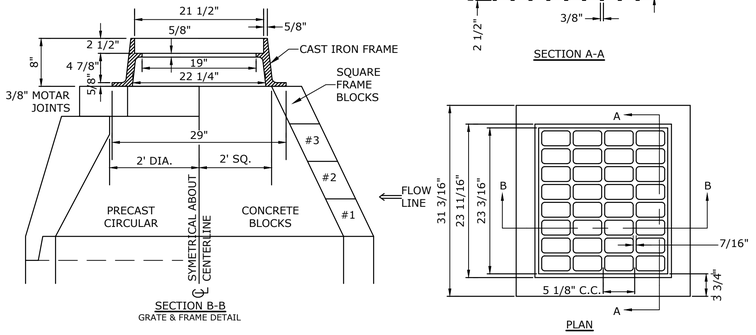
PROJECT NO:	M5131-001
DATE:	10/23/2023
FILE:	M5131-001-DTLS.dwg
DRAWN BY:	CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

DETAILS

SCALE: AS SHOWN

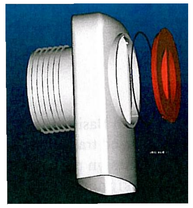
C-504

Last Saved: 11/15/2023
Printed: Nov 21, 2023 - 2:02pm By: CKrzcuik
Tighe & Bond :\M\M5131 MB2 Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-DTLS.dwg



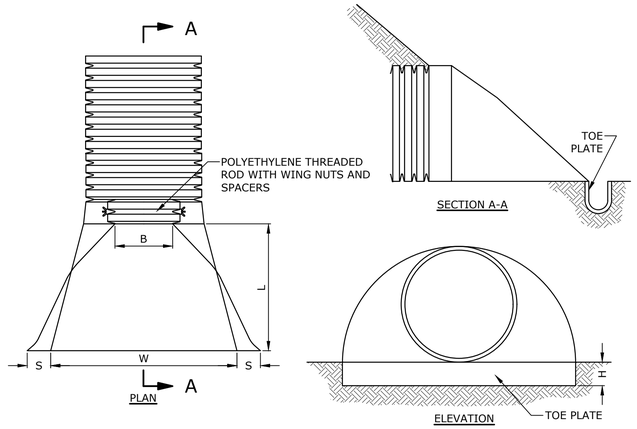
NOTES:
1. GRATE TO BE CAST IRON (NHDOT TYPE B ALTERNATE 1)
2. FRAME AND GRATE TO BE MANUFACTURED IN THE USA

CATCH BASIN FRAME & GRATE
NO SCALE



NOTES:
1. ALL CATCH BASIN OUTLETS TO HAVE "ELIMINATOR" OIL AND FLOATING DEBRIS TRAP MANUFACTURED BY KLEANSTREAM (NO EQUAL)
2. INSTALL DEBRIS TRAP TIGHT TO INSIDE OF STRUCTURE.
3. 1/4" HOLE SHALL BE DRILLED IN TOP OF DEBRIS TRAP

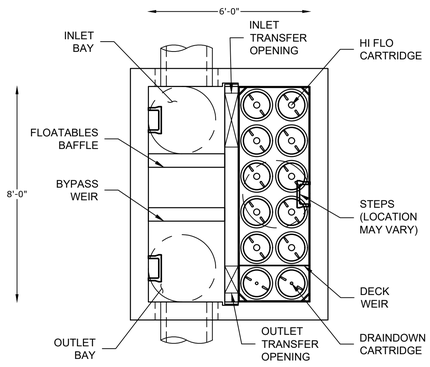
"ELIMINATOR" OIL FLOATING DEBRIS TRAP
NO SCALE



PIPE DIA.	S	B	H	L	W
12"	6.5"	10"	6.5"	25"	29"
15"	6.5"	10"	6.5"	25"	29"
18"	7.5"	15"	6.5"	32"	35"
24"	7.5"	18"	6.5"	36"	45"
30"	7.5"	12"	8.6"	58"	63"
36"	7.5"	25"	8.6"	58"	63"

NOTE:
1. END SECTIONS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, COLUMBUS, OHIO. END SECTIONS TO BE WELDED TO PIPE AS PER MANUFACTURER'S RECOMMENDATIONS.

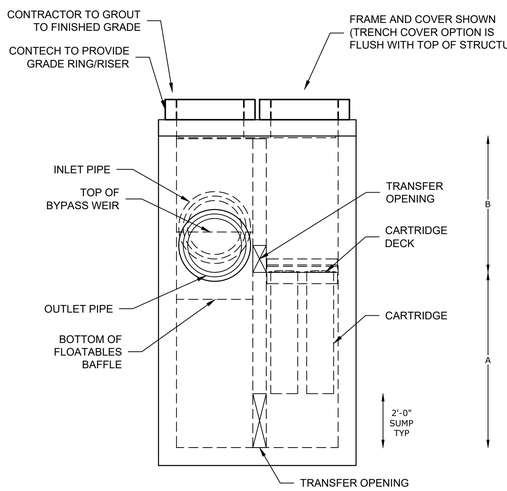
HDPE END SECTION
NO SCALE



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)

JELLYFISH JFPD0806 - DESIGN NOTES				
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD				
CARTRIDGE SELECTION				
CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.96	1.47	0.98	0.54
DECK TO INSIDE TOP (MIN) (B)	5.00	4.00	4.00	4.00

SITE SPECIFIC DATA REQUIREMENTS	
STRUCTURE ID	JF-1
MODEL SIZE	JFPD0806
WATER QUALITY FLOW RATE (cfs)	1.38
PEAK FLOW RATE (cfs)	8.26
RETURN PERIOD OF PEAK FLOW (yrs)	25
# OF CARTRIDGES REQUIRED (HF / DD)	7/2
CARTRIDGE SIZE	54"



ELEVATION VIEW

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

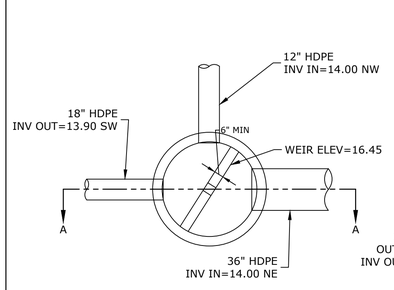
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (866) 740-3318.

NOTE:
1. A QUALIFIED ENGINEER SHALL PROVIDE SUFFICIENT INSPECTION TO CERTIFY THAT THE SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED DESIGN PLANS PER THE REQUIREMENTS OF THE ALTERATION OF TERRAIN PERMIT. CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO THE CONSTRUCTION OF THE UNDERGROUND FILTRATION UNITS.

Jellyfish Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENT NO. 8,287,726, 8,221,618 & US 8,123,935. OTHER INTERNATIONAL PATENTS PENDING

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH JELLYFISH STORMWATER FILTER (JFPD0806)
NO SCALE



PLAN VIEW

NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE (TYPE II CEMENT).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER OF THE THIRD WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. ALL JOINTS ON THE STRUCTURE AND PIPING SHALL BE WATERTIGHT.

POS-01
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER
11/22/2023

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
11/22/2023

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
B	11/22/2023	TAC Resubmission
A	10/23/2023	TAC Submission

PROJECT NO:	M5131-001
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DRAWN BY:	CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

DETAILS

SCALE: AS SHOWN

C-505

Last Saved: 11/15/2023
Printed: Nov 21, 2023 - 2:02pm By: CKrzoulk
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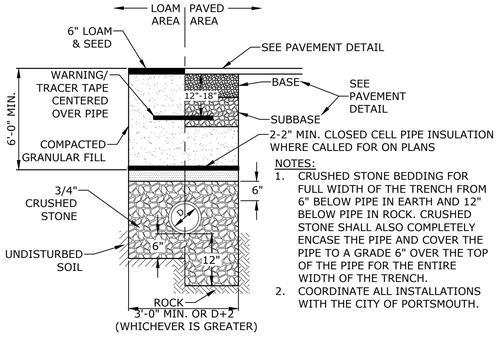
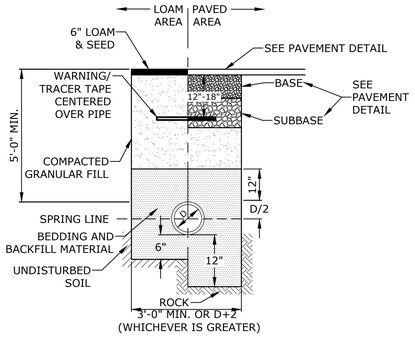


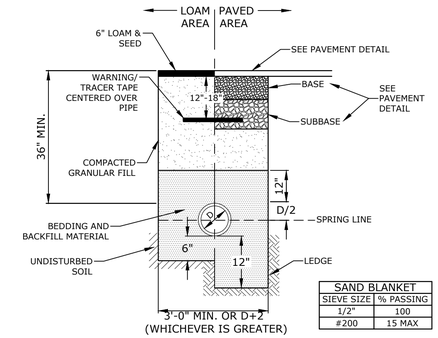
NOTES:
1. CRUSHED STONE BEDDING FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK. CRUSHED STONE SHALL ALSO COMPLETELY ENCASE THE PIPE AND COVER THE PIPE TO A GRADE 6" OVER THE TOP OF THE PIPE FOR THE ENTIRE WIDTH OF THE TRENCH.
2. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

SEWER SERVICE TRENCH
NO SCALE



NOTES:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. WATER MAIN SHALL BE INSTALLED PER CITY OF PORTSMOUTH STANDARDS. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

WATER TRENCH
NO SCALE



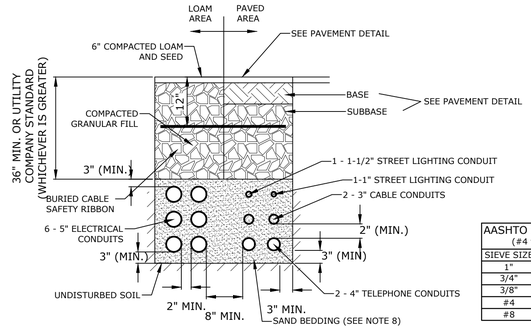
SAND BLANKET	
SIEVE SIZE	% PASSING
1/2"	100
#200	15 MAX

NOTES:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. GAS LINE SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE CITY OF PORTSMOUTH.

GAS TRENCH
NO SCALE

GRANULAR FILL (GRAVEL)	
SIEVE SIZE	% PASSING
3"	95-100
#4	25-70

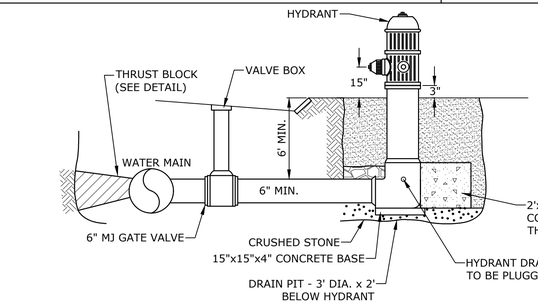
SAND BLANKET	
SIEVE SIZE	% PASSING
1/2"	100
#200	15 MAX



AASHTO #67 STONE (#4 to 3/4")	
SIEVE SIZE	% PASSING
1"	100
3/4"	90-100
3/8"	20-55
#4	0-10
#8	0-5

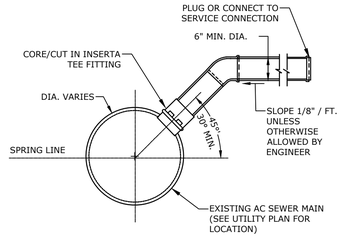
NOTES:
1. NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED BY LOCAL UTILITY OR AS SHOWN ON ELECTRICAL DRAWINGS. CONTRACTOR TO PROVIDE ONE SPARE CONDUIT FOR EACH UTILITY TO BUILDING.
2. DIMENSIONS SHOWN REPRESENT OWNERS MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY COMPANY STANDARDS, BUT SHALL NOT BE LESS THAN THOSE SHOWN.
3. NO CONDUIT RUN SHALL EXCEED 360 DEGREES IN TOTAL BENDS.
4. A SUITABLE PULLING STRING, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED IN THE CONDUIT BEFORE UTILITY COMPANY IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT.
5. UTILITY COMPANY MUST BE GIVEN THE OPPORTUNITY TO INSPECT THE CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD THE UTILITY COMPANY BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER.
6. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND, WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE.
7. ALL 90° SWEEPS WILL BE MADE USING RIGID GALVANIZED STEEL. SWEEPS WITH A 36 TO 48 INCH RADIUS.
8. SAND BEDDING TO BE REPLACED WITH CONCRETE ENCASEMENT WHERE COVER IS LESS THAN 3 FEET, WHEN LOCATED BELOW PAVEMENT, OR WHERE SHOWN ON THE UTILITIES PLAN.

ELECTRICAL AND COMMUNICATION CONDUIT TRENCH
NO SCALE



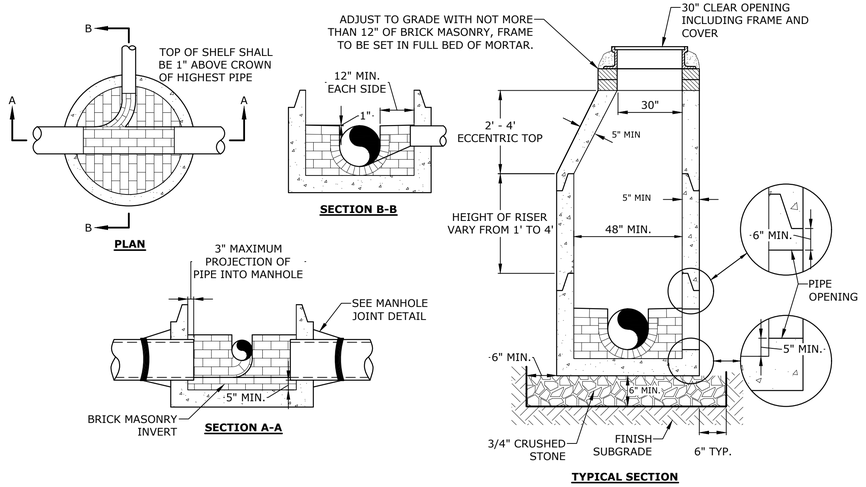
NOTES:
1. HYDRANT TO BE KENNEDY TYPE K-81, RIGHT OPEN (NO EQUAL). COORDINATE WITH CITY OF PORTSMOUTH WATER DEPARTMENT AND CITY OF PORTSMOUTH FIRE DEPARTMENT.
2. PAINT HYDRANT IN ACCORDANCE WITH CITY STANDARD SPECIFICATIONS AFTER INSTALLATION AND TESTING.

FIRE HYDRANT
NO SCALE



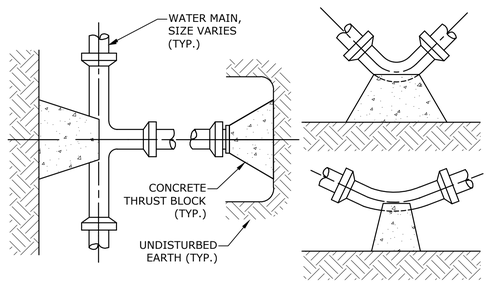
NOTES:
1. INSERTA TEE CONNECTION TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
2. SERVICE LATERAL CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.
3. THE EXISTING SEWER MAIN IS BELIEVED TO BE ASBESTOS CEMENT PIPE.

INSERTA-TEE LATERAL SERVICE CONNECTION
NO SCALE



NOTES:
1. INVERT AND SHELF TO BE PLACED AFTER EACH LEAKAGE TEST.
2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT.
3. INVERT BRICKS SHALL BE LAID ON EDGE.
4. TWO (2) COATS OF BITUMINOUS WATERPROOF COATING SHALL BE APPLIED TO ENTIRE EXTERIOR OF MANHOLE.
5. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WITHIN CITY RIGHT OF WAY SHALL BE CITY STANDARD HINGE COVERS MANUFACTURED BY EJ. FRAMES AND COVERS WILL BE PURCHASED FROM THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. ALL OTHER MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
6. HORIZONTAL JOINTS SHALL BE SEALED FOR WATER TIGHTNESS USING A DOUBLE ROW OF ELASTOMERIC OR MASTIC-LIKE SEALANT.
7. BARREL AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE DESIGNED FOR H20 LOADING, AND CONFORMING TO ASTM C478-06.

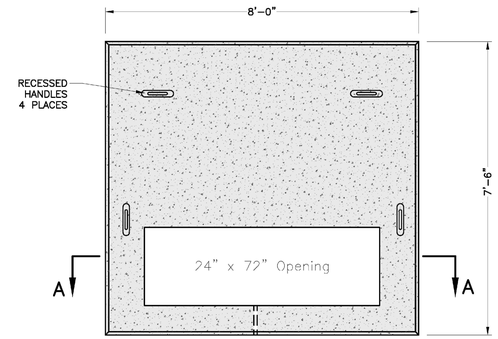
SEWER MANHOLE
NO SCALE



TEST PRESSURE = 200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL				
REACTION TYPE	PIPE SIZE				
	4"	6"	8"	10"	12"
A 90°	0.89	2.19	3.82	11.14	17.24
B 180°	0.65	1.55	2.78	8.38	12.00
C 45°	0.48	1.19	2.12	6.02	9.32
D 22-1/2°	0.25	0.60	1.06	3.08	4.74
E 11-1/4°	0.13	0.30	0.54	1.54	2.38

NOTES:
1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
4. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.
5. INSTALLATION AND STANDARD DIMENSIONAL REQUIREMENTS SHALL BE WITH CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS.

THRUST BLOCKING DETAIL
NO SCALE



NOTES:
1. DIMENSIONS SHOWN REPRESENT TYPICAL REQUIREMENTS. MANHOLE LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED WITH EVERSOURCE PRIOR TO CONSTRUCTION
2. CONCRETE MINIMUM STRENGTH - 4,000 PSI @ 28 DAYS
3. STEEL REINFORCEMENT - ASTM A615, GRADE 60
4. PAD MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS
5. TRANSFORMER PAD SHALL BE REVIEWED AND APPROVED BY EVERSOURCE PRIOR TO CONSTRUCTION.

TRANSFORMER PAD DETAIL
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED PROFESSIONAL ENGINEER
11/22/2023

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED PROFESSIONAL ENGINEER
11/22/2023

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
B	11/22/2023	TAC Resubmission
A	10/23/2023	TAC Submission

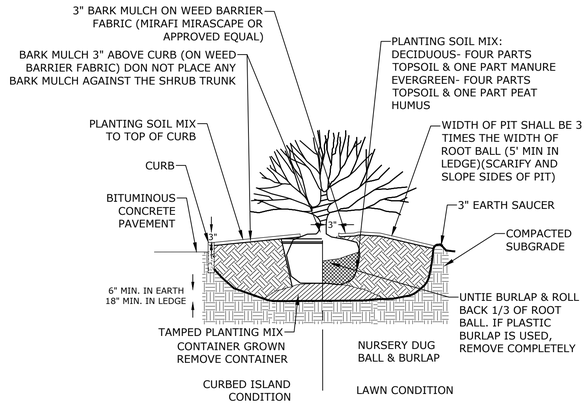
PROJECT NO:	M5131-001
DATE:	10/23/2023
FILE:	M5131-001-DTLS.dwg
DRAWN BY:	CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

DETAILS

SCALE: AS SHOWN

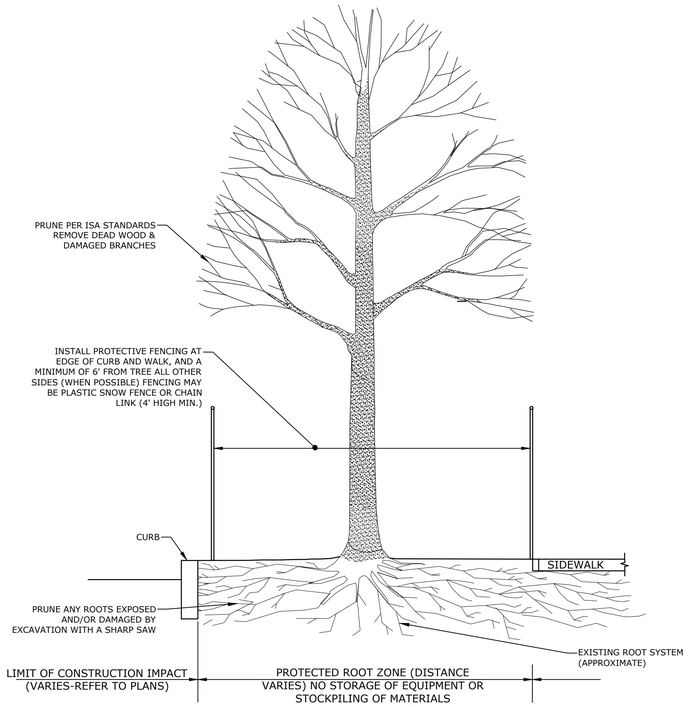
C-506

Last Saved: 11/21/2023
Plotted: Nov 21, 2023-8:02am By: CKrzcuik
Tighe & Bond:J:\M\M5131 MB2 Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-DTLS.dwg

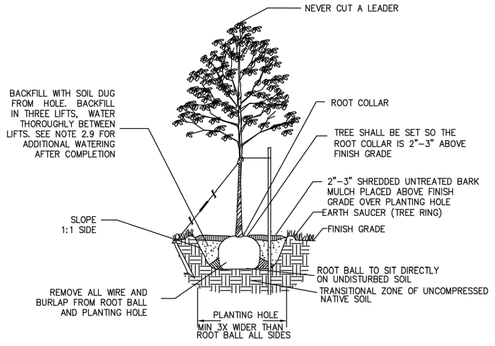


NOTE:
1. PLANT AT SAME DEPTH AS PREVIOUSLY PLANTED, OR WITHIN 2" ABOVE.

SHRUB PLANTING
NO SCALE



TREE PROTECTION FOR EXISTING TREE
NO SCALE



TREE PLANTING DETAIL
N.T.S.

PART 1 – GENERAL:

1.1 THE BASE OF THE CITY OF PORTSMOUTH TREE PLANTING REQUIREMENTS IS THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPLANTING. ANSI A300 PART 6 LAYS OUT TERMS AND BASIC STANDARDS AS SET FORTH BY INDUSTRY BUT IT IS NOT THE "END ALL" FOR THE CITY OF PORTSMOUTH. THE FOLLOWING ARE THE CITY OF PORTSMOUTH, NH TREE PLANTING REQUIREMENTS THAT ARE IN ADDITION TO OR THAT GO BEYOND THE ANSI A300 PART 6.

PART 2 – EXECUTION:

2.1 ALL PLANTING HOLES SHALL BE DUG BY HAND – NO MACHINES. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE NEW PLANTING PITS, PLANTING BEDS WITH GRANITE CURBING, AND PLANTING SITES WITH SILVA CELLS ARE BEING CREATED. IF A MACHINE IS USED TO DIG IN ANY OF THESE SITUATIONS AND PLANTING DEPTH NEEDS TO BE RAISED THE MATERIAL IN THE BOTTOM OF THE PLANTING HOLE MUST BE FIRMED WITH MACHINE TO PREVENT SINKING OF THE ROOT BALL.

2.2 ALL WIRE AND BURLAP SHALL BE REMOVED FROM THE ROOT BALL AND PLANTING HOLE.

2.3 THE ROOT BALL OF THE TREE SHALL BE WORKED SO THAT THE ROOT COLLAR OF THE TREE IS VISIBLE AND NO GIRDLING ROOTS ARE PRESENT.

2.4 THE ROOT COLLAR OF THE TREE SHALL BE 2"–3" ABOVE GRADE OF PLANTING HOLE FOR FINISHING DEPTH.

2.5 ALL PLANTINGS SHALL BE BACKFILLED WITH SOIL FROM THE SITE AND AMENDED NO MORE THAN 20% WITH ORGANIC COMPOST. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE ENGINEERED SOIL IS BEING USED IN CONJUNCTION WITH SILVA CELLS AND WHERE NEW PLANTING BEDS ARE BEING CREATED.

2.6 ALL PLANTINGS SHALL BE BACKFILLED IN THREE LIFTS AND ALL LIFTS SHALL BE WATERED SO THE PLANTING WILL BE SET AND FREE OF AIR POCKETS – NO EXCEPTIONS.

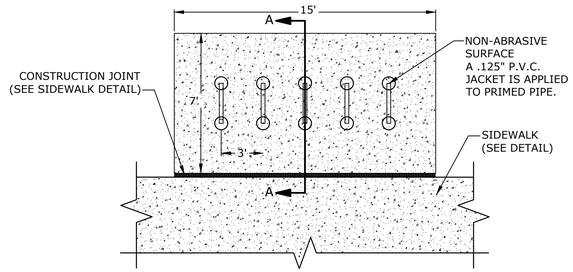
2.7 AN EARTH BERM SHALL BE PLACED AROUND THE PERIMETER OF THE PLANTING HOLE EXCEPT WHERE CURBED PLANTING BEDS OR PITS ARE BEING USED.

2.8 2"–3" OF MULCH SHALL BE PLACED OVER THE PLANTING AREA.

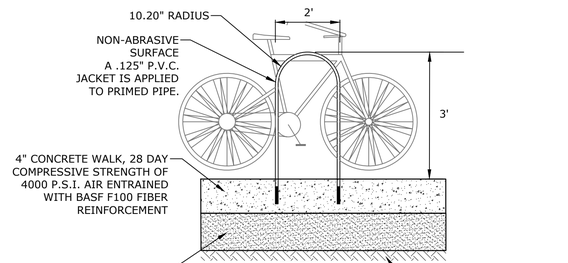
2.9 AT THE TIME OF PLANTING IS COMPLETE THE PLANTING SHALL RECEIVE ADDITIONAL WATER TO ENSURE COMPLETE HYDRATION OF THE ROOTS, BACKFILL MATERIAL AND MULCH LAYER.

2.10 STAKES AND GUYS SHALL BE USED WHERE APPROPRIATE AND/OR NECESSARY. GUY MATERIAL SHALL BE NON–DAMAGING TO THE TREE.

2.11 ALL PLANTING STOCK SHALL BE SPECIMEN QUALITY, FREE OF DEFECTS, AND DISEASE OR INJURY. THE CITY OF PORTSMOUTH, NH RESERVES THE RIGHT TO REFUSE/REJECT ANY PLANT MATERIAL OR PLANTING ACTION THAT FAILS TO MEET THE STANDARDS SET FORTH IN THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPORTATION AND/OR THE CITY OF PORTSMOUTH, NH PLANTING REQUIREMENTS.



PLAN



SECTION A-A

BIKE RACK
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER
11/22/2023

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
11/22/2023

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
B	11/22/2023	TAC Resubmission
A	10/23/2023	TAC Submission

PROJECT NO:	M5131-001
DATE:	10/23/2023
FILE:	M5131-001-DTLS.dwg
DRAWN BY:	CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

DETAILS

SCALE: AS SHOWN

C-507

Last Saved: 11/15/2023
Printed: Nov 22, 2023 - 2:02pm By: CKrzoulk
Tighe & Bond:J:\M\M5131 MB2 Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-DTLS.dwg

SOUTH ELEVATION
SCALE: 1" = 10'-0"

WEST ELEVATION
SCALE: 1" = 10'-0"

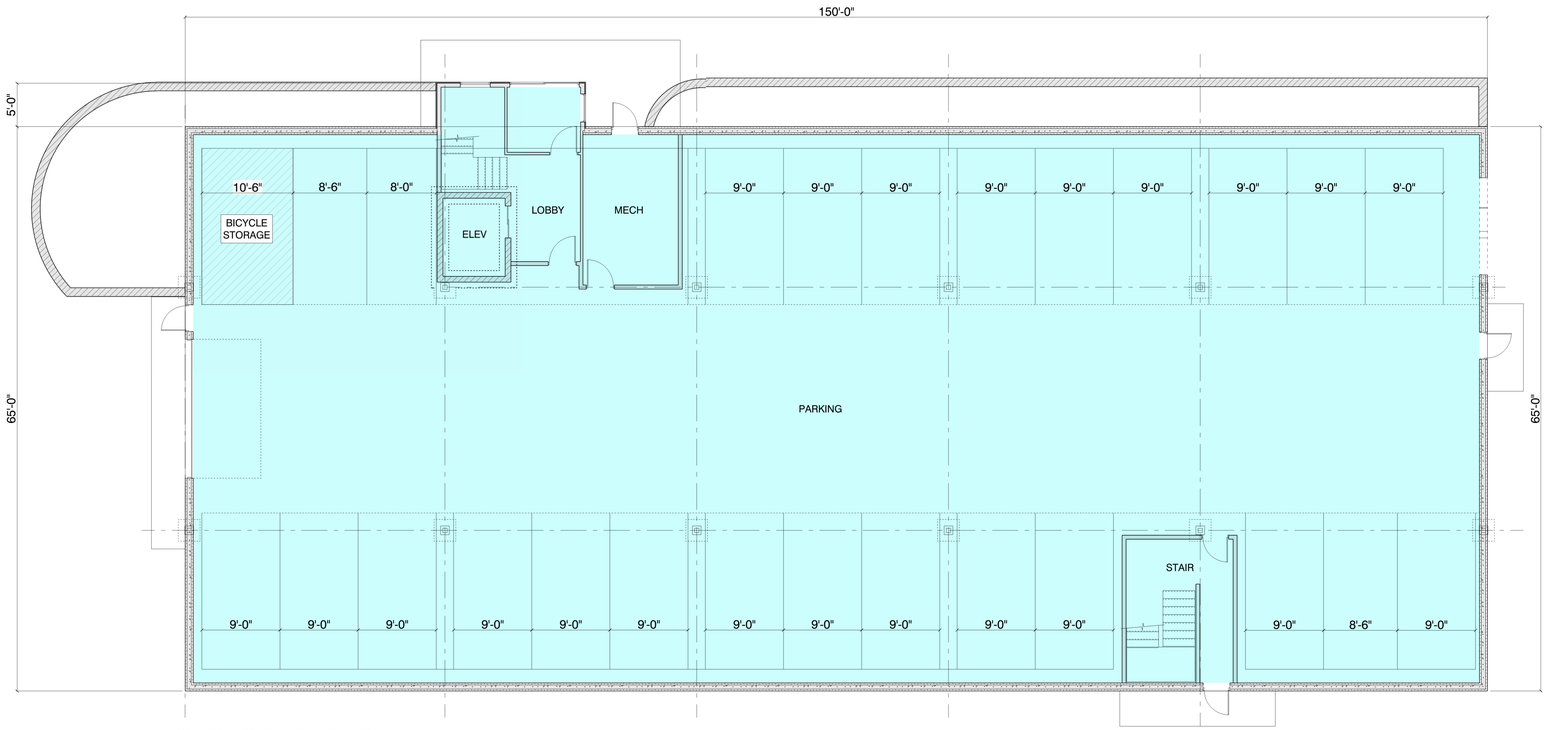
NORTH ELEVATION
SCALE: 1" = 10'-0"

EAST ELEVATION
SCALE: 1" = 10'-0"

PROPOSED APARTMENT BUILDING - 815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

BOA SUBMISSION 8/29/2023

MICHAEL J. KEANE ARCHITECTS, PLLC
101 KENT PLACE NEWMARKET, NH 03857 603.292.1400



GARAGE LEVEL PLAN
SCALE: 1/8" = 1'-0"

TYPICAL FLOOR PLAN 2-4
SCALE: 1/8" = 1'-0"

PROPOSED APARTMENT BUILDING - 815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

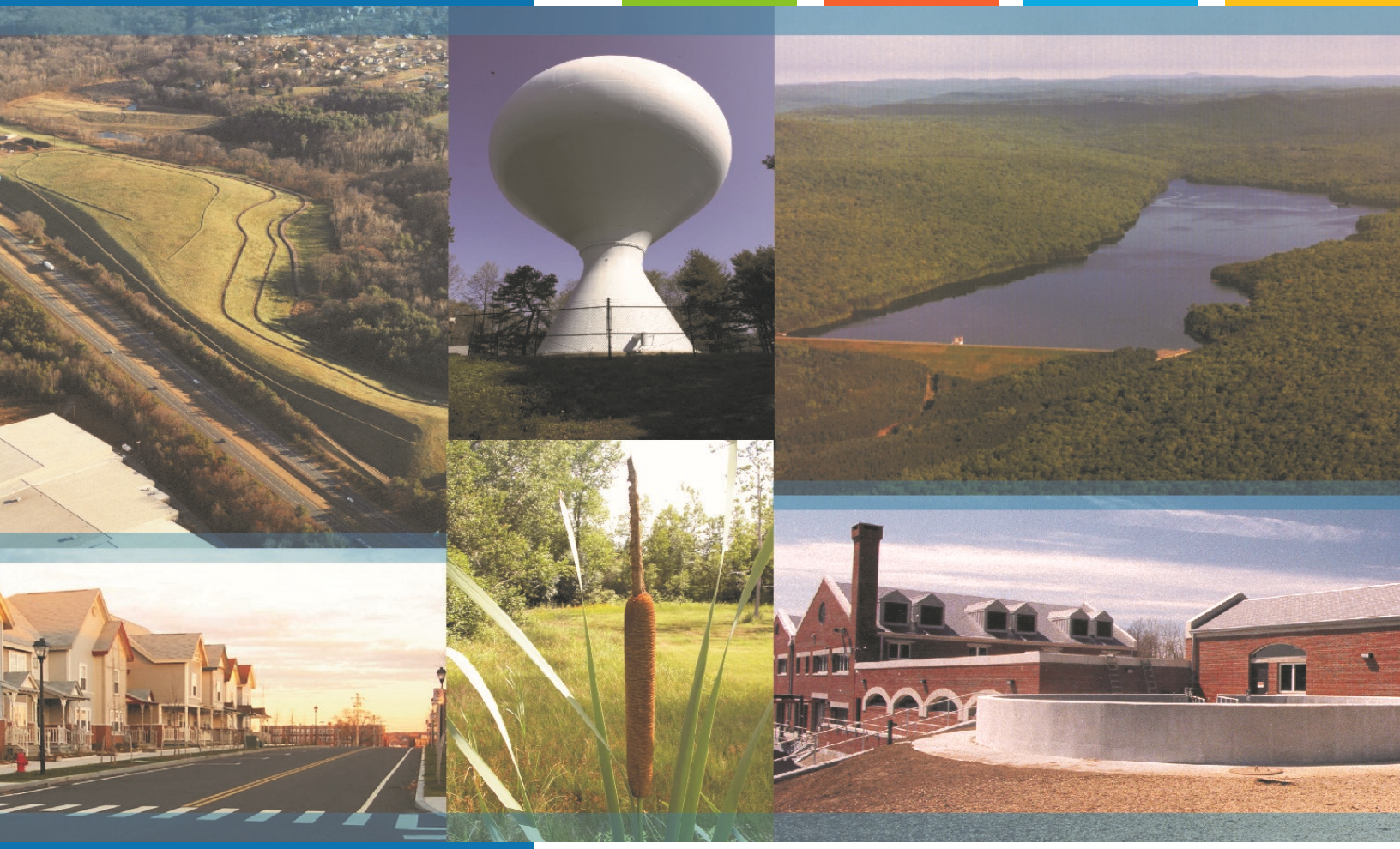
BOA SUBMISSION 8/29/2023

MICHAEL J. KEANE ARCHITECTS, PLLC
101 KENT PLACE NEWMARKET, NH 03857 603.292.1400

815 Lafayette Road - City of Portsmouth TAC Comments

Date: November 22, 2023

City of Portsmouth TAC, November 7, 2023:			
	TAC Comment	**Applicant Response**	**Sheet**
TAC Comments from 11/6 Correspondence:			
1	Provide truck access to the treatment device for maintenance cleaning.	The treatment device has been moved in the drive aisle between buildings 1 And 2.	C-103
2	Use either a 4” DI or 2” water service, not 3”.	The domestic service connection has been updated to a 4" pipe.	C-104
3	Remove planted trees from on top of stormwater pipe/utilities.	The proposed trees have been relocated to not be on top of any utilities.	L-101
4	Tip down ramps with detectable warning devices will be required on either side of the driveway.	Tip down ramps and detectable warning panels have been added to both sides of the driveway.	C-102.1
5	Provide a sewer connection (inserta tee) detail showing service connection to AC main in Lafayette.	An inserta-tee detail has been added to sheet C-506.	C-506
6	Will the one jellyfish system be sufficient for treating the entire developed site? Please ensure that the system will be able to properly filter stormwater from the site before being discharged into Sagamore Creek.	The proposed jellyfish filter is one of the smallest internal bypass structures made by Contech. The specific unit has been sized based on preliminary sizing guidelines provided by the manufacturer and meets NHDES and City Treatment requirements.	
7	Please consider reducing impervious surfaces where possible and replacing them with a pervious alternative.	The site has been designed to reduce impervious surfaces to the greatest extent practical. Due to high bedrock elevations, pervious technologies are not a viable option on site.	
8	Please consider the use of solar on the three roofs.	Acknowledged.	
9	Please consider additional bicycle parking outside of the ground-level garage for public access.	Additional bike racks have been added adjacent to the community space near the entrance of the site.	C-102.1
10	Under Vegetation in Sheet C-501, add a note that addresses the restricted chemical uses for wetlands and wetland buffers from Section 10.1018.23, 10.1018.24 ND 10.1018.25 in our Zoning Ordinance. Please also make a note of this on the Landscape Plan (Sheet L-101).	City of Portsmouth Buffer Vegetation Notes have been added to sheets L-100 & C-501	L-100 & C-501
11	Please remove the community space from 0-25’ vegetative buffer. This area should not be utilized by the public due to its environmentally sensitive nature and it is already considered protected in the Zoning Ordinance through environmental regulations. Please remove the vegetated 25’ buffer from the community space calculations as well.	The applicant met with city staff on November 20th to review the updated community space exhibit. The updated community space has been removed completely within the 25' vegetated buffer.	Community Space Exhibit
12	Please provide an easement plan.	An easement Plan has been included in the submission.	C-201
13	Please put a note on the plan that reads, “Final alignment of the trail is subject to review and approval by the Planning and Sustainability Director and any subsequent modification will be subject to the PB approval as a site plan amendment.”	Community trail note #5 has been added the sheet L-100 as requested.	L-100
14	Please perform test pits at the locations of the detention basin to analyze the ability to provide infiltration.	The applicant has scheduled test pits to be performed at the location of the detention basins on December 7th. The included drainage analysis does not account for infiltration and is analyzed as a worst case scenario and complies with NHDES and the City's stormwater requirements. The applicant intends to convert the detention system to a perforated pipe if the test pit results allow for infiltration.	



Proposed Multi-Family Development
815 Lafayette Rd
Portsmouth, NH

Drainage Analysis

Prospect North 815, LLC

October 23, 2023

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED PROFESSIONAL ENGINEER

10/23/2023

Tighe&Bond

100% Recyclable

Section 1
Project Description

The project is located at 815 Lafayette Road identified as Map 245 Lot 3 on the City of Portsmouth Tax Maps. The existing property is approximately 19.6 acres in size and is bound to the west by Route 1 and the abutting Lafayette Plaza shopping center property, to the north and east by the Winchester Place property, and to the south by Sagamore Creek. The proposed project is limited to approximately 4 acres of land near the southwest portion of the parcel herein referred to as the project site.

The proposed project consists of the demolition of the existing building along Sagamore Creek and the construction of three 4-story, 24-unit multi-family buildings (72 total units) with ground floor parking. The project will include associated site improvements such as parking, pedestrian access, utilities, stormwater management, lighting, and landscaping.

1.1 On-Site Soil Description

The project site consists of terrain that is generally sloping from the north to the south at grades below 10% with a step portion of terrain directly abutting the Sagamore Creek. The site has an approximate high point of elevation 23 located along the property line abutting the Lafayette Plaza property to the north.

A web soil survey was completed for the project and can be found in Appendix A of this report. Based on the soil survey, the runoff analyzed within this study has been modeled using Hydrologic Soil Group D soils.

1.2 Pre- and Post-Development Comparison

The pre-development and post-development watershed areas have been analyzed at one (1) distinct point of analysis (PA-1.) While the point of analysis has remained unchanged, the contributing sub-catchment areas varied between pre-development and post-development conditions. These adjustments were made to reflect the differences in drainage patterns between the existing and proposed conditions. The overall area analyzed as part of this drainage analysis was held constant. PA-1 is located just off site at the sagamore creek, which is a tidal estuary.

The peak discharge rates at this point of analysis were determined by analyzing Type III, 24-hour storm events. The rainfall data for these storm events were obtained from the data published by the Northeast Regional Climate Center at Cornell University, which can be found in Appendix B.

Furthermore, the site is located within a Coastal and Great Bay Community, therefore an added factor of safety of 15% was included as required by Env-Wq 1503.08(l).

1.3 Calculation Methods

The design storms analyzed in this study are the 2-year, 10-year, 25-year and 50-year 24-hour duration storm events. The stormwater modeling system, HydroCAD 10.0 was utilized to predict the peak runoff rates from these storm events. The peak discharge rates were determined by analyzing Type III 24-hour storm events. The rainfall data for these storm events were obtained from the data published by the Northeast Regional Climate Center at Cornell University, with an additional 15% added factor of safety as required by Env-Wq 1503.08(l).

The time of concentration was computed using the TR-55 Method, which provides a means of determining the time for an entire watershed to contribute runoff to a specific location via sheet flows, shallow concentrated flow, and channel flow. Runoff curve numbers were calculated by estimating the coverage areas and then summing the curve number for the coverage area as a percent of the entire watershed.

References:

1. HydroCAD Stormwater Modeling System, by HydroCAD Software Solutions LLC, Chocorua, New Hampshire.
2. New Hampshire Stormwater Management Manual, Volume 2, Post-Construction Best Management Practices Selection and Design, December 2008.
3. "Extreme Precipitation in New York & New England." Extreme Precipitation in New York & New England by Northeast Regional Climate Center (NRCC), 26 June 2012.

Section 2
Pre-Development Conditions

To analyze the pre-development condition, the site has been modeled utilizing (1) distinct point of analysis (PA-1). This point of analysis and watershed are depicted on the plan entitled "Pre-Development Watershed Plan", Sheet C-801.

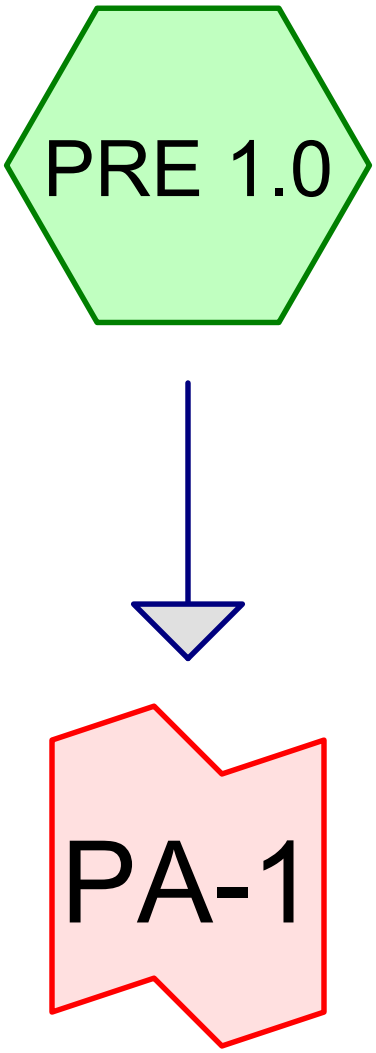
The point of analysis and its contributing watershed area is described below:

Point of Analysis (PA-1)

Point of analysis 1 is comprised of one subcatchment area (PRE 1.0). This area is comprised of mostly impervious surfaces, grass, and woods with small portions of roofs and gravel surfaces. Runoff from this watershed sheet flows untreated stormwater directly into Sagamore Creek and ultimately the Piscataqua River.

2.1 Pre-Development Calculations

2.2 Pre-Development Watershed Plan



Subcat Reach Pond Link

Routing Diagram for M-5131-001_PRE
Prepared by Tighe & Bond, Printed 10/18/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.168	80	>75% Grass cover, Good, HSG D (PRE 1.0)
0.048	96	Gravel surface, HSG D (PRE 1.0)
0.961	98	Paved parking, HSG D (PRE 1.0)
0.241	98	Roofs, HSG D (PRE 1.0)
1.932	79	Woods, Fair, HSG D (PRE 1.0)
4.350	**85**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
4.350	HSG D	PRE 1.0
0.000	Other	
4.350		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=189,480 sf 27.62% Impervious Runoff Depth>2.19"
Flow Length=268' Tc=7.3 min CN=85 Runoff=10.55 cfs 0.794 af

Link PA-1: Inflow=10.55 cfs 0.794 af
Primary=10.55 cfs 0.794 af

Total Runoff Area = 4.350 ac Runoff Volume = 0.794 af Average Runoff Depth = 2.19"
72.38% Pervious = 3.148 ac 27.62% Impervious = 1.202 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=189,480 sf 27.62% Impervious Runoff Depth>3.94"
Flow Length=268' Tc=7.3 min CN=85 Runoff=18.71 cfs 1.429 af

Link PA-1: Inflow=18.71 cfs 1.429 af
Primary=18.71 cfs 1.429 af

Total Runoff Area = 4.350 ac Runoff Volume = 1.429 af Average Runoff Depth = 3.94"
72.38% Pervious = 3.148 ac 27.62% Impervious = 1.202 ac

Summary for Subcatchment PRE 1.0:

Runoff = 18.71 cfs @ 12.10 hrs, Volume= 1.429 af, Depth> 3.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.62"

Area (sf)	CN	Description
10,490	98	Roofs, HSG D
50,881	80	>75% Grass cover, Good, HSG D
2,082	96	Gravel surface, HSG D
84,175	79	Woods, Fair, HSG D
41,852	98	Paved parking, HSG D
189,480	85	Weighted Average
137,138		72.38% Pervious Area
52,342		27.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	34	0.0436	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"
0.9	200	0.0350	3.80		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	34	0.2500	2.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.3	268	Total			

Summary for Link PA-1:

Inflow Area = 4.350 ac, 27.62% Impervious, Inflow Depth > 3.94" for 10-Yr event
Inflow = 18.71 cfs @ 12.10 hrs, Volume= 1.429 af
Primary = 18.71 cfs @ 12.10 hrs, Volume= 1.429 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=189,480 sf 27.62% Impervious Runoff Depth>5.37"
Flow Length=268' Tc=7.3 min CN=85 Runoff=25.16 cfs 1.947 af

Link PA-1: Inflow=25.16 cfs 1.947 af
Primary=25.16 cfs 1.947 af

Total Runoff Area = 4.350 ac Runoff Volume = 1.947 af Average Runoff Depth = 5.37"
72.38% Pervious = 3.148 ac 27.62% Impervious = 1.202 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=189,480 sf 27.62% Impervious Runoff Depth>6.72"
Flow Length=268' Tc=7.3 min CN=85 Runoff=31.11 cfs 2.436 af

Link PA-1: Inflow=31.11 cfs 2.436 af
Primary=31.11 cfs 2.436 af

Total Runoff Area = 4.350 ac Runoff Volume = 2.436 af Average Runoff Depth = 6.72"
72.38% Pervious = 3.148 ac 27.62% Impervious = 1.202 ac

LEGEND

PRE-DEVELOPMENT WATERSHED BOUNDARY

LONGEST FLOW PATH

PRE 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION

PA-1 — POINT OF ANALYSIS

N

245/1 N/F LAFAYETTE OF MICHIGAN, LLC 20630 HARPER AVENUE SUITE 107 HARPER WOODS, MI 48225 2868/2561

#755 1 STORY BLOCK BUILDING

#815 2 STORY BUILDING PEAK=44.63

MAP 245 LOT 3

PRE 1.0

PA-1

10' WIDE NON-EXCLUSIVE ACCESS EASEMENT 1

10' WIDE NON-EXCLUSIVE ACCESS EASEMENT 2

EXCLUSIVE TOWER EASEMENT 2

LAFAYETTE ROAD-U.S. ROUTE 1

SAGAMORE CREEK

WETLAND CLASSIFICATION (PSS1E/PEM1E)

SALT MARSH (E2EM1N)

100' WETLAND BUFFER

50' WETLAND BUFFER

25' WETLAND BUFFER

PILE OF DIRT & ASPHALT

HEADWALL

INV. EL=14.29

12" PVC

INV. EL=11.72

BOLLARD (TYP.)

6.5' CHAIN LINK FENCE

6' CHAIN LINK FENCE

GATE

GRAVEL DRIVE

LP-2

B-6

B-1

B-1A

6" DIA. FLOW UP 5'

PUMP STATION CANOPY

MOBIL STATION

MANHOLE

DUMPSTER PAD

6' WOOD FENCE (TYP.)

MONITORING WELL

GAS STATION SIGN

DRAIN PIPE FROM BUILDING

FLAGPOLE

CONCRETE (TYP.)

B-5A

B-5

B-4

B-2A

LP-1

B-2

B-3

i-HEART SIGN W/ BRICK PILLARS

VISITOR PARKING SIGNS

CONCRETE WALKWAY

CONCRETE PAD

CONCRETE PAD FOR ROAD SIGN

16" CONCRETE PIPE W/ FLARED END SECTION INV. EL=4.00

MONITORING WELL

SIDEWALK

BILLBOARD

HOTL

OHW

WHO

WGV

SX

SW

WW

Tighe&Bond

0 30' 60'

GRAPHIC SCALE

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	10/23/2023	TAC SUBMISSION

PROJECT NO:	M5131-001
DATE:	10/23/2023
FILE:	M5131-001-DSGN.dwg
DRAWN BY:	CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

PRE DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-801

Last Saved: 10/23/2023
Printed: Oct 23, 2023 - 9:54am By: Ckrzcuk
Tighe & Bond:J:\M\M5131 MB2 Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-DSGN.dwg

Section 3
Post-Development Conditions

The post-development condition was analyzed by dividing the watersheds into three (3) watershed areas. Stormwater runoff from these sub-catchment areas flow via subsurface drainage systems prior to discharging to an existing swale and ultimately the Sagamore Creek. Like the pre-development condition, flows from these sub-catchment areas are modeled at the same point of analysis (PA-1).

An underground detention system is included on the development site for the purpose of mitigating peak flowrates as well as mitigating temperature differences between the stormwater runoff and Sagamore Creek. Additionally, a Jellyfish Filter unit is proposed for treatment purposes. The treatment unit located post detention, is designed that flows greater than the 2-year storm event bypass the unit.

The point of analysis and its sub-catchment areas are depicted on the plan entitled "Post-Development Watershed Plan," Sheet C-802. The point of analysis and it's contributing watershed areas are described below:

Point of Analysis (PA-1)

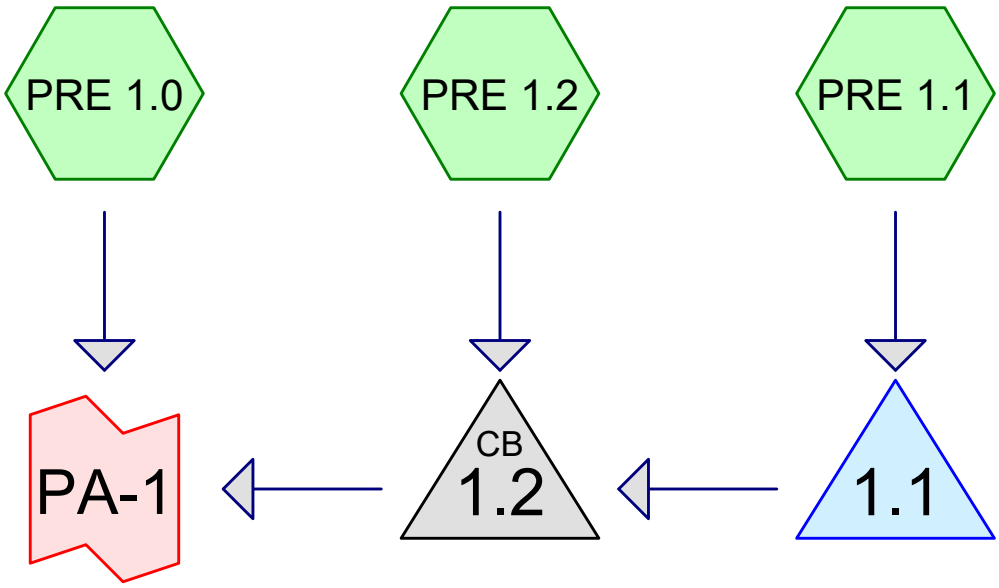
Post-development Watershed 1.0 (POST 1.0) is comprised mostly of the area surrounding the project site and is composed of mainly grass and wood with small portions of concrete sidewalk.

Post-development Watershed 1.1 (Post 1.1) is comprised of the majority of the development area. This watershed contains proposed buildings 2 and 3 as well as portions of its associated paved parking lots and sidewalks. Runoff from this watershed is captured by various catch basins and roof leaders connecting to a proposed underground detention system (Pond 1.1). The detention system discharges to the treatment unit, a Contech Jellyfish Stormwater Filter (Pond PJFF 1). Flows exiting the Jellyfish Filter discharge to the existing DOT drainage swale flowing to Sagamore Creek.

Post-development Watershed 1.2 (Post 1.2) is similar in nature to post-development Watershed 1.1. This watershed contains proposed building 1 as well as portions of its associated paved parking lots and sidewalks. Runoff from this watershed is also captured by various catch basins and a roof leader connecting to the closed drainage system downstream of the underground detention basin. Runoff from this area discharges to the same Jellyfish Filter which discharges to Sagamore Creek and ultimately the Piscataqua River.

3.1 Post-Development Calculations

3.2 Post-Development Watershed Plan



Subcat Reach Pond Link

Routing Diagram for M-5131-001_POST
Prepared by Tighe & Bond, Printed 10/18/2023

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
63,790	80	>75% Grass cover, Good, HSG D (PRE 1.0, PRE 1.1, PRE 1.2)
791	96	Gravel surface, HSG D (PRE 1.0)
43,125	98	Paved parking, HSG D (PRE 1.0, PRE 1.1, PRE 1.2)
30,714	98	Roofs, HSG D (PRE 1.1, PRE 1.2)
51,060	79	Woods, Fair, HSG D (PRE 1.0)
189,480	**87**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
189,480	HSG D	PRE 1.0, PRE 1.1, PRE 1.2
0	Other	
189,480		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=117,943 sf 9.16% Impervious Runoff Depth>1.87"
Flow Length=160' Tc=5.7 min CN=81 Runoff=5.86 cfs 18,382 cf

SubcatchmentPRE 1.1: Runoff Area=50,737 sf 87.11% Impervious Runoff Depth>3.24"
Flow Length=102' Slope=0.0050 '/' Tc=5.0 min CN=96 Runoff=4.11 cfs 13,705 cf

SubcatchmentPRE 1.2: Runoff Area=20,800 sf 90.53% Impervious Runoff Depth>3.24"
Flow Length=315' Slope=0.0050 '/' Tc=5.0 min CN=96 Runoff=1.68 cfs 5,618 cf

Pond 1.1: Peak Elev=15.13' Storage=0.015 af Inflow=4.11 cfs 13,705 cf
Outflow=3.09 cfs 13,705 cf

Pond 1.2: Peak Elev=14.25' Inflow=4.61 cfs 19,323 cf
18.0" Round Culvert n=0.013 L=128.0' S=0.0133 '/' Outflow=4.61 cfs 19,323 cf

Link PA-1: Inflow=10.47 cfs 37,705 cf
Primary=10.47 cfs 37,705 cf

Total Runoff Area = 189,480 sf Runoff Volume = 37,705 cf Average Runoff Depth = 2.39"
61.03% Pervious = 115,641 sf 38.97% Impervious = 73,839 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=117,943 sf 9.16% Impervious Runoff Depth>3.54"
Flow Length=160' Tc=5.7 min CN=81 Runoff=11.03 cfs 34,758 cf

SubcatchmentPRE 1.1: Runoff Area=50,737 sf 87.11% Impervious Runoff Depth>5.15"
Flow Length=102' Slope=0.0050 '/' Tc=5.0 min CN=96 Runoff=6.37 cfs 21,760 cf

SubcatchmentPRE 1.2: Runoff Area=20,800 sf 90.53% Impervious Runoff Depth>5.15"
Flow Length=315' Slope=0.0050 '/' Tc=5.0 min CN=96 Runoff=2.61 cfs 8,921 cf

Pond 1.1: Peak Elev=15.95' Storage=0.036 af Inflow=6.37 cfs 21,760 cf
Outflow=4.13 cfs 21,761 cf

Pond 1.2: Peak Elev=14.51' Inflow=6.35 cfs 30,681 cf
18.0" Round Culvert n=0.013 L=128.0' S=0.0133 '/' Outflow=6.35 cfs 30,681 cf

Link PA-1: Inflow=17.37 cfs 65,439 cf
Primary=17.37 cfs 65,439 cf

Total Runoff Area = 189,480 sf Runoff Volume = 65,439 cf Average Runoff Depth = 4.14"
61.03% Pervious = 115,641 sf 38.97% Impervious = 73,839 sf

Summary for Subcatchment PRE 1.0:

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

Runoff = 11.03 cfs @ 12.09 hrs, Volume= 34,758 cf, Depth> 3.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.62"

Area (sf)	CN	Description
0	98	Roofs, HSG D
55,283	80	>75% Grass cover, Good, HSG D
791	96	Gravel surface, HSG D
51,060	79	Woods, Fair, HSG D
10,809	98	Paved parking, HSG D
117,943	81	Weighted Average
107,134		90.84% Pervious Area
10,809		9.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	35	0.0265	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
0.0	18	0.3333	8.66		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	82	0.0244	0.78		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	25	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.7	160	Total			

Summary for Subcatchment PRE 1.1:

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

Runoff = 6.37 cfs @ 12.07 hrs, Volume= 21,760 cf, Depth> 5.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.62"

Area (sf)	CN	Description
20,875	98	Roofs, HSG D
6,538	80	>75% Grass cover, Good, HSG D
0	96	Gravel surface, HSG D
0	79	Woods, Fair, HSG D
23,324	98	Paved parking, HSG D
50,737	96	Weighted Average
6,538		12.89% Pervious Area
44,199		87.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	102	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	102	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PRE 1.2:

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

Runoff = 2.61 cfs @ 12.07 hrs, Volume= 8,921 cf, Depth> 5.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.62"

Area (sf)	CN	Description
9,839	98	Roofs, HSG D
1,969	80	>75% Grass cover, Good, HSG D
0	96	Gravel surface, HSG D
0	79	Woods, Fair, HSG D
8,992	98	Paved parking, HSG D
20,800	96	Weighted Average
1,969		9.47% Pervious Area
18,831		90.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	120	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	195	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
2.4	315	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1.1:

Inflow Area = 50,737 sf, 87.11% Impervious, Inflow Depth > 5.15" for 10-Yr event
Inflow = 6.37 cfs @ 12.07 hrs, Volume= 21,760 cf
Outflow = 4.13 cfs @ 12.18 hrs, Volume= 21,761 cf, Atten= 35%, Lag= 6.7 min
Primary = 4.13 cfs @ 12.18 hrs, Volume= 21,761 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.95' @ 12.17 hrs Surf.Area= 0.058 ac Storage= 0.036 af
Flood Elev= 17.00' Surf.Area= 0.058 ac Storage= 0.059 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.6 min (760.0 - 758.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.50'	0.000 af	**6.50'W x 193.00'L x 4.50'H Field A** 0.130 af Overall - 0.039 af Embedded = 0.091 af x 0.0% Voids
#2A	14.00'	0.031 af	**ADS N-12 36"** x 9 Inside #1 Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf Row Length Adjustment= +10.00' x 7.10 sf x 1 rows
#3B	13.50'	0.000 af	**6.50'W x 193.00'L x 4.50'H Field B** 0.130 af Overall - 0.039 af Embedded = 0.091 af x 0.0% Voids
#4B	14.00'	0.031 af	**ADS N-12 36"** x 9 Inside #3 Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf Row Length Adjustment= +10.00' x 7.10 sf x 1 rows
		0.062 af	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	13.90'	**18.0" Round Culvert** L= 12.0' Ke= 0.500 Inlet / Outlet Invert= 13.90' / 13.70' S= 0.0167 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	14.00'	**17.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	16.45'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 Width (feet) 4.00 4.00

Primary OutFlow Max=4.19 cfs @ 12.18 hrs HW=15.91' TW=14.39' (Dynamic Tailwater)
└─**1=Culvert** (Passes 4.19 cfs of 9.13 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 4.19 cfs @ 5.91 fps)
  └─**3=Custom Weir/Orifice** (Controls 0.00 cfs)

Summary for Pond 1.2:

Inflow Area = 71,537 sf, 88.11% Impervious, Inflow Depth > 5.15" for 10-Yr event
Inflow = 6.35 cfs @ 12.10 hrs, Volume= 30,681 cf
Outflow = 6.35 cfs @ 12.10 hrs, Volume= 30,681 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.35 cfs @ 12.10 hrs, Volume= 30,681 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.51' @ 12.10 hrs
Flood Elev= 20.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	13.20'	**18.0" Round Culvert** L= 128.0' Ke= 0.500 Inlet / Outlet Invert= 13.20' / 11.50' S= 0.0133 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=6.32 cfs @ 12.10 hrs HW=14.50' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 6.32 cfs @ 3.88 fps)

Summary for Link PA-1:

Inflow Area = 189,480 sf, 38.97% Impervious, Inflow Depth > 4.14" for 10-Yr event
Inflow = 17.37 cfs @ 12.09 hrs, Volume= 65,439 cf
Primary = 17.37 cfs @ 12.09 hrs, Volume= 65,439 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=117,943 sf 9.16% Impervious Runoff Depth>4.92"
Flow Length=160' Tc=5.7 min CN=81 Runoff=15.19 cfs 48,381 cf

SubcatchmentPRE 1.1: Runoff Area=50,737 sf 87.11% Impervious Runoff Depth>6.65"
Flow Length=102' Slope=0.0050 '/' Tc=5.0 min CN=96 Runoff=8.13 cfs 28,117 cf

SubcatchmentPRE 1.2: Runoff Area=20,800 sf 90.53% Impervious Runoff Depth>6.65"
Flow Length=315' Slope=0.0050 '/' Tc=5.0 min CN=96 Runoff=3.33 cfs 11,527 cf

Pond 1.1: Peak Elev=16.66' Storage=0.053 af Inflow=8.13 cfs 28,117 cf
Outflow=5.91 cfs 28,117 cf

Pond 1.2: Peak Elev=14.89' Inflow=8.26 cfs 39,644 cf
18.0" Round Culvert n=0.013 L=128.0' S=0.0133 '/' Outflow=8.26 cfs 39,644 cf

Link PA-1: Inflow=22.71 cfs 88,025 cf
Primary=22.71 cfs 88,025 cf

Total Runoff Area = 189,480 sf Runoff Volume = 88,025 cf Average Runoff Depth = 5.57"
61.03% Pervious = 115,641 sf 38.97% Impervious = 73,839 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=117,943 sf 9.16% Impervious Runoff Depth>6.24"
Flow Length=160' Tc=5.7 min CN=81 Runoff=19.06 cfs 61,326 cf

SubcatchmentPRE 1.1: Runoff Area=50,737 sf 87.11% Impervious Runoff Depth>8.05"
Flow Length=102' Slope=0.0050 '/' Tc=5.0 min CN=96 Runoff=9.76 cfs 34,018 cf

SubcatchmentPRE 1.2: Runoff Area=20,800 sf 90.53% Impervious Runoff Depth>8.05"
Flow Length=315' Slope=0.0050 '/' Tc=5.0 min CN=96 Runoff=4.00 cfs 13,946 cf

Pond 1.1: Peak Elev=16.91' Storage=0.058 af Inflow=9.76 cfs 34,018 cf
Outflow=8.38 cfs 34,018 cf

Pond 1.2: Peak Elev=15.93' Inflow=12.00 cfs 47,964 cf
18.0" Round Culvert n=0.013 L=128.0' S=0.0133 '/' Outflow=12.00 cfs 47,964 cf

Link PA-1: Inflow=30.78 cfs 109,290 cf
Primary=30.78 cfs 109,290 cf

Total Runoff Area = 189,480 sf Runoff Volume = 109,290 cf Average Runoff Depth = 6.92"
61.03% Pervious = 115,641 sf 38.97% Impervious = 73,839 sf

LEGEND

- POST-DEVELOPMENT WATERSHED BOUNDARY
- LONGEST FLOW PATH
- POST 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION
- POST POND 1 — POST-DEVELOPMENT POND DESIGNATION
- PA-1 — POINT OF ANALYSIS

N

POST 1.0
POST 1.1
POST 1.2
POST POND 1.1
POST POND 1.2
PA-1

N/F LAFAYETTE OF MICHIGAN, LLC
20630 HARPER AVENUE SUITE 107
HARPER WOODS, MI 48225
2868/2561

#755
1 STORY BLOCK BUILDING

PILE OF DIRT & ASPHALT
INV. EL=14.29
HEADWALL
12" PVC
INV. EL=11.72
WETLAND CLASSIFICATION (PSS1E/PEM1E)
BOLLARD (TYP.)
PUMP STATION CANOPY
MOBIL STATION
MANHOLE
DUMPSTER PAD
6' WOOD FENCE (TYP.)
GAS STATION SIGN
LAFAYETTE ROAD–U.S. ROUTE 1
CONCRETE PAD FOR ROAD SIGN
16" CONCRETE PIPE W/ FLARED END SECTION
INV. EL=5.00
SIDEWALK
BILLBOARD
MANHOLE LOT 1
B-1
B-1A
B-2
B-2A
B-5
B-5A
B-6
LP-1
100' WETLAND BUFFER
50' WETLAND BUFFER
25' WETLAND BUFFER
HOTL
MHW
SALT MARSH (E2EM1N)
WETLAND CLASSIFICATION (PSS1E/PEM1E)
SAGAMORE CREEK

0 30' 60'
GRAPHIC SCALE

Tighe&Bond

PROPOSED MULTI-FAMILY DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
B	11/22/2023	TAC Resubmission
A	10/23/2023	TAC Submission

PROJECT NO:	M5131-001
DATE:	10/23/2023
FILE:	M5131-001-DSGN.dwg
DRAWN BY:	CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

POST DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-802

Last Saved: 11/22/2023
Plotted: Nov 22, 2023 8:45am By: CKrecuk
Tighe & Bond:J:\M\M5131 MB2 Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-DSGN.dwg

Section 4
Peak Rate Comparison

The following table summarizes and compares the pre- and post-development peak runoff rates from the 2-year, 10-year, 25-year and 50-year storm events at the point of analysis.

Table 4.1
Comparison of Pre- and Post-Development Flows (CFS)

	2-Year Storm	10-Year Storm	25-Year Storm	50-Year Storm
Pre-Development Watershed				
PA-1	10.55	18.71	25.16	31.11
Post-Development Watershed				
PA-1	10.47	17.37	22.71	30.78

The Peak Runoff Control Requirements of Env-Wq 1507.06 are not required to be met for the point of analysis per NHDES Alteration of Terrain regulation Env-Wq 1507.06(d). However, a detention system is included on the development site for the purpose of mitigating temperature differences. As shown in Table 1.2 the Post-development flows are decreased from the Pre-development flows for the point of analysis with the addition of this underground detention system.

Section 5
Mitigation Description

The stormwater management system has been designed to provide stormwater treatment as required by the City of Portsmouth Site Review Regulations and NHDES AoT Regulations (Env-Wq 1500).

5.1 Pre-Treatment Methods for Protecting Water Quality

Pre-treatment for the stormwater filtration systems consists of off-line deep sump catch basins.

5.2 Treatment Methods for Protecting Water Quality.

The runoff from proposed impervious areas will be treated by a Contech Jellyfish stormwater filtration system. This Jellyfish system is sized to treat the Water Quality Flow of its respective sub catchment areas. The system is outfitted with an internal bypass that diverts peak flows away from treatment. The BMP worksheet for this treatment practice has been included in Section 6 of this report.

The proposed stormwater management system is required to remove 80% of the annual Total Suspended Soils (TSS) loads and 50% of the annual Total Nitrogen (TN) loads per the City of Portsmouth's Site Plan regulations, Section 7.6.2.1.a.i. As shown in table 5.1 the pollutant removal efficiencies for the proposed treatment system exceeds the City of Portsmouth's removal requirements.

Table 5.1 – Pollutant Removal Efficiencies

BMP	Total Suspended Solids	Total Nitrogen	Total Phosphorus
Jellyfish Filter w/Pretreatment[1]	91%	53%	61%

1. Pollutant removal calculations for Jellyfish Filter with deep sump catchbasin pretreatment are shown in Table 5.2.

Table 5.2 – Pollutant Removal Calculations				
Contech Jellyfish Filter				
BMP	TSS Removal Rate	Starting TSS Load	TSS Removed	Remaining TSS Load
Deep Sump Catchbasin w/Hood[1]	0.15	1.00	0.15	0.85
Jellyfish Filter[2]	0.89	0.85	0.76	0.09
	Total Suspended Solids Removed:			**91%**
	TN Removal Rate	Starting TN Load	TN Removed	Remaining TN Load
Deep Sump Catchbasin w/Hood[1]	0.05	1.00	0.05	0.95
Jellyfish Filter[2]	0.51	0.95	0.48	0.47
	Total Nitrogen Removed:			**53%**
	TP Removal Rate	Starting TP Load	TP Removed	Remaining TP Load
Deep Sump Catchbasin w/Hood[1]	0.05	1.00	0.05	0.95
Jellyfish Filter[2]	0.59	0.95	0.56	0.39
	Total Phosphorus Removed:			**61%**

1. Pollutant removal efficiencies from NH Stormwater Manual Volume 2, Appendix E.
2. Pollutant removal efficiencies from Contech Engineered Solutions, Jellyfish Filter Stormwater Treatment performance testing results.

Section 6
BMP Worksheet

General Calculations - WQV and WQF
(optional worksheet)

This worksheet may be useful when designing a BMP that does not fit into one of the specific worksheets already provided (i.e. for a technology which is not a stormwater wetland, infiltration practice, etc.)

Water Quality Volume (WQV)

1.64	ac	A = Area draining to the practice
1.45	ac	A_I = Impervious area draining to the practice
0.88	decimal	I = percent impervious area draining to the practice, in decimal form
0.85	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
1.39	ac-in	WQV= 1" x Rv x A
5,035	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")

Water Quality Flow (WQF)

1	inches	P = amount of rainfall. For WQF in NH, P = 1".
0.85	inches	Q = water quality depth. Q = WQV/A
99	unitless	CN = unit peak discharge curve number. $CN = 1000/(10+5P+10Q-10*[Q^2 + 1.25*Q*P]^{0.5})$
0.1	inches	S = potential maximum retention. S = (1000/CN) - 10
0.029	inches	Ia = initial abstraction. Ia = 0.2S
5.0	minutes	T_c = Time of Concentration
640.0	cfs/mi^2/in	qu is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III
1.387	cfs	WQF = q_u x WQV. Conversion: to convert "cfs/mi^2/in * ac-in" to "cfs" multiply by 1mi^2/640ac

Designer's Notes: JELLYFISH FILTER - 01

Pretreatment: Offline Deep Sump Catch Basins

Treatment: (1) Contech Jellyfish Model JF0806-7-2- design capacity of 1.43 cfs

APPENDIX A

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Rockingham County, New Hampshire

October 10, 2023

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,550 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

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 Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 26, Aug 22, 2023

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

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
299	Udorthents, smoothed	3.7	61.5%
397	Ipswich mucky peat, 0 to 2 percent slopes, very frequently flooded	1.9	31.7%
597	Westbrook mucky peat, 0 to 2 percent slopes, very frequently flooded	0.2	3.7%
W	Water	0.2	3.1%
Totals for Area of Interest		**6.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

Rockingham County, New Hampshire

299—Udorthents, smoothed

Map Unit Setting

National map unit symbol: 9cmt
Elevation: 0 to 840 feet
Mean annual precipitation: 44 to 49 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 155 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Properties and qualities

Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

397—Ipswich mucky peat, 0 to 2 percent slopes, very frequently flooded

Map Unit Setting

National map unit symbol: 2tyqj
Elevation: 0 to 10 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Ipswich and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ipswich

Setting

Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Partially- decomposed herbaceous organic material

Typical profile

Oe - 0 to 42 inches: mucky peat

Oa - 42 to 59 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.14 to 99.90 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to strongly saline (0.7 to 111.6 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water supply, 0 to 60 inches: Very high (about 26.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: A/D
Ecological site: R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded, R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded
Hydric soil rating: Yes

Minor Components

Westbrook

Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded, R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded
Hydric soil rating: Yes

Pawcatuck

Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded, R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded
Hydric soil rating: Yes

597—Westbrook mucky peat, 0 to 2 percent slopes, very frequently flooded

Map Unit Setting

National map unit symbol: 2tyqf
Elevation: 0 to 10 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Westbrook and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Westbrook

Setting

Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Partly-decomposed herbaceous organic material over loamy mineral material

Typical profile

Oe - 0 to 19 inches: mucky peat
Cg - 19 to 59 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to strongly saline (0.7 to 111.6 mmhos/cm)
Sodium adsorption ratio, maximum: 33.0
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: B/D

Ecological site: R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded, R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded
Hydric soil rating: Yes

Minor Components

Ipswich
Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded, R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded
Hydric soil rating: Yes

Pawcatuck
Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded, R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded
Hydric soil rating: Yes

W—Water

Map Unit Setting
National map unit symbol: 9cq3
Elevation: 200 to 2,610 feet
Farmland classification: Not prime farmland

Map Unit Composition
Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

APPENDIX B

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing	Yes
State	
Location	
Latitude	43.052 degrees North
Longitude	70.768 degrees West
Elevation	0 feet
Date/Time	Tue Oct 10 2023 16:27:23 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.82	1.04	**1yr**	0.70	0.98	1.21	1.57	2.04	2.67	2.93	**1yr**	2.36	2.82	3.23	3.96	4.57	**1yr**
2yr	0.32	0.50	0.62	0.82	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.50	3.22	3.58	**2yr**	2.85	3.45	3.95	4.70	5.35	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.61	**5yr**	1.08	1.47	1.89	2.44	3.15	4.08	4.60	**5yr**	3.61	4.42	5.06	5.96	6.73	**5yr**
10yr	0.41	0.65	0.82	1.12	1.45	1.89	**10yr**	1.25	1.73	2.24	2.90	3.76	4.89	5.55	**10yr**	4.33	5.34	6.11	7.14	8.01	**10yr**
25yr	0.48	0.76	0.97	1.34	1.78	2.34	**25yr**	1.53	2.15	2.78	3.64	4.76	6.20	7.13	**25yr**	5.49	6.86	7.85	9.07	10.10	**25yr**
50yr	0.54	0.86	1.10	1.54	2.08	2.76	**50yr**	1.79	2.53	3.30	4.34	5.68	7.42	8.62	**50yr**	6.57	8.29	9.48	10.87	12.03	**50yr**
100yr	0.60	0.97	1.25	1.78	2.42	3.27	**100yr**	2.09	2.99	3.92	5.18	6.80	8.90	10.43	**100yr**	7.87	10.03	11.46	13.04	14.35	**100yr**
200yr	0.68	1.10	1.43	2.05	2.83	3.85	**200yr**	2.45	3.53	4.63	6.15	8.12	10.66	12.61	**200yr**	9.44	12.13	13.85	15.64	17.11	**200yr**
500yr	0.80	1.32	1.72	2.49	3.49	4.78	**500yr**	3.01	4.39	5.79	7.74	10.27	13.55	16.22	**500yr**	11.99	15.60	17.81	19.91	21.61	**500yr**

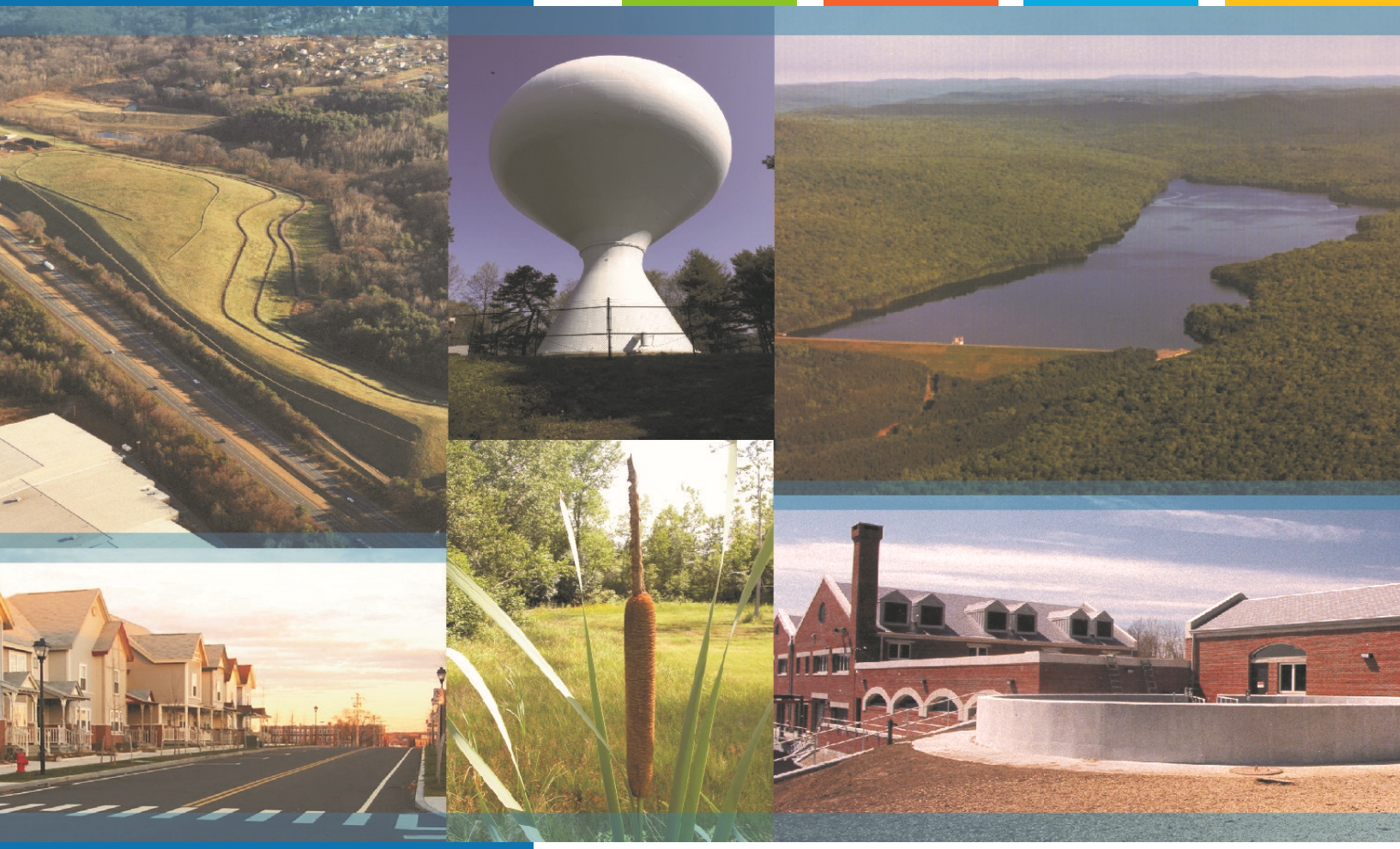
Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.72	0.88	**1yr**	0.63	0.87	0.92	1.33	1.68	2.25	2.53	**1yr**	1.99	2.43	2.88	3.18	3.91	**1yr**
2yr	0.32	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.07	3.47	**2yr**	2.72	3.34	3.84	4.57	5.10	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.12	2.73	3.81	4.22	**5yr**	3.37	4.06	4.74	5.57	6.28	**5yr**
10yr	0.39	0.59	0.74	1.03	1.33	1.60	**10yr**	1.15	1.57	1.81	2.39	3.06	4.40	4.90	**10yr**	3.89	4.71	5.49	6.46	7.24	**10yr**
25yr	0.44	0.67	0.83	1.19	1.57	1.90	**25yr**	1.35	1.86	2.10	2.75	3.53	4.75	5.95	**25yr**	4.20	5.72	6.72	7.87	8.75	**25yr**
50yr	0.48	0.74	0.92	1.32	1.77	2.17	**50yr**	1.53	2.12	2.35	3.07	3.93	5.37	6.88	**50yr**	4.75	6.61	7.83	9.14	10.11	**50yr**
100yr	0.54	0.81	1.02	1.47	2.02	2.47	**100yr**	1.74	2.42	2.63	3.41	4.35	6.04	7.95	**100yr**	5.35	7.65	9.12	10.64	11.68	**100yr**
200yr	0.60	0.90	1.14	1.64	2.29	2.82	**200yr**	1.98	2.76	2.94	3.77	4.79	6.78	9.19	**200yr**	6.00	8.84	10.63	12.40	13.51	**200yr**
500yr	0.69	1.03	1.32	1.92	2.73	3.37	**500yr**	2.36	3.30	3.42	4.30	5.45	7.90	11.13	**500yr**	7.00	10.70	13.00	15.20	16.37	**500yr**

Coastal and Great Bay Region Precipitation Increase		
	24-hr Storm Event (in.)	24-hr Storm Event + 15% (in.)
1 Year	2.67	3.07
2 Year	3.22	3.70
10 Year	4.89	5.62
25 Year	6.20	7.13
50 Year	7.42	8.53

www.tighebond.com

100% Recyclable



Proposed Multi-Family Development
815 Lafayette Rd
Portsmouth, NH

Long-Term Operation & Maintenance Plan

Prospect North 815, LLC

October 23, 2023

Tighe&Bond

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Section 1
Long-Term Operation & Maintenance Plan

It is the intent of this Operation and Maintenance Plan to identify the areas of this site that need special attention and consideration, as well as implement a plan to assure routine maintenance. By identifying the areas of concern as well as implementing a frequent and routine maintenance schedule the site will maintain a high-quality stormwater runoff.

1.1 Contact/Responsible Party

Prospect North 815, LLC
PO Box 372
Greenland, NH 03857

(Note: The contact information for the Contact/Responsible Party shall be kept current. If ownership changes, the Operation and Maintenance Plan must be transferred to the new party.)

1.2 Maintenance Items

Maintenance of the following items shall be recorded:

- Litter/Debris Removal
- Landscaping
- Catchbasin Cleaning
- Pavement Sweeping
- Underground Detention System
- Contech Jellyfish Filtration System

The following maintenance items and schedule represent the minimum action required. Periodic site inspections shall be conducted, and all measures must be maintained in effective operating condition. The following items shall be observed during site inspection and maintenance:

- Inspect vegetated areas, particularly slopes and embankments for areas of erosion. Replant and restore as necessary
- Inspect catch basins for sediment buildup
- Inspect site for trash and debris

1.3 Overall Site Operation & Maintenance Schedule

Maintenance Item	Frequency of Maintenance
Litter/Debris Removal	Weekly
Pavement Sweeping - Sweep impervious areas to remove sand and litter.	Annually
Landscaping - Landscaped islands to be maintained and mulched.	Maintained as required and mulched each Spring
Catch Basin (CB) Cleaning - CB to be cleaned of solids and oils.	Annually
Contech Jelly Fish Units	In accordance with Manufacturer's Recommendations (See section 1.5)
Underground Detention Basin - Visual observation of sediment levels within system	Bi-Annually (See Section 1.4)

1.3.1 Disposal Requirements

Disposal of debris, trash, sediment and other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste regulations.

1.4 Underground Detention System Maintenance Requirements

Underground Detention System Inspection/Maintenance Requirements		
Inspection/ Maintenance	**Frequency**	**Action**
Monitor inlet and outlet structures for sediment accumulation	Two (2) times annually	- Trash, debris and sediment to be removed - Any required maintenance shall be addressed
Deep Sump Catchbasins	Two (2) times annually	- Removal of sediment as warranted by inspection - No less than once annually
Monitor detention system for sediment accumulation	Two (2) times annually	- Trash, debris and sediment to be removed - Any required maintenance shall be addressed

1.5 Contech Jellyfish Filter System Maintenance Requirements

Contech Jellyfish Filter System Inspection/Maintenance Requirements		
Inspection/ Maintenance	**Frequency**	**Action**
Inspect vault for sediment build up, static water, plugged media and bypass condition	Quarterly during the first year of operation, Minimum of annually in subsequent years	- See section 4 & 5 of Jellyfish Filter Owner's Manual
Replace Cartridges	As required by inspection, 1–5 years.	- See section 6 & 7 of Jellyfish Filter Owner's Manual

CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter
Owner's Manual

Jellyfish® Filter

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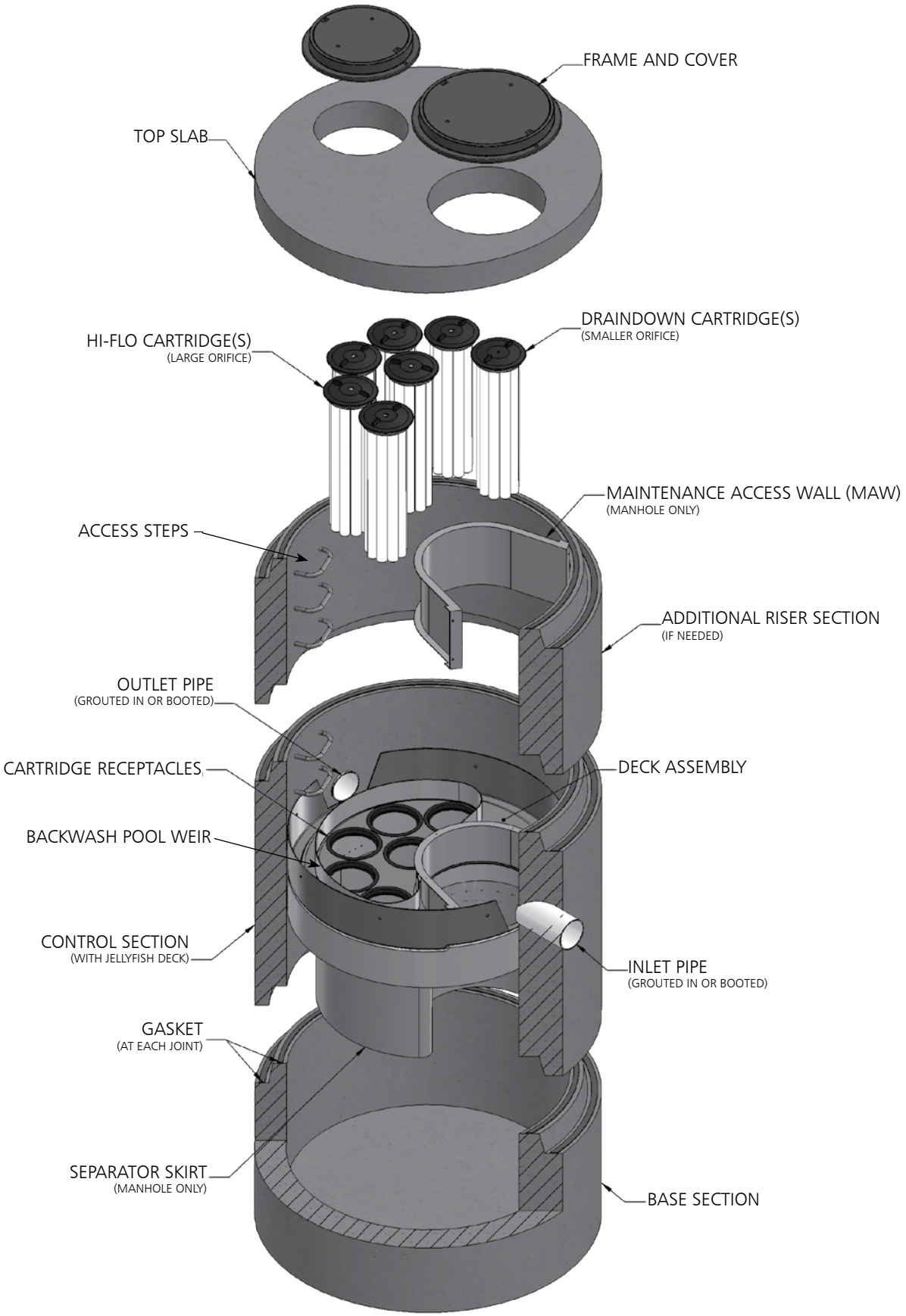
THANK YOU FOR PURCHASING THE JELLYFISH® FILTER!

Contech Engineered Solutions would like to thank you for selecting the Jellyfish Filter to meet your project's stormwater treatment needs. With proper inspection and maintenance, the Jellyfish Filter is designed to deliver ongoing, high levels of stormwater pollutant removal.

If you have any questions, please feel free to call us or e-mail us:

Contech Engineered Solutions
9025 Centre Pointe Drive, Suite 400 | West Chester, OH 45069
513-645-7000 | 800-338-1122
www.ContechES.com
info@conteches.com


FRAME AND COVER
TOP SLAB
DRAINDOWN CARTRIDGE(S)
(SMALLER ORIFICE)
HI-FLO CARTRIDGE(S)
(LARGE ORIFICE)
MAINTENANCE ACCESS WALL (MAW)
(MANHOLE ONLY)
ACCESS STEPS
ADDITIONAL RISER SECTION
(IF NEEDED)
OUTLET PIPE
(GROUTED IN OR BOOTED)
CARTRIDGE RECEPTACLES
DECK ASSEMBLY
BACKWASH POOL WEIR
CONTROL SECTION
(WITH JELLYFISH DECK)
INLET PIPE
(GROUTED IN OR BOOTED)
GASKET
(AT EACH JOINT)
SEPARATOR SKIRT
(MANHOLE ONLY)
BASE SECTION

WARNINGS / CAUTION

1. FALL PROTECTION may be required.
2. WATCH YOUR STEP if standing on the Jellyfish Filter Deck at any time; Great care and safety must be taken while walking or maneuvering on the Jellyfish Filter Deck. Attentive care must be taken while standing on the Jellyfish Filter Deck at all times to prevent stepping onto a lid, into or through a cartridge hole or slipping on the deck.
3. The Jellyfish Filter Deck can be SLIPPERY WHEN WET.
4. If the Top Slab, Covers or Hatches have not yet been installed, or are removed for any reason, great care must be taken to NOT DROP ANYTHING ONTO THE JELLYFISH FILTER DECK. The Jellyfish Filter Deck and Cartridge Receptacle Rings can be damaged under high impact loads. This type of activity voids all warranties. All damaged items to be replaced at owner's expense.
5. Maximum deck load 2 persons, total weight 450 lbs.

Safety Notice

Jobsite safety is a topic and practice addressed comprehensively by others. The inclusions here are intended to be reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Contractor's responsibility and outside the scope of Contech Engineered Solutions.

Confined Space Entry

Secure all equipment and perform all training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to proceed safely at all times.

Personal Safety Equipment

Contractor is responsible to provide and wear appropriate personal protection equipment as needed including, but not limited to safety boots, hard hat, reflective vest, protective eyewear, gloves and fall protection equipment as necessary. Make sure all equipment is staffed with trained and/or certified personnel, and all equipment is checked for proper operation and safety features prior to use.

- Fall protection equipment
- Eye protection
- Safety boots
- Ear protection
- Gloves
- Ventilation and respiratory protection
- Hard hat
- Maintenance and protection of traffic plan

Chapter 1

1.0 – Owner Specific Jellyfish Filter Product Information

Below you will find a reference page that can be filled out according to your Jellyfish Filter specification to help you easily inspect, maintain and order parts for your system.

Owner Name:	
Phone Number:	
Site Address:	
Site GPS Coordinates/unit location:	
Unit Location Description:	
Jellyfish Filter Model No.:	
Contech Project & Sequence Number	
No. of Hi-Flo Cartridges	
No. of Cartridges:	
Length of Draindown Cartridges:	
No. of Blank Cartridge Lids:	
Bypass Configuration (Online/Offline):	

Notes:

_____

_____

_____

_____

Chapter 2

2.0 – Jellyfish Filter System Operations and Functions

The Jellyfish Filter is an engineered stormwater quality treatment technology that removes a high level and wide variety of stormwater pollutants. Each Jellyfish Filter cartridge consists of eleven membrane - encased filter elements ("filtration tentacles") attached to a cartridge head plate. The filtration tentacles provide a large filtration surface area, resulting in high flow and high pollutant removal capacity.

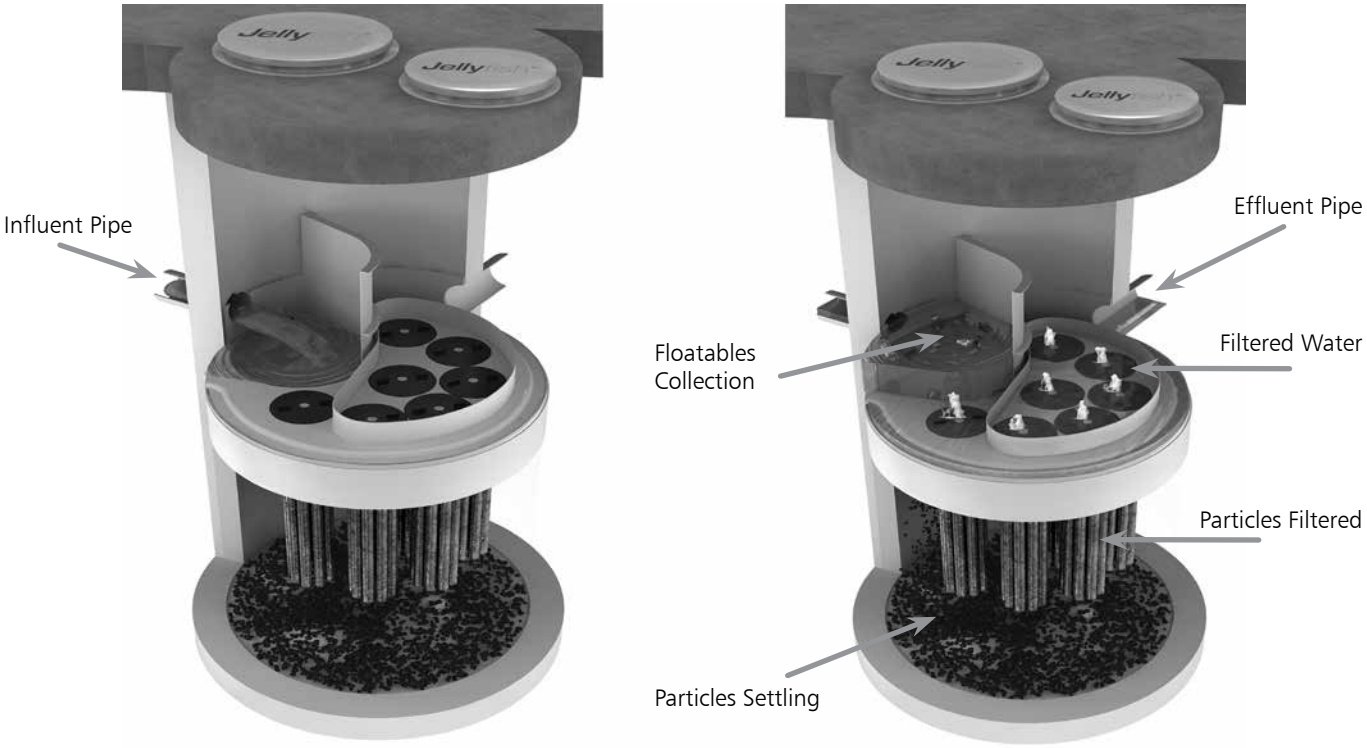
The Jellyfish Filter functions are depicted in Figure 1 below.

FIGURE 1

Jellyfish Filter Treatment Functions

Membrane Filtration

Section View with Maintenance Access Wall (MAW) Cutaway



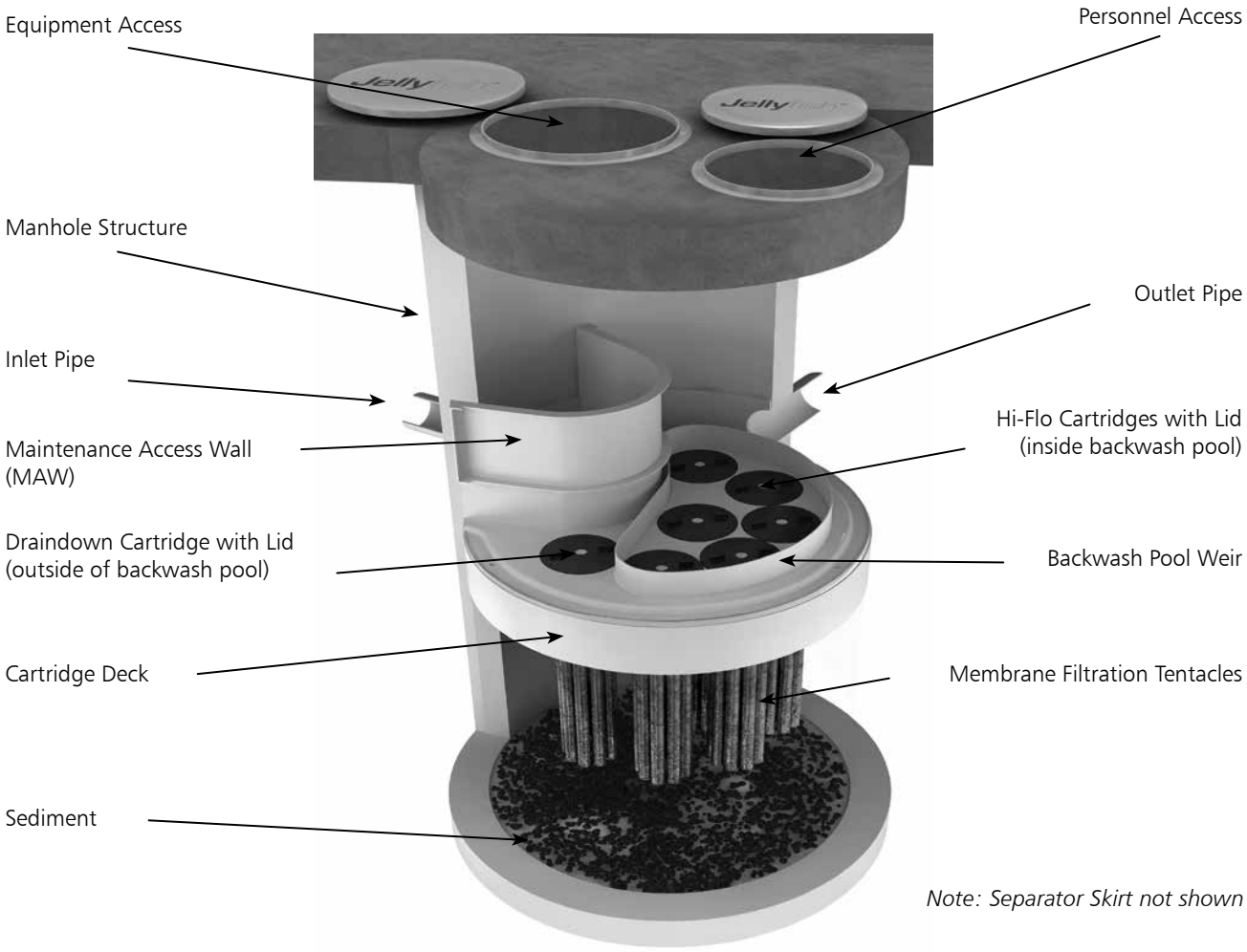
Jellyfish Filter cartridges are backwashed after each peak storm event, which removes accumulated sediment from the membranes. This backwash process extends the service life of the cartridges and increases the time between maintenance events.

For additional details on the operation and pollutant capabilities of the Jellyfish Filter please refer to additional details on our website at www.ContechES.com.

2.1 – Components and Cartridges

The Jellyfish Filter and components are depicted in Figure 2 below.

FIGURE 2 **Jellyfish Filter Components**



Tentacles are available in various lengths as depicted in Table 1 below.

Table 1 – Cartridge Lengths / Weights and Cartridge Lid Orifice Diameters

Cartridge Lengths	Dry Weight	Hi-Flo Orifice Diameter	Draindown Orifice Diameter
15 inches (381 mm)	10 lbs (4.5 kg)	35 mm	20 mm
27 inches (686 mm)	14.5 lbs (6.6 kg)	45 mm	25 mm
40 inches (1,016 mm)	19.5 lbs (8.9 kg)	55 mm	30 mm
54 inches (1,372 mm)	25 lbs (11.4 kg)	70 mm	35 mm

2.2 – Jellyfish Membrane Filtration Cartridge Assembly

The Jellyfish Filter utilizes multiple membrane filtration cartridges. Each cartridge consists of removable cylindrical filtration "tentacles" attached to a cartridge head plate. Each filtration tentacle has a threaded pipe nipple and o-ring. To attach, insert the top pipe nipples with the o-ring through the head plate holes and secure with locking nuts. Hex nuts to be hand tightened and checked with a wrench as shown below.

2.3 – Jellyfish Membrane Filtration Cartridge Installation

- Cartridge installation will be performed by trained individuals and coordinated with the installing site Contractor. Flow diversion devices are required to be in place until the site is stabilized (final paving and landscaping in place). Failure to address this step completely will reduce the time between required maintenance.
- Descend to the cartridge deck (see Safety Notice and page 3).
- Refer to Contech's submittal drawings to determine proper quantity and placement of Hi-Flo, Draindown and Blank cartridges with appropriate lids. Lower the Jellyfish membrane filtration cartridges into the cartridge receptacles within the cartridge deck. It is possible that not all cartridge receptacles will be filled with a filter cartridge. In that case, a blank headplate and blank cartridge lid (no orifice) would be installed.

Cartridge Assembly

Do not force the tentacles down into the cartridge receptacle, as this may damage the membranes. Apply downward pressure on the cartridge head plate to seat the lubricated rim gasket (thick circular gasket surrounding the circumference of the head plate) into the cartridge receptacle. (See Figure 3 for details on approved lubricants for use with rim gasket.)

- Examine the cartridge lids to differentiate lids with a small orifice, a large orifice, and no orifice.
  - Lids with a small orifice are to be inserted into the Draindown cartridge receptacles, outside of the backwash pool weir.
  - Lids with a large orifice are to be inserted into the Hi-Flo cartridge receptacles within the backwash pool weir.
  - Lids with no orifice (blank cartridge lids) and a blank headplate are to be inserted into unoccupied cartridge receptacles.
- To install a cartridge lid, align both cartridge lid male threads with the cartridge receptacle female threads before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation.

3.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.
Inspection activities are typically conducted from surface observations and include:

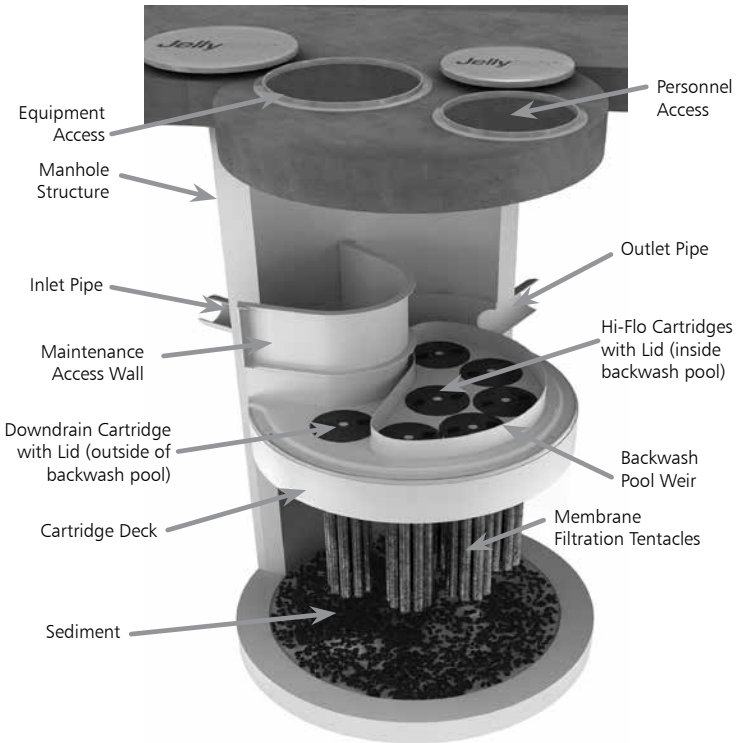
- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed

4.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.



Note: Separator Skirt not shown

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

5.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

5.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.

Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

5.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

6.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

7.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

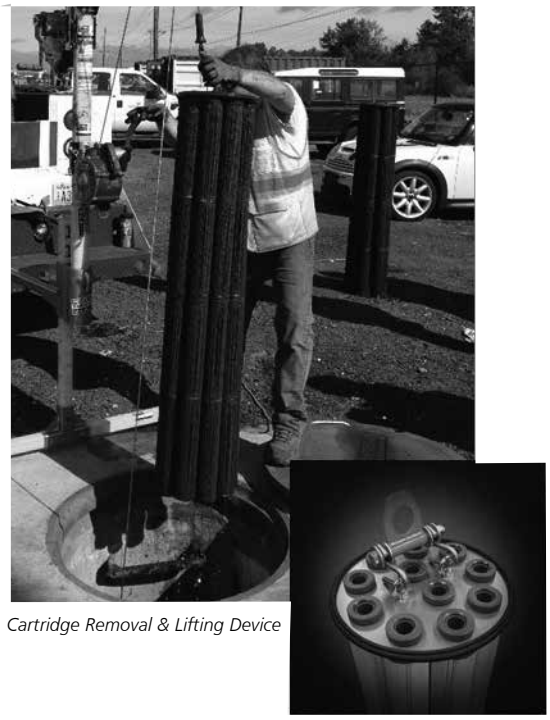
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

7.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. *Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs*.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

7.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.
2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.



Cartridge Removal & Lifting Device

3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane*.
4. Collected rinse water is typically removed by vacuum hose.

5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

7.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.
3. Pressure wash cartridge deck and receptacles to remove all

Rinsing Cartridge with Contech Rinse Tool

sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.

4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.
6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some

Vacuuming Sump Through MAW

vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

7.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. *Caution: Do not force the cartridge downward; damage may occur.*
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

7.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

7.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

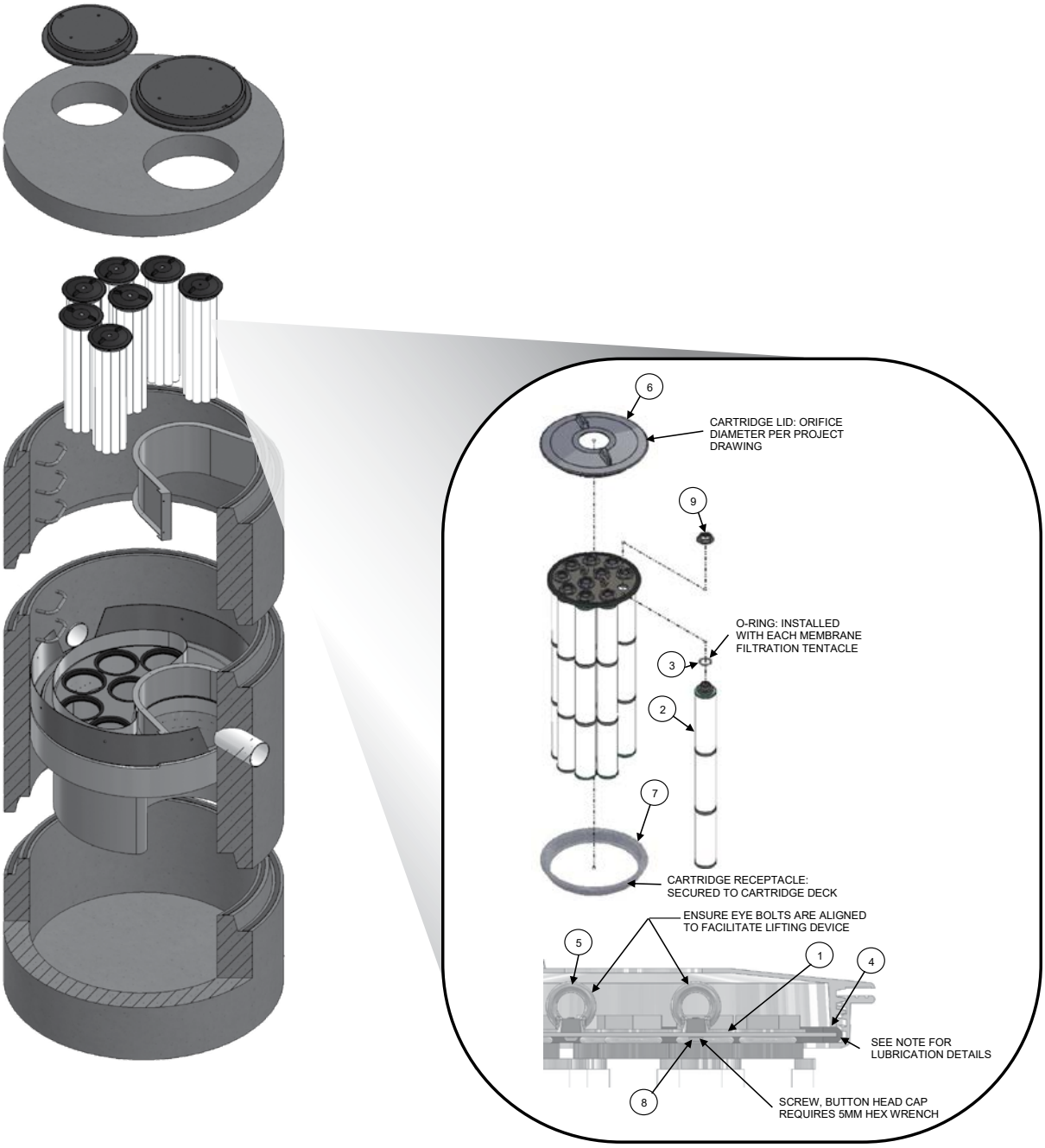


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lid (Item 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner: _____ Jellyfish Model No.:_____

Location: _____ GPS Coordinates: _____

Land Use: Commercial:_____ Industrial: _____ Service Station:_____

Road/Highway:____ Airport: _____ Residential: _____ Parking Lot:_____

Date/Time:					
Inspector:					
Maintenance Contractor:					
Visible Oil Present: (Y/N)					
Oil Quantity Removed					
Floatable Debris Present: (Y/N)					
Floatable Debris removed: (Y/N)					
Water Depth in Backwash Pool					
Cartridges externally rinsed/re-commissioned: (Y/N)					
New tentacles put on Cartridges: (Y/N)					
Sediment Depth Measured: (Y/N)					
Sediment Depth (inches or mm):					
Sediment Removed: (Y/N)					
Cartridge Lids intact: (Y/N)					
Observed Damage:					
Comments:					

1.6 Snow & Ice Management for Standard Asphalt and Walkways

Snow storage areas shall be located such that no direct untreated discharges are possible to receiving waters from the storage site (snow storage areas have been shown on the Site Plan). The property manager will be responsible for timely snow removal from all private sidewalks, driveways, and parking areas. Any snow accumulation beyond a height of 3' in the snow storage areas will be hauled off-site and legally disposed of. Salt storage areas shall be covered or located such that no direct untreated discharges are possible to receiving waters from the storage site. Salt and sand shall be used to the minimum extent practical (refer to the attached for de-icing application rate guideline from the New Hampshire Stormwater Management Manual, Volume 2,).

Deicing Application Rate Guidelines

24' of pavement (typcial two-lane road)

These rates are not fixed values, but rather the middle of a range to be selected and adjusted by an agency according to its local conditions and experience.

			Pounds per two-lane mile			
Pavement Temp. (°F) and Trend (↑↓)	Weather Condition	Maintenance Actions	Salt Prewetted / Pretreated with Salt Brine	Salt Prewetted / Pretreated with Other Blends	Dry Salt*	Winter Sand (abrasives)
> 30° ↑	Snow	Plow, treat intersections only	80	70	100*	Not recommended
	Freezing Rain	Apply Chemical	80 - 160	70 - 140	100 - 200*	Not recommended
30° ↓	Snow	Plow and apply chemical	80 - 160	70 - 140	100 - 200*	Not recommended
	Freezing Rain	Apply Chemical	150 - 200	130 - 180	180 - 240*	Not recommended
25° - 30° ↑	Snow	Plow and apply chemical	120 - 160	100 - 140	150 - 200*	Not recommended
	Freezing Rain	Apply Chemical	150 - 200	130 - 180	180 - 240*	Not recommended
25° - 30° ↓	Snow	Plow and apply chemical	120 - 160	100 - 140	150 - 200*	Not recommended
	Freezing Rain	Apply Chemical	160 - 240	140 - 210	200 - 300*	400
20° - 25° ↑	Snow or Freezing Rain	Plow and apply chemical	160 - 240	140 - 210	200 - 300*	400
20° - 25° ↓	Snow	Plow and apply chemical	200 - 280	175 - 250	250 - 350*	Not recommended
	Freezing Rain	Apply Chemical	240 - 320	210 - 280	300 - 400*	400
15° - 20° ↑	Snow	Plow and apply chemical	200 - 280	175 - 250	250 - 350*	Not recommended
	Freezing Rain	Apply Chemical	240 - 320	210 - 280	300 - 400*	400
15° - 20° ↓	Snow or Freezing Rain	Plow and apply chemical	240 - 320	210 - 280	300 - 400*	500 for freezing rain
0° - 15° ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	300 - 400	Not recommended	500 - 750 spot treatment as needed
< 0°	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	400 - 600**	Not recommended	500 - 750 spot treatment as needed

* Dry salt is not recommended. It is likely to blow off the road before it melts ice.

** A blend of 6 - 8 gal/ton $MgCl_2$ or $CaCl_2$ added to NaCl can melt ice as low as -10°.

Anti-icing Route Data Form				
Truck Station:				
Date:				
Air Temperature	Pavement Temperature	Relative Humidity	Dew Point	Sky
Reason for applying:				
Route:				
Chemical:				
Application Time:				
Application Amount:				
Observation (first day):				
Observation (after event):				
Observation (before next application):				
Name:				

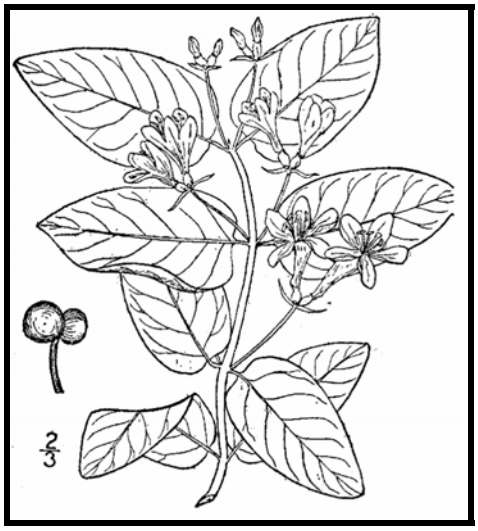
Section 2
Invasive Species

With respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem is classified as an invasive species. Refer to the following fact sheet prepared by the University of New Hampshire Cooperative Extension entitled Methods for Disposing Non-Native Invasive Plants for recommended methods to dispose of invasive plant species.

UNIVERSITY of NEW HAMPSHIRE COOPERATIVE EXTENSION

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

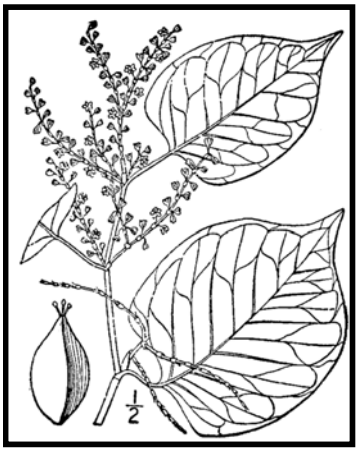
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

<table>
<tr><th>Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">Norway maple
(Acer platanoides)
European barberry
(Berberis vulgaris)
Japanese barberry
(Berberis thunbergii)
autumn olive
(Elaeagnus umbellata)
burning bush
(Euonymus alatus)
Morrow's honeysuckle
(Lonicera morrowii)
Tatarian honeysuckle
(Lonicera tatarica)
showy bush honeysuckle
(Lonicera x bella)
common buckthorn
(Rhamnus cathartica)
glossy buckthorn
(Frangula alnus)</td><td rowspan="2">Fruit and Seeds
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Use as firewood.
▪ Make a brush pile.
▪ Chip.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip once all fruit has dropped from branches.
▪ Leave resulting chips on site and monitor.</td></tr>
<tr><td rowspan="2">oriental bittersweet
(Celastrus orbiculatus)
multiflora rose
(Rosa multiflora)</td><td rowspan="2">Fruits, Seeds, Plant Fragments
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Make a brush pile.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</td></tr>
</table>

<table>
<tr><th>Non-Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">garlic mustard
(Alliaria petiolata)
spotted knapweed
(Centaurea maculosa)
▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling.
black swallow-wort
(Cynanchum nigrum)
▪ May cause skin rash. Wear gloves and long sleeves when handling.
pale swallow-wort
(Cynanchum rossicum)
giant hogweed
(Heracleum mantegazzianum)
▪ Can cause major skin rash. Wear gloves and long sleeves when handling.
dame’s rocket
(Hesperis matronalis)
perennial pepperweed
(Lepidium latifolium)
purple loosestrife
(Lythrum salicaria)
Japanese stilt grass
(Microstegium vimineum)
mile-a-minute weed
(Polygonum perfoliatum)</td><td rowspan="2">Fruits and Seeds
  </td><td>Prior to flowering
Depends on scale of infestation
Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>During and following flowering
Do nothing until the following year or remove flowering heads and bag and let rot.

Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>common reed
(Phragmites australis)
Japanese knotweed
(Polygonum cuspidatum)
Bohemian knotweed
(Polygonum x bohemicum)</td><td>Fruits, Seeds, Plant Fragments
Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn’t materially influence disposal activities.</td><td>Small infestation
▪ Bag all plant material and let rot.
▪ Never pile and use resulting material as compost.
▪ Burn.

Large infestation
▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile.
▪ Monitor and remove any sprouting material.
▪ Pile, let dry, and burn.</td></tr>
</table>

January 2010

Managing Invasive Plants
Methods of Control

by Christopher Mattrick

They're out there. The problem of invasive plants is as close as your own backyard.

Maybe a favorite dogwood tree is struggling in the clutches of an Oriental bittersweet vine. Clawlike canes of multiflora rose are scratching at the side of your house. That handsome burning bush you planted few years ago has become a whole clump in practically no time … but what happened to the azalea that used to grow right next to it?

If you think controlling or managing invasive plants on your property is a daunting task, you're not alone. Though this topic is getting lots of attention from federal, state, and local government agencies, as well as the media, the basic question for most homeowners is simply, "How do I get rid of the invasive plants in my own landscape?" Fortunately, the best place to begin to tackle this complex issue is in our own backyards and on local conservation lands. We hope the information provided here will help you take back your yard. We won't kid you—there's some work involved, but the payoff in beauty, wildlife habitat, and peace of mind makes it all worthwhile.

PLAN OF ATTACK

Three broad categories cover most invasive plant control: mechanical, chemical, and biological. Mechanical control means physically removing plants from the environment through cutting or pulling. Chemical control uses herbicides to kill plants and inhibit regrowth. Techniques and chemicals used will vary depending on the species. Biological controls use plant diseases or insect predators, typically from the targeted species' home range. Several techniques may be effective in controlling a single species, but there is usually one preferred method—the one that is most resource efficient with minimal impact on non-target species and the environment.

Spraying chemicals to control invasive plants.

MECHANICAL CONTROL METHODS

Mechanical treatments are usually the first ones to look at when evaluating an invasive plant removal project. These procedures do not require special licensing or introduce chemicals into the environment. They do require permits in some situations, such as wetland zones. [See sidebar on page 23.] Mechanical removal is highly labor intensive and creates a significant amount of site disturbance, which can lead to rapid reinvasion if not handled properly.

Pulling and digging

Many herbaceous plants and some woody species (up to about one inch in diameter), if present in limited quantities, can be pulled out or dug up. It's important to remove as much of the root system as possible; even a small portion can restart the infestation. Pull plants by hand or use a digging fork, as shovels can shear off portions of the root system, allowing for regrowth. To remove larger woody stems (up to about three inches in diameter), use a Weed Wrench™, Root Jack, or Root Talon. These tools, available from several manufacturers, are designed to remove the aboveground portion of the plant as well as the entire root system. It's easiest to undertake this type of control in the spring or early summer when soils are moist and plants come out more easily.

Using tools to remove woody stems.

Volunteers hand pulling invasive plants.

Suffocation

Try suffocating small seedlings and herbaceous plants. Place double or triple layers of thick UV-stabilized plastic sheeting, either clear or black (personally I like clear), over the infestation and secure the plastic with stakes or weights. Make sure the plastic extends at least five feet past the edge of infestation on all sides. Leave the plastic in place for at least two years. This technique will kill everything beneath the plastic—invasive and non-invasive plants alike. Once the plastic is removed, sow a cover crop such as annual rye to prevent new invasions.

Cutting or mowing

This technique is best suited for locations you can visit and treat often. To be effective, you will need to mow or cut infested areas three or four times a year for up to five years. The goal is to interrupt the plant's ability to photosynthesize by removing as much leafy material as possible. Cut the plants at ground level and remove all resulting debris from the site. With this treatment, the infestation may actually appear to get worse at first, so you will need to be as persistent as the invasive plants themselves. Each time you cut the plants back, the root system gets slightly larger, but must also rely on its energy reserves to push up new growth. Eventually, you will exhaust these reserves and the plants will die. This may take many years, so you have to remain committed to this process once you start; otherwise the treatment can backfire, making the problem worse.

CHEMICAL CONTROL METHODS

Herbicides are among the most effective and resource-efficient tools to treat invasive species. Most of the commonly known invasive plants can be treated using only two herbicides—glyphosate (the active ingredient in Roundup™ and Rodeo™) and triclopyr (the active ingredient in Brush-B-Gone™ and Garlon™). Glyphosate is non-selective, meaning it kills everything it contacts. Triclopyr is selective and does not injure monocots (grasses, orchids, lilies, etc.). Please read labels and follow directions precisely for both environmental and personal safety. These are relatively benign herbicides, but improperly used they can still cause both short- and long-term health and environmental problems. Special aquatic formulations are required when working in wetland zones. You are required to have a state-issued pesticide applicator license when applying these chemicals on land you do not own. To learn more about the pesticide regulations in your state, visit or call your state's pesticide control division, usually part of the state's Department of Agriculture. In wetland areas, additional permits are usually required by the Wetlands Protection Act. [See sidebar on page 23.]

Foliar applications

When problems are on a small scale, this type of treatment is usually applied with a backpack sprayer or even a small handheld spray bottle. It is an excellent way to treat large monocultures of herbaceous plants, or to spot-treat individual plants that are difficult to remove mechanically, such as goutweed, swallowwort, or purple loosestrife. It is also an effective treatment for some woody species, such as Japanese barberry, multiflora rose, Japanese honeysuckle, and Oriental bittersweet that grow in dense masses or large numbers over many acres. The herbicide mixture should contain no more than five percent of the active ingredient, but it is important to follow the instructions on the product label. This treatment is most effective when the plants are actively growing, ideally when they are flowering or beginning to form fruit. It has been shown that plants are often more susceptible to this type of treatment if the existing stems are cut off and the regrowth is treated. This is especially true for Japanese knotweed. The target plants should be thoroughly wetted with the herbicide on a day when there is no rain in the forecast for the next 24 to 48 hours.

Cut stem treatments

There are several different types of cut stem treatments, but here we will review only the one most commonly used. All treatments of this type require a higher concentration of the active ingredient than is used in foliar applications. A 25 to 35 percent solution of the active ingredient should be used for cut stem treatments, but read and follow all label instructions. In most cases, the appropriate herbicide is glyphosate, except for Oriental bittersweet, on which triclopyr should be used. This treatment can be used on all woody stems, as well as phragmites and Japanese knotweed.

For woody stems, treatments are most effective when applied in the late summer and autumn—between late August and November. Stems should be cut close to the ground, but not so close that you will lose track of them. Apply herbicide directly to the cut surface as soon as possible after cutting. Delaying the application will reduce the effectiveness of the treatment. The herbicide can be applied with a sponge, paintbrush, or spray bottle.

Cut stem treatment tools.

For phragmites and Japanese knotweed, treatment is the same, but the timing and equipment are different. Plants should be treated anytime from mid-July through September, but the hottest, most humid days of the summer are best for this method. Cut the stems halfway between two leaf nodes at a comfortable height. Inject (or squirt) herbicide into the exposed hollow stem. All stems in an infestation should be treated. A wash bottle is the most effective application tool, but you can also use an eyedropper, spray bottle, or one of the recently developed high-tech injection systems.

It is helpful to mix a dye in with the herbicide solution. The dye will stain the treated surface and mark the areas that have been treated, preventing unnecessary reapplication. You can buy a specially formulated herbicide dye, or use food coloring or laundry dye.

There is not enough space in this article to describe all the possible ways to control invasive plants. You can find other treatments, along with more details on the above-described methods, and species-specific recommendations on The Nature Conservancy Web site (tncweeds.ucdavis.edu). An upcoming posting on the Invasive Plant Atlas of New England (www.ipane.org) and the New England Wild Flower Society (www.newfs.org) Web sites will also provide further details.

Hollow stem injection tools.

Biological controls—still on the horizon

Biological controls are moving into the forefront of control methodology, but currently the only widely available and applied biocontrol relates to purple loosestrife. More information on purple loosestrife and other biological control projects can be found at www.invasiveplants.net.

DISPOSAL OF INVASIVE PLANTS

Proper disposal of removed invasive plant material is critical to the control process. Leftover plant material can cause new infestations or reinfest the existing project area. There are many appropriate ways to dispose of invasive plant debris. I've listed them here in order of preference.

1. **Burn it**—Make a brush pile and burn the material following local safety regulations and restrictions, or haul it to your town's landfill and place it in their burn pile.

2. **Pile it**—Make a pile of the woody debris. This technique will provide shelter for wildlife as well.

3. **Compost it**—Place all your herbaceous invasive plant debris in a pile and process as compost. Watch the pile closely for resprouts and remove as necessary. Do not use the resulting compost in your garden. The pile is for invasive plants only.

Injecting herbicide into the hollow stem of phragmites.

4. **Dry it/cook it**—Place woody debris out on your driveway or any asphalt surface and let it dry out for a month. Place herbaceous material in a doubled-up black trash bag and let it cook in the sun for one month. At the end of the month, the material should be non-viable and you can dump it or dispose of it with the trash. The method assumes there is no viable seed mixed in with the removed material.

Care should be taken in the disposal of all invasive plants, but several species need extra attention. These are the ones that have the ability to sprout vigorously from plant fragments and should ideally be burned or dried prior to disposal: Oriental bittersweet, multiflora rose, Japanese honeysuckle, phragmites, and Japanese knotweed.

Christopher Mattrick is the former Senior Conservation Programs Manager for New England Wild Flower Society, where he managed conservation volunteer and invasive and rare plant management programs. Today, Chris and his family work and play in the White Mountains of New Hampshire, where he is the Forest Botanist and Invasive Species Coordinator for the White Mountain National Forest.

Controlling Invasive Plants in Wetlands

Special concerns; special precautions

Control of invasive plants in or around wetlands or bodies of water requires a unique set of considerations. Removal projects in wetland zones can be legal and effective if handled appropriately. In many cases, herbicides may be the least disruptive tools with which to remove invasive plants. You will need a state-issued pesticide license to apply herbicide on someone else's property, but all projects in wetland or aquatic systems fall under the jurisdiction of the Wetlands Protection Act and therefore require a permit. ***Yes, even hand-pulling that colony of glossy buckthorn plants from your own swampland requires a permit.*** Getting a permit for legal removal is fairly painless if you plan your project carefully.

1. Investigate and understand the required permits and learn how to obtain them. The entity charged with the enforcement of the Wetlands Protection Act varies from state to state. For more information in your state, contact:

   ME: Department of Environmental Protection
   www.state.me.us/dep/blwq/docstand/nrpapage.htm

   NH: Department of Environmental Services
   www.des.state.nh.us/wetlands/

   VT: Department of Environmental Conservation
   www.anr.state.vt.us/dec/waterq/permits/htm/pm_cud.htm

   MA: Consult your local town conservation commission

   RI: Department of Environmental Management
   www.dem.ri.gov/programs/benviron/water/permits/fresh/index.htm

   CT: Consult your local town Inland Wetland and Conservation Commission

2. Consult an individual or organization with experience in this area. Firsthand experience in conducting projects in wetland zones and navigating the permitting process is priceless. Most states have wetland scientist societies whose members are experienced in working in wetlands and navigating the regulations affecting them. A simple Web search will reveal the contact point for these societies. Additionally, most environmental consulting firms and some nonprofit organizations have skills in this area.

3. Develop a well-written and thorough project plan. You are more likely to be successful in obtaining a permit for your project if you submit a project plan along with your permit application. The plan should include the reasons for the project, your objectives in completing the project, how you plan to reach those objectives, and how you will monitor the outcome.

4. Ensure that the herbicides you plan to use are approved for aquatic use. Experts consider most herbicides harmful to water quality or aquatic organisms, but rate some formulations as safe for aquatic use. Do the research and select an approved herbicide, and then closely follow the instructions on the label.

5. If you are unsure—research, study, and most of all, ask for help. Follow the rules. The damage caused to aquatic systems by the use of an inappropriate herbicide or the misapplication of an appropriate herbicide not only damages the environment, but also may reduce public support for safe, well-planned projects.

Section 3
Annual Updates and Log Requirements

The Owner and/or Contact/Responsible Party shall review this Operation and Maintenance Plan once per year for its effectiveness and adjust the plan and deed as necessary.

A log of all preventative and corrective measures for the stormwater system shall be kept on-site and be made available upon request by any public entity with administrative, health environmental or safety authority over the site including NHDES.

Copies of the Stormwater Maintenance report shall be submitted to the City of Portsmouth on an annual basis.

Stormwater Management Report						
Proposed Multi-Family Development		**815 Lafayette Road – Tax Map 245 Lot 3**				
BMP Description	**Date of Inspection**	**Inspector**	**BMP Installed and Operating Properly?**	**Cleaning / Corrective Action Needed**	**Date of Cleaning / Repair**	**Performed By**
Deep Sump CB's			❑Yes ❑No			
Underground Detention Basin			❑Yes ❑No			
Jellyfish Filter 1			❑Yes ❑No			

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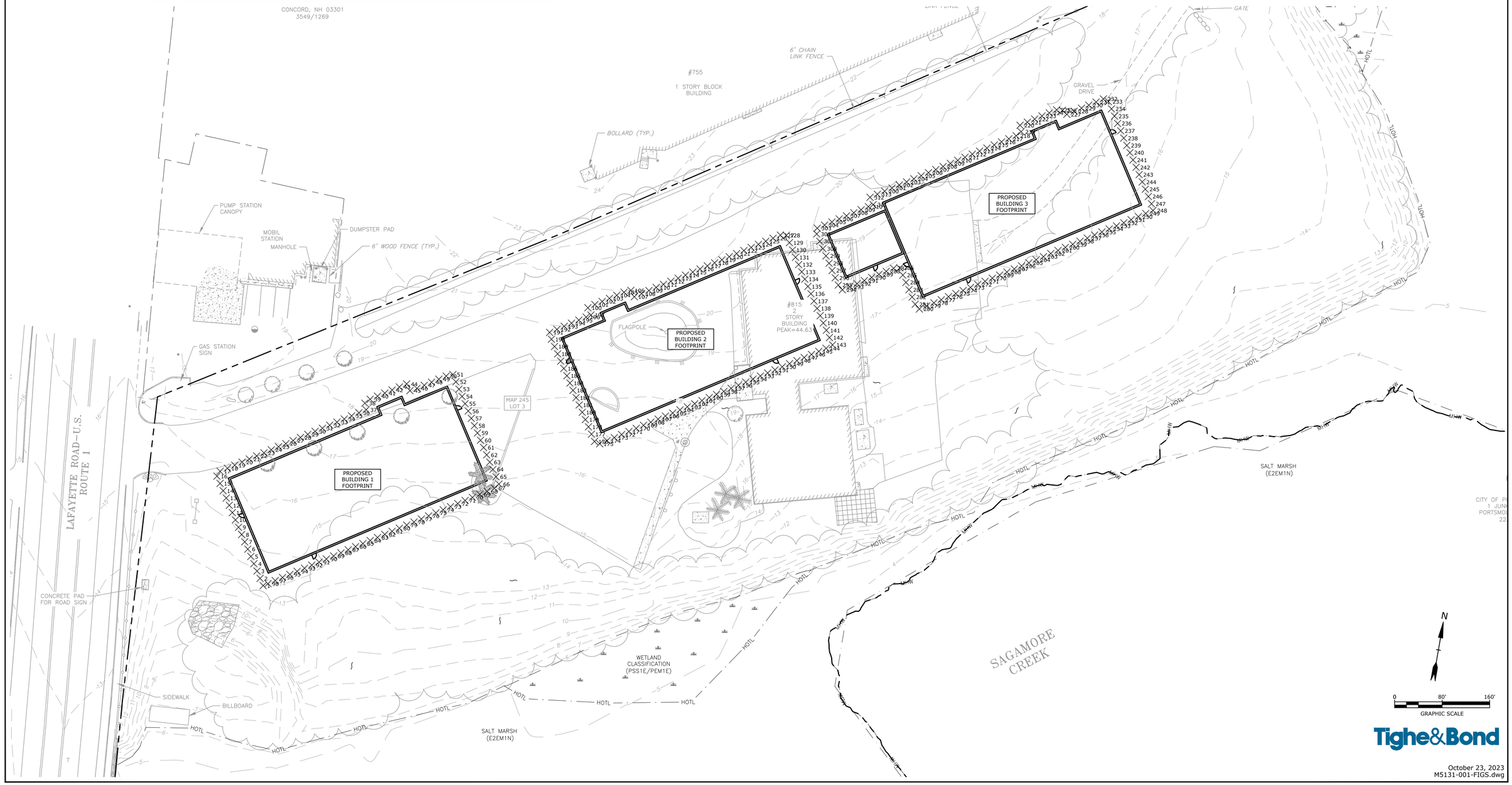
BUILDING 1 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
16.11'	66.11'	62.00'	50.00'	45.89'

BUILDING 2 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
19.09'	69.09'	63.00'	50.00'	43.91'

BUILDING 3 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
17.80'	67.80'	62.00'	50.00'	44.20'

PROPOSED MULTI-FAMILY DEVELOPMENT
815 LAFAYETTE RD
PORTSMOUTH, NEW HAMPSHIRE

GRADE PLANE EXHIBIT



Tighe&Bond

October 23, 2023
M5131-001-FIGS.dwg

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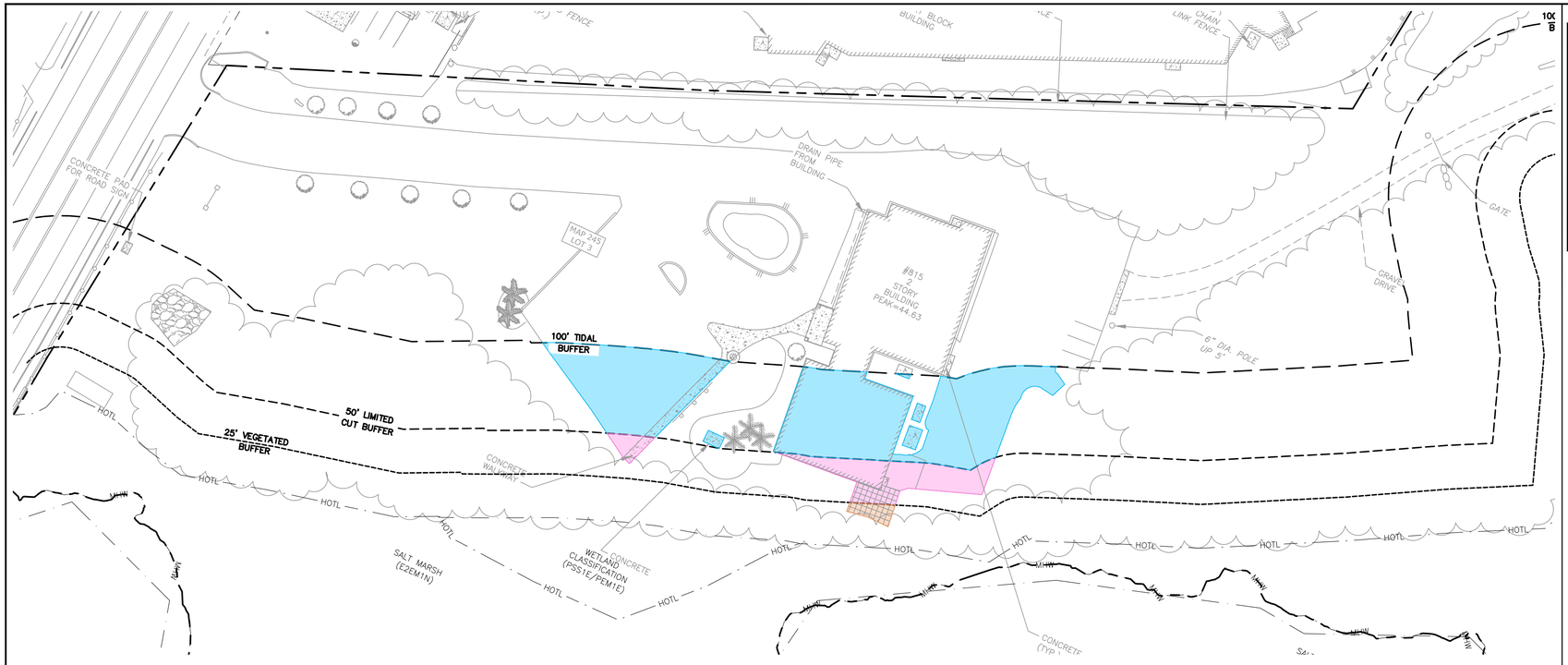
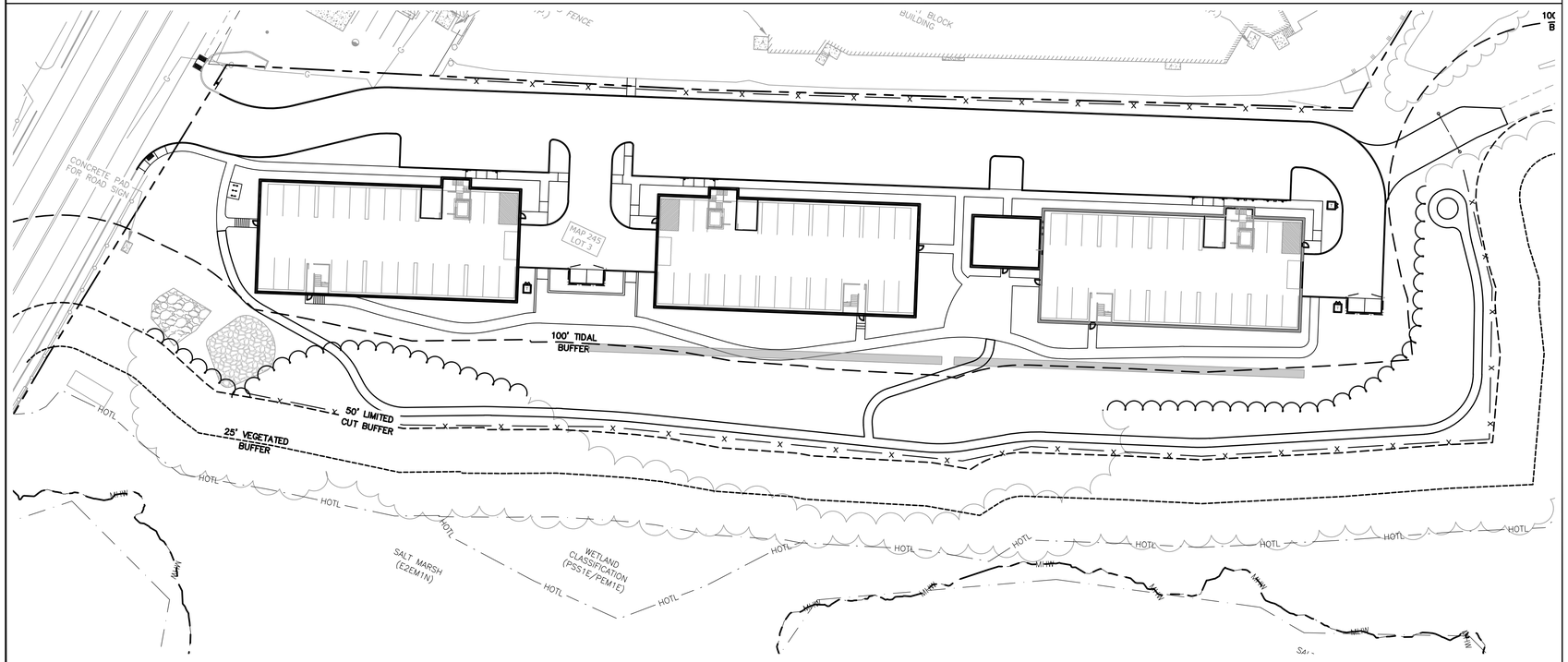
Plot Date: Friday, October 20, 2023 Plotted By: Colter Krzcuik
T&B File Location: J:\M\M5131 H&E Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-FIGS.dwg Layout Tab: GRADE PLANE

PROPOSED MULTI-FAMILY DEVELOPMENT
815 LAFAYETTE RD
PORTSMOUTH, NEW HAMPSHIRE

WETLAND BUFFER IMPERVIOUS SURFACE EXHIBIT



EXISTING WETLAND BUFFER IMPERVIOUS SURFACE
SCALE 1" = 40'



PROPOSED WETLAND BUFFER IMPERVIOUS SURFACE
SCALE 1" = 40'

Impervious Surface Within Buffer Area		
Local Wetland Buffer Setback	Impervious Surface	
	Existing Condition	Proposed Development
0 - 25 FT	218 SF	0 SF
25 - 50 FT	1,937 SF	0 SF
50 - 100 FT	9,583 SF	0 SF
Total Impervious Surface	**11,738 SF**	**0 SF**
Net Impervious Sruface	**-11,738 SF**	

N

0 40' 80'
GRAPHIC SCALE

Tighe&Bond

November 22, 2023
M5131-001-FIGS.dwg

Last Save Date: November 17, 2023 2:25 PM By: CKRZCUIK
Plot Date: Tuesday, November 21, 2023 Plotted By: Colter Krczuk
Plot File Location: J:\MVM\5131 M82 Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-FIGS.dwg Layout Tab: WETL-IMPRV

AMBIT ENGINEERING,INC. CIVIL ENGINEERS AND LAND SURVEYORS
200 Griffin Road, Unit 3, Portsmouth, NH 03801 Phone (603) 430-9282 Fax 436-2315

TECHNICAL REPORT OF WETLAND DELINEATION, CLASSIFICATION & IDENTIFICATION

Ambit Engineering Project No.:3458 **Date(s) of Delineation**:11/18/22 **Date of Report**: 11/22/22

Field Delineator: Steven D. Riker **Compiled by:** Steven D. Riker

Project Location/Tax Map & Lot: 815 Lafayette Road, Portsmouth, NH. Tax Map 245, Lot 3

Prepared for: MB2 Development, Mike Brown, PO Box 372, Portsmouth, NH 03802

Site Area Observed: Entire lot to establish tidal & freshwater wetlands and buffers.

Site Conditions: Lot with uplands adjacent to freshwater and tidal wetlands.

Weather/Seasonal Conditions: 40 sunny, early winter conditions, no snow cover.

Site Disturbance: Historical upland disturbance from existing development.

Wetlands Present: Yes. Property adjacent to freshwater and tidal wetlands.

Wetland conditions/atypical situation/problem area: Wetlands are not considered atypical or a problem area.

Hydric Soil Criterion: A4 & A11. Field Indicators of Hydric Soils in the United States, Version 8.2, USDA-NRCS, 2018.

Delineation Standards Utilized:

1. *US Army Corps of Engineers Wetlands Delineation Manual,* Technical Report Y-87-1 (Jan 1987). **AND** Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0, January 2012.
2. Field Indicators of Hydric Soils in the United States, Version 8.2, USDA-NRCS, 2018 **AND (for disturbed sites)** *Field Indicators for Identifying Hydric Soils in New England,* Version 4. NEIWPCC Wetlands Work Group (April 2019).
3. *National List of Plant Species That Occur in Wetlands: Northeast (Region 1).* USFWS (May 1988).

Notes: The tidal wetland associated with the site (Highest Observable Tide Line) would be classified as an estuarine intertidal emergent persistent wetland system that is regularly flooded by the tides (E2EM1N). The freshwater wetlands associated with the site delineate a poorly drained combination palustrine scrub shrub broad-leaved deciduous / palustrine emergent persistent wetland system that is seasonally flooded and or saturated (PSS1E/PEM1E). Please note that the wetlands were survey located immediately following the delineation.

Invasive Species Removal Plan

ADDRESS: 815 Lafayette Road, Portsmouth, NH

PROPERTY: Map 245 Lot 3

OWNER: Prospect North 815, LLC

DATE: October 23, 2023

On October 17, 2023, Tighe & Bond environmental scientists assessed the Project Site at 815 Lafayette Road, Portsmouth NH, for the presence, identification, and relative extent of invasive plant species. An inventory of existing vegetation and dominant plant communities was documented from the western extent of the property, just downstream of the Route 1 Bypass (Lafayette Road) bridge, to the eastern most portion of the property, between the cleared area in the southwest portion of the lot and the broad salt marsh along the northern bank of Sagamore Creek.

The vegetative community in the area assessed is dominated by invasive plant species, including:

- Autumn olive (*Elaeagnus umbellata*)
- Oriental bittersweet (*Celastrus orbicalatus*)
- Common buckthorn (*Rhamnus cathartica*)
- Glossy buckthorn (*Rhamnus frangula*)
- Honeysuckle (*Lonicera spp*.)
- Multiflora rose (*Rosa multiflora*)
- Black swallowwort (*Cyanchum louiseae*)
- Common reed (*Phragmites australis*)

Honeysuckle (spp), especially along the western shoreline, forms a dense vegetative layer that is outcompeting native species. There is a gradual transition towards a more forested community that is less heavily infested with invasive species, starting at the western side of the existing building (rear parking lot) and moving easterly. A more mature, native, tree canopy exists in this area relative to the western portion of the property, though the understory is still dominated by invasive species. Oriental bittersweet was observed to be "strangling" several mature trees and, in some cases, had caused the tree(s) to completely topple over.

Effort will be made to protect and retain native, healthy, individual trees and shrubs along the shoreline during planning and design for redevelopment of the site. Select individuals will be field located as planning and design progresses.

The overall area was divided into seven sub-areas based on typical vegetation class (strata) and relative dominance of invasive species. Each area is further described in Section 1 of this memo and depicted in the exhibit titled Invasive Species Inventory Plan which can be found in Appendix A.

1 Existing Invasive Species Inventory Areas

1.1 Area 1

"Area 1" is located at the western extent of the property, along the northern shoreline of Sagamore Creek, just downstream of the Route 1 Bypass (Lafayette Road) bridge. There is an existing stormwater outfall which drains through an approximately 120-foot long swale and discharges into the fringing salt marsh along Sagamore Creek. The swale bottom is approximately six (6)-feet wide, sparsely vegetated, and contains a substantial amount of trash and debris. The swale is bounded by steep, vegetated, banks on either side. Vegetation in this area contains interspersed native species, such as Goldenrod (*Solidago s*pp), Beach plum (*Prunus maritima*), Black Cherry (*Prunus serotina*), Pin Cherry (*Prunus pensylvanica*), Staghorn sumac (*Rhus hirta*), and American pokeweed (*Phytolacca americana*). However, the dominant aerial coverage is comprised of invasive species, including Autumn olive (*Elaeagnus umbellata*), Oriental bittersweet (*Celastrus orbicalatus*), Common buckthorn (*Rhamnus cathartica*), Glossy buckthorn (*Rhamnus frangula*), Honeysuckle (*Lonicera spp.*), Multiflora rose (*Rosa multiflora*) and Coralberry (*Ardisia crenata*).

1.2 Area 2

"Area 2" is the forested area located towards the western extent of the property, east of the stormwater swale, and landward of the upland shrub zone along the shoreline (salt marsh; Area 3). This area contains a primarily forested vegetative community consisting of native trees (Black locust, Pin cherry, White pine (*Pinus strobus*), Northern red oak (*Quercus Rubra*), and Grey birch (*Betula populifolia*)); though it is also overrun with Oriental bittersweet and interspersed with Common and Glossy buckthorn, Honeysuckle (spp), Multiflora rose, and Autumn olive.

1.3 Area 3

"Area 3" is the narrow upland zone fringing along the shoreline, located towards the western extent of the property, between the forested area (Area 2) and the salt marsh. This area primarily consists of Black cherry and Callery pear (*Pyrus calleryana*) shrubs dominated by invasive species (Honeysuckle (spp) and Oriental bittersweet, interspersed with Buckthorn (spp), Autumn olive, and Multiflora rose). Goldenrod and American burnweed (*Erechtites hieraciifolius*) exist in the herbaceous stratum though are not dominant relative to the invasive species present.

Two dominant areas of Common reed (*Phragmites australis*) exist on the landward margin of the salt marsh, along the western shoreline of the property.

1.4 Area 4

"Area 4" is located off the southeast corner of the front parking lot and consists of a dominant stand of Staghorn sumac along the steep drop off to the salt marsh. The Staghorn sumac is interspersed with some Oriental bittersweet and multiflora rose on the narrow shelf before dropping off (seaward) into a dominant stand of Common reed.

1.5 Area 5

"Area 5" is located off the southeast corner of the building, between the southern edge of the rear parking lot and the fringing salt marsh along the outer radius of Sagamore Creek. Area 5 begins a transition zone towards a more forested community, less heavily infested with invasive species. Vegetation in this area consists of Cottonwood (*Populous deltoides*; diseased, dying), Black locust, Grey birch and Northern red oak in the tree stratum; and, Beach plum, Bayberry (*Morella caroliniensis*), and Black cherry in the shrub stratum. These species are mixed with invasives (Callery pear, Honeysuckle (spp), Multiflora rose, Autumn olive, Buckthorn (spp), and Oriental bittersweet).

There is a large white pine near the center of this area that likely provides important habitat value and stability along the bank. Effort should be made to protect and retain it during redevelopment of the site.

1.6 Area 6

"Area 6" encompasses the eastern most portion of the property along the shoreline between the cleared area in the southwest portion of the lot and the broad salt marsh along the northern bank of Sagamore Creek. There is a sharp "corner" along the shoreline bound by a steep slope, clearly defining the edge of the marsh.

This area primarily consists of an upland forested community with a freshwater emergent and scrub-shrub wetland delineated in the northeast corner. A more mature, native, tree canopy exists here (*Populus* spp, Black cherry, Black locust, White pine, Grey birch, White birch, White oak (*Quercus bicolor*), Beach plum, Pin cherry, Red maple (*Acer rubrum*) and Sugar maple (*Acer saccharum*)), relative to the western portion of the property. The understory is still dominated by invasive species; primarily Oriental bittersweet, Buckthorn (spp) and Honeysuckle (spp), interspersed with Multiflora rose and Autumn olive. In several instances, Oriental bittersweet was observed to be "strangling" mature trees and, in some cases, had caused the tree(s) to completely topple over.

1.7 Area 7

"Area 7" is a small patch of Black swallowwort (*Cyanchum louiseae*) on the ground, located just inside the tree line off the western edge of the cleared area in the back of the lot.

2 Invasive Species Removal

As described above, we have identified the dominant invasive plant community within and adjacent to the Project Site. Widespread presence of invasive species has been documented throughout the understory and canopy of the site. These species are targeted for removal to enhance the Sagamore Creek shoreline habitat value. Mechanical removal (pulling and digging) is the proposed strategy.

A detailed inventory of all trees, shrubs and ground cover will be undertaken to demonstrate compliance with the minimum vegetation maintenance standards of the Shoreland Water Quality Protection Act and to field locate native, healthy, individual trees and shrubs along the shoreline that will be protected and retained through redevelopment of the site. The entire restoration area will be cleared of the invasive trees and shrubs, replanted with native species, and monitored and maintained long term to minimize the potential for re-invasion.

2.1 Mechanical Removal: Pulling and Digging

The goal of the mechanical removal method (versus chemical or biological methods) is to physically remove the entire plant, including above-ground material as well as the roots and rhizomes. It is most effective for species that have a tap root or shallow, lateral, root systems that may be easily pulled from the ground, such as Honeysuckle, Buckthorn and Multiflora rose. In this way, the entire plant is removed, and the potential for regrowth within the treatment area is substantially reduced. For many invasive species, such as Glossy Buckthorn, cutting or mowing the above-ground material will only stimulate regrowth and cause an increased density to return in subsequent growing seasons.

100% removal success is rarely achievable in the initial effort. Professional judgment is necessary to determine where and when to prioritize removal effort based on species-specific factors such as rooting structure and reproductive period. This work is typically conducted in the fall and winter, before the ground freezes, or in early spring. Summer work can also be effective, especially when the season is dry and reduced impact to soils is achievable. During the spring and summer months, monitoring and additional hand pulling of newly sprouted material is necessary to maximize removal success and reduce the potential for regrowth the following season.

2.1.1 Initial Removal with Mechanized Equipment or Weed Wrench

Trees and shrubs designated to be removed will be clearly marked in the field prior to commencing work. An arborist will assess the Project Site and identify invasive, dead, and hazardous trees. The trees will be clearly marked by a qualified professional scientist prior to commencing work. Vegetation designated for removal will be cut with machinery or by hand, as necessary, and stockpiled for proper disposal.

A mini excavator will be used to remove the root masses of targeted shrub species. Where access for heavy machinery is necessary for removal of root material, timber mats (or equivalent) will be placed to minimize soil disturbance by dispersing the weight of the equipment over a larger surface area. The stumps of cut trees will be ground to prevent coppicing and re-growth.

2.1.2 Removal of Root Masses and Trailing Roots or Rhizomes

Special attention will be pain when pulling the root masses of invasive shrub species. The use of a mini excavator, as described above, may facilitate the removal of larger root masses. Carefully lifting and shaking the root ball as it is extracted from the soil facilitates the removal of the trailing roots and rhizomes. The soil is then released from the root ball by gentle shaking of the bucket by the machine operator. For smaller individuals and in areas that are inaccessible by machine, work will be completed by hand, with a weed wrench. If root masses are too large for extraction in locations inaccessible by machinery, weed wrenches, chains , straps and "come-alongs" will be lead out to the mini excavator to manually pull the root ball out of the soil.

2.1.3 Hand Clearing and Grubbing of Plant Fragments

Hand clearing and removal of leftover plant material is critical for the success of any invasive species management effort. For some species, such as Oriental Bittersweet, the emergence of new shoots (or "suckers") from remaining root fragments can occur from the crown or along the root itself, if left in place. Qualified field staff will go along with the excavator operator to clear leftover invasive plant material, root fragments and rhizomes by hand.

2.2 Proper Disposal and Final Disposition of Removed Invasive Plant Material

Stockpiled invasive plant material will either be burned during the local brush-burning season or chipped and removed to be composted off site. If work occurs during the burning season there are several advantages to burning the material on site. Firstly, burning on site reduces the cost of transport and off-site disposal. Secondly, the burning of woody material returns valuable nutrients to the soil structure. Wood ash is a beneficial amendment for fields and planting areas as it contains phosphorous and other nutrients, which in many systems are depleted by plant growth and microbial activity. The UNH Cooperative Extension also recommends burning as a preferred method of disposal of woody invasive plants. They advise against burning plants that contain easily airborne seeds, such as Black swallow-wort. Harvested material would be burnt in small, manageable, brush piles to facilitate these benefits to the local ecosystem.

If the work is conducted outside of the local brush-burning season, the harvested material will be chipped on-site and transported to an appropriate off-site composting facility. Entire root balls can be transported to an off-site facility for grinding, chipping and composting. Above-ground plant material may be chipped separately for wood chips to be reused on-site. To the extent possible, this work would be completed on-site to reduce the volume of material that would need to be transported. For woody species that do not propagate vegetatively, chipping the plant material before it develops seeds or flowers renders the plant non-viable, especially once the material has completely dried.

3 Conclusion

In conclusion, the Project Site is substantially dominated by invasive plant species. This invasive community is outcompeting native species, compromising biodiversity and the habitat value along the shoreline of Sagamore Creek. Relative density of invasive species decreases where the vegetation transitions towards a more mature, native, forested community that is less heavily infested towards the eastern extent of the property. However, the understory is still largely dominated by invasive shrubs and woody vines.

In lieu of chemical or biological control methods, these species are targeted for mechanical removal (pulling and digging) to enhance the Sagamore Creek shoreline habitat value. A detailed inventory of all trees, shrubs and ground cover will be undertaken in an effort to protect and retain native, healthy, individual trees and shrubs along the shoreline to the extent possible.

The entire restoration area will be cleared of the invasive trees and shrubs, replanted with native species, and monitored and maintained long term to minimize the potential for re-invasion. Work will be monitored by a qualified scientist on-site to implement best professional judgement in cooperation with equipment operators and to ensure leftover plant fragments are entirely removed. The qualified scientist will return in subsequent growing seasons to assess and adaptively manage the buffer enhancement area to monitor success of native plantings and to minimize recolonization of targeted invasive species.

PROPOSED MULTI-FAMILY DEVELOPMENT
815 LAFAYETTE RD
PORTSMOUTH, NEW HAMPSHIRE

INVASIVE SPECIES INVENTORY PLAN

AREA 1
AUTUMN OLIVE (*ELAEAGNUS UMBELLATA*)
ORIENTAL BITTERSWEET (*CELASTRUS ORBICALATUS*)
COMMON BUCKTHORN (*RHAMNUS CATHARTICA*)
GLOSSY BUCKTHORN (*RHAMNUS FRANGULA*)
HONEYSUCKLE (*LONICERA SPP.*)
MULTIFLORA ROSE (*ROSA MULTIFLORA*)
CORALBERRY (*ARDISIA CRENATA*)

AREA 2
AUTUMN OLIVE (*ELAEAGNUS UMBELLATA*)
ORIENTAL BITTERSWEET (*CELASTRUS ORBICALATUS*)
COMMON BUCKTHORN (*RHAMNUS CATHARTICA*)
GLOSSY BUCKTHORN (*RHAMNUS FRANGULA*)
HONEYSUCKLE (*LONICERA SPP.*)
MULTIFLORA ROSE (*ROSA MULTIFLORA*)

AREA 7
BLACK SWALLOWWORT (*CYANCHUM LOUISEAE*)

AREA 3
AUTUMN OLIVE (*ELAEAGNUS UMBELLATA*)
ORIENTAL BITTERSWEET (*CELASTRUS ORBICALATUS*)
COMMON BUCKTHORN (*RHAMNUS CATHARTICA*)
GLOSSY BUCKTHORN (*RHAMNUS FRANGULA*)
HONEYSUCKLE (*LONICERA SPP.*)
MULTIFLORA ROSE (*ROSA MULTIFLORA*)

AREA 4
STAGHORN SUMAC (RHUS TYPHINA)
ORIENTAL BITTERSWEET (*CELASTRUS ORBICALATUS*)
MULTIFLORA ROSE (*ROSA MULTIFLORA*)
COMMON REED (PHRAGMITES AUSTRALIS)

AREA 5
AUTUMN OLIVE (*ELAEAGNUS UMBELLATA*)
ORIENTAL BITTERSWEET (*CELASTRUS ORBICALATUS*)
COMMON BUCKTHORN (*RHAMNUS CATHARTICA*)
GLOSSY BUCKTHORN (*RHAMNUS FRANGULA*)
HONEYSUCKLE (*LONICERA SPP.*)
MULTIFLORA ROSE (*ROSA MULTIFLORA*)
CALLERY PEAR (*PYRUS CALLERYANA*)

AREA 6
AUTUMN OLIVE (*ELAEAGNUS UMBELLATA*)
ORIENTAL BITTERSWEET (*CELASTRUS ORBICALATUS*)
COMMON BUCKTHORN (*RHAMNUS CATHARTICA*)
GLOSSY BUCKTHORN (*RHAMNUS FRANGULA*)
HONEYSUCKLE (*LONICERA SPP.*)
MULTIFLORA ROSE (*ROSA MULTIFLORA*)

0 60' 120'
GRAPHIC SCALE

Tighe&Bond

October 23, 2023
M5131-001-FIGS.dwg

Last Save Date: October 19, 2023 10:01 AM By: CKRZCUIK
Plot Date: Thursday, October 19, 2023 Plotted By: Colter Krcuik
TAB File Location: J:\M\M5131 HMZ Development, LLC\006 815 Lafayette Road\Drawings\AutoCAD\M5131-001-FIGS.dwg Layout Tab: INVASIVE

PROPOSED MULTI-FAMILY DEVELOPMENT
815 LAFAYETTE RD
PORTSMOUTH, NEW HAMPSHIRE

COMMUNITY SPACE EXHIBIT

PROPOSED COMMUNITY SPACE:

		REQUIRED	PROVIDED
	GREENWAY COMMUNITY SPACE		**85,587 SF**
	TOTAL DEVELOPMENT LOT 855,562 SF	**85,556 SF (10%)**	
TOTAL COMMUNITY SPACE AREA		**85,556 SF**	**85,587 SF (10.0%)**

N

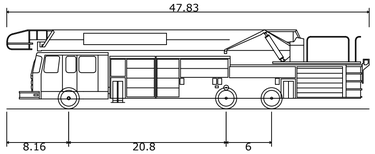
0 80' 160'
GRAPHIC SCALE

Tighe&Bond

November 22, 2023
M5131-001-FIGS.dwg

PROPOSED MULTI-FAMILY DEVELOPMENT
815 LAFAYETTE RD
PORTSMOUTH, NEW HAMPSHIRE

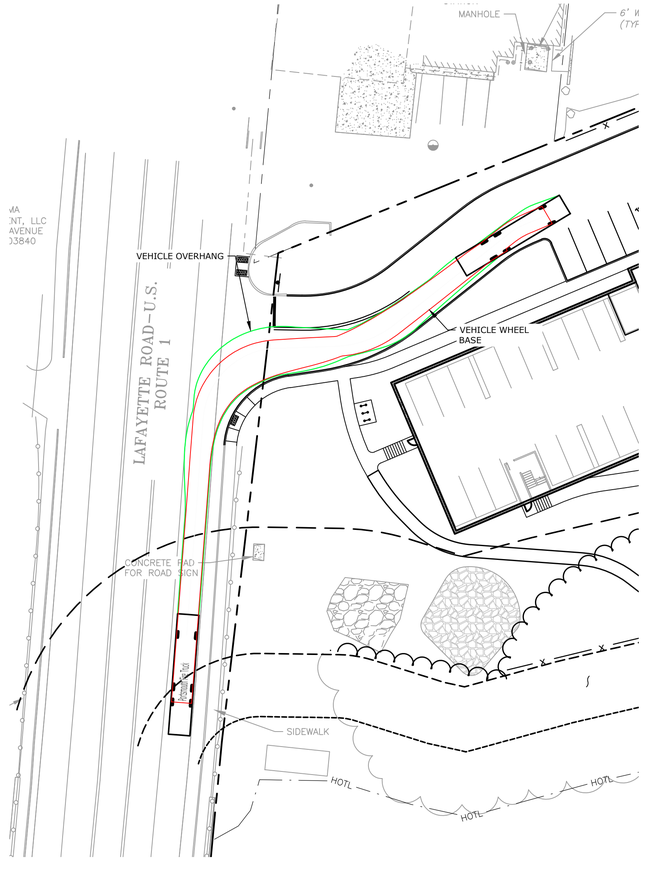
FIRE TRUCK TURNING EXHIBIT



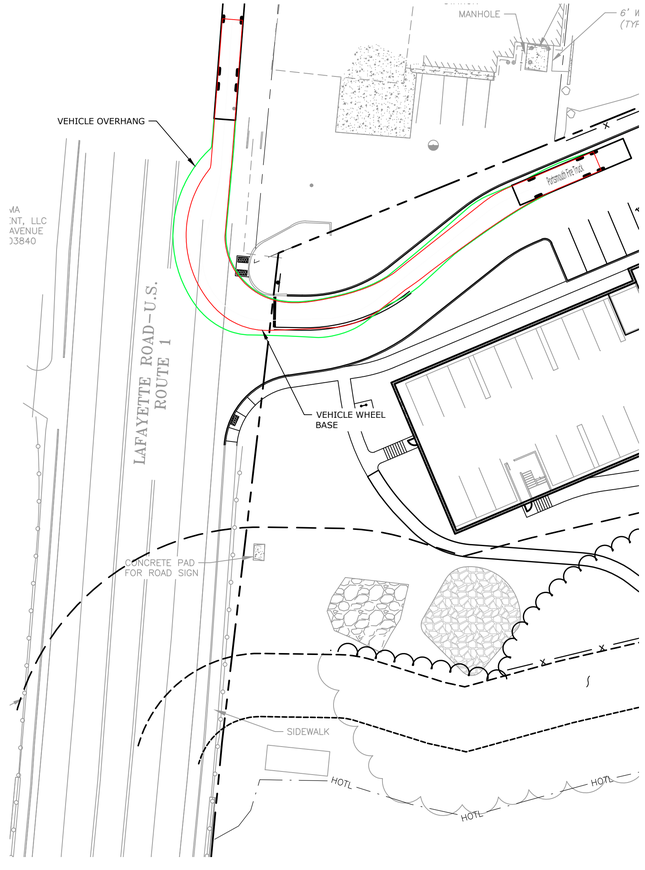
Portsmouth Fire Truck	
Overall Length	47.830ft
Overall Width	8.500ft
Overall Body Height	10.432ft
Min Body Ground Clearance	0.862ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	38.00°

LEGEND

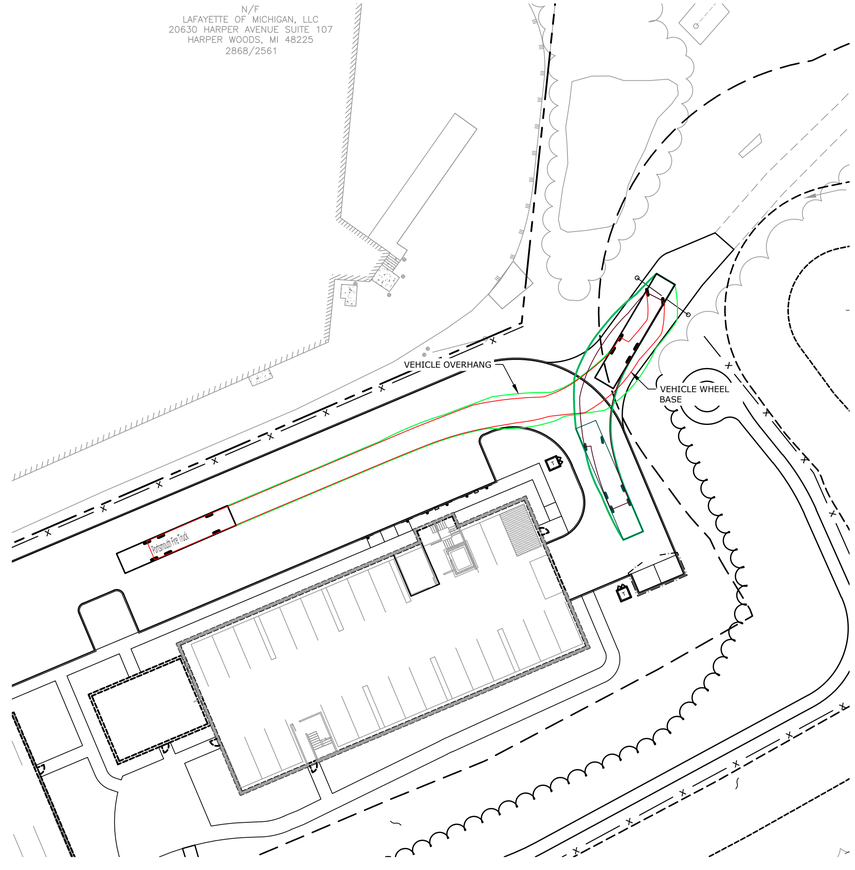
- FORWARD VEHICLE WHEEL BASE
- FORWARD VEHICLE OVERHANG
- REVERSE VEHICLE WHEEL BASE
- REVERSE VEHICLE OVERHANG



LAFAYETTE ROAD ENTRANCE



LAFAYETTE ROAD EXIT



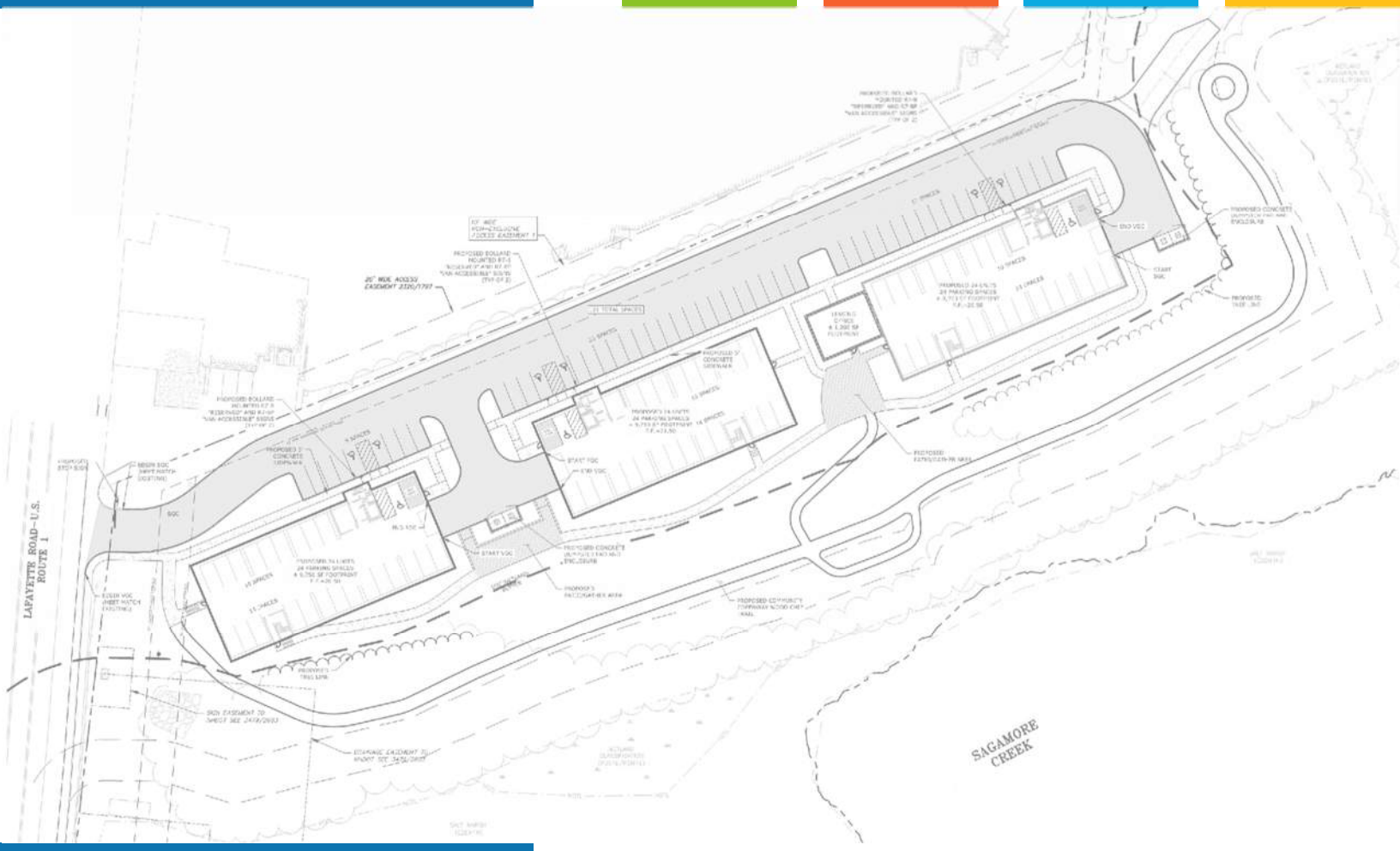
TURN AROUND WITHIN SITE

N

0 30' 60'
GRAPHIC SCALE

Tighe&Bond

November 22, 2023
M5131-001-FIGS.dwg



815 Lafayette Road (U.S. Route 1) Development
Portsmouth, New Hampshire

TRAFFIC IMPACT STUDY

Prospect North 815, LLC

October 23, 2023

Tighe&Bond

M5131-001
October 23, 2023

Mr. Roger Appleton, P.E.
Assistant District 6 Engineer
New Hampshire Department of Transportation
271 Main Street, P.O. Box 740
Durham, New Hampshire 03824

Re: **Certification Letter**
815 Lafayette Road Development
Portsmouth, New Hampshire

Dear Roger:

This letter certifies that the 815 Lafayette Road residential development located in Portsmouth, New Hampshire, dated October 23, 2023, was prepared under the oversight of a licensed Professional Engineer in the state of New Hampshire. I am a licensed Professional Engineer in the State of New Hampshire (NH PE No. 17429). I also hold Professional Traffic Operations Engineer (PTOE) (Certificate No. 2845) and Road Safety Professional 1 (RSP1) (Certificate No. 116) certifications from the Transportation Professional Certification Board (TPCB).

Sincerely,

TIGHE & BOND, INC.

Greg Lucas, PE, PTOE, RSP1
Senior Project Manager

10/20/2023

Copy: Peter Britz, Director of Planning & Sustainability, City of Portsmouth

J:\M\M5131 MB2 Development, LLC\001 815 Lafayette Road\Reports\Traffic Impact Study\815 Lafayette Certification Letter.docx

Table of Contents

Tighe&Bond

Technical Appendices (Available Upon Request Under Separate Cover)

Section 1
Study Overview

This Traffic Impact Study (TIS) evaluates the potential traffic impact of the proposed residential development located at 815 Lafayette Road, in the City of Portsmouth, New Hampshire. The proposed development includes the demolition of the former WHEB radio station office building and construction of three residential buildings. The site is bounded by Lafayette Plaza to the north, Sagamore Creek to the east and south, and Lafayette Road to the west. Figure 1 shows the Site location relative to the surrounding roadway network.

The project site currently contains the former WHEB radio station building. The project proposes to demolish the existing building and construct 72 residential units located in three separate three-story buildings. The Site will provide 121 total parking spaces including nine accessible spaces. A total of 72 covered spaces will be provided via structured parking on the ground level below each of the buildings, while 49 uncovered spaces will be provided within the adjacent surface lot north of the buildings. Site access will continue to be provided via the existing driveway along Lafayette Road (US Route 1). The project is expected to be completed in 2025.

Based on the analyses conducted, it is the professional opinion of Tighe & Bond that the additional traffic expected to be generated by the proposed residential development is not expected to have a significant impact to traffic operations within the study area.

Section 2
Existing Conditions

The Project site is bounded by Lafayette Plaza to the north, Sagamore Creek to the east and south, and Lafayette Road to the west. The property is currently accessible via a single full-access unsignalized driveway on Lafayette Road. The following sections provide details on the adjacent roadways within the study area.

2.1 Roadways

2.1.1 Lafayette Road (US Route 1)

Lafayette Road (US Route 1) is classified as a principal arterial under NHDOT District 6 jurisdiction. The roadway runs in a north-south direction, providing local and regional connectivity through southeastern New Hampshire, generally running parallel to I-95 between the Massachusetts state line and the Maine state line. Within the study area, Lafayette Road generally provides two travel lanes in each direction with a two-way center turn lane, and northbound and southbound left turn lanes at Mirona Road and Greenleaf Woods Drive. There are driveways to retail developments along both sides of the roadway.

Sidewalks are generally provided along both sides of Lafayette Road in the study area, with crossings located at the two signalized study area intersections at Mirona Road and Greenleaf Woods Drive. A varying shoulder typically 1 to 3 feet wide exists delineated by a solid white edge line. The speed limit is posted at 35 miles per hour (mph) in both directions in the vicinity of the site.

2.2 Study Area Intersections

2.2.1 Lafayette Road (US Route 1) at Mirona Road

Mirona Road intersects Lafayette Road from the east and west to form a four-way signalized intersection. The northbound and southbound approaches provide two through lanes and one dedicated left-turn lane that is separated from opposing traffic by a narrow raised median. The northbound and southbound left-turns operate under a protected signal phase. The eastbound approach provides a shared through/ left-turn lane and exclusive right-turn lane. The westbound approach provides a single all-purpose lane.

Marked crosswalks are provided on the north, east, and west legs with a concurrent pedestrian phase provided. Marked edge lines provide narrow 1-3 foot shoulders on all intersection approaches.

2.2.2 Lafayette Road (US Route 1) at Greenleaf Woods Drive/ Lafayette Plaza North Driveway

Greenleaf Woods Drive and Lafayette Plaza north driveway intersect Lafayette Road from the west and east, respectively, to form a four-way signalized intersection. The northbound and southbound approaches provide two through lanes and one dedicated left-turn lane that is separated from opposing traffic by a narrow raised median. The eastbound approach provides a shared through/ left lane and shared through/ right lane

with a short raised median. The westbound approach provides a shared through/ left and dedicated right-turn lane with a raised median. Marked crosswalks are provided on the north, south, and west legs with a concurrent pedestrian phase provided.

2.2.3 Lafayette Road (US Route 1) at Site Driveway

The site driveway intersects Lafayette Road from the east to form a three-way unsignalized intersection. Two travel lanes are provided in each direction on Lafayette Road with a center turn lane provided at the site driveway. The site driveway provides a single approach lane under stop control. Sidewalks and narrow shoulders are provided in the vicinity of the site driveway.

2.3 Traffic Volumes

Turning movement counts (TMC) were collected at the study area intersections on May 25, 2023 during the weekday morning (7:00 AM to 9:00 AM) and weekday afternoon peak periods (4:00 PM to 6:00 PM). Automatic Traffic Recorder (ATR) counts were collected on Lafayette Road approximately 250 feet south of the site driveway during a 48-hour period from Wednesday (May 24, 2023) thru Thursday (May 25, 2023) concurrently with the TMC to record hourly traffic volumes and vehicular speeds.

Based on current NHDOT guidance, 2023 traffic volumes were compared to 2019 traffic volumes to determine if adjustments to the collected traffic volumes should be made. NHDOT continuous count station No. 02125090, located on Spaulding Turnpike (NH Route 16) one half mile north of the US Route 4 interchange was used as a basis for comparison. The average traffic volumes from Tuesday to Thursday during the same week in May 2019 and May 2023 were used as a basis for the comparison. The review shows May 2023 traffic volumes on Spaulding Turnpike during the week the TMC were collected were 11.1% lower during the weekday morning peak hour, 7.4% higher during the weekday afternoon peak hour, and 2.7% lower on a daily basis as compared to 2019 traffic volumes. Therefore, the May 2023 weekday morning peak hour TMC and May 2023 daily traffic volumes were adjusted upward by 11.1% and 2.7%, respectively. No adjustment was made to the weekday afternoon peak hour.

The adjusted, seasonally adjusted ATR data indicates average daily traffic (ADT) of approximately 16,000 vehicles per day in the northbound direction and 14,000 vehicles per day in the southbound direction. The measured 85th percentile speeds, also known as the operating speed of the roadway, were approximately 45 mph and 43 mph in the northbound and southbound directions, respectively.

The weekday morning and weekday afternoon turning movement counts were each seasonally adjusted to the peak and adjusted as applicable based on the historical volume comparison per NHDOT guidelines. The adjusted 2023 existing traffic volumes for the weekday morning and weekday afternoon peak hours are shown in Figures 2 and 3, respectively. The raw TMC data and ATR data are provided in Appendix A. The NHDOT historical traffic volumes on Spaulding Turnpike, seasonal adjustment factors, and historical growth rates are enclosed in Appendix B. The Traffic Volume Adjustment Factor calculation is provided in Appendix C.

2.4 Capacity and Queue Analyses - Existing Condition

Capacity and queue analyses were performed for the study intersections for the 2023 Existing Conditions during the weekday morning and weekday afternoon peak hours.

Analyses were conducted using Trafficware Synchro Studio 11 software, which conducts the analysis based on *Highway Capacity Manual (HCM)* methodology. Consistent with NHDOT guidelines, analyses for signalized intersections were conducted using methods of the 2000 HCM, while analysis for unsignalized intersections utilized the HCM 6th Edition methodology. The analysis results are categorized in terms of Level of Service (LOS), which describes the qualitative intersection operational conditions based on the calculated average delay per vehicle. A summary of the HCM capacity analysis methodology and a detailed definition of LOS is provided in Appendix D. The queue analysis results are summarized based upon the length of vehicle queueing on an intersection approach. For unsignalized intersections, queues are quantified for 95th percentile (design queues). For signalized intersections, queues are quantified by 95th percentile (design) and 50th percentile (average) queues. Tables 2 and 3 in Section 7 summarize the capacity and queue analyses results, respectively. Capacity analysis worksheets with full inputs, settings, and results are provided in Appendix E.

As shown in Table 2, the majority of the overall intersections and individual intersection approaches operate acceptably at LOS D or better during the peak hours with the exception of the Lafayette Road at Mirona Road southbound left movement which operates at LOS E during the weekday afternoon peak hour. A review of the queuing results in Table 3 shows that all of the design queues are accommodated within available storage between intersections.

2.5 Collision History

Vehicle collision data for the study intersections was requested from the Portsmouth Police Department. However, as of this time, vehicle accident reports were not able to be provided due to staffing shortages.

2.6 Alternative Travel Modes

The study area is in an urban setting in the City of Portsmouth where several multimodal travel options are readily available. The following summarizes the details of various alternative travel modes supported within the study area.

Pedestrian facilities are present throughout the study area. There are existing sidewalks along both sides of Lafayette Road throughout the entire study area. Market crosswalks with concurrent pedestrian phases are present at both signalized study intersections.

The Cooperative Alliance for Seacoast Transportation (COAST) provides transit service within the study area. Bus Route 41 is the primary bus route in the study area with stops along Lafayette Road between Hanover Station to the north and Hillcrest Estimates to the south. An existing bus stop is located approximately a quarter mile north of the site, just north of the intersection with Greenleaf Woods Drive and the Lafayette Plaza north driveway. The route operates from 6:00 AM to 8:49 PM Monday through Saturday. The Route 41 map and schedule are included in Appendix F.

Section 3
No-Build Conditions

The No-Build Condition represents the projection of traffic volumes and operating conditions without the anticipated additional site generated traffic. Consistent with NHDOT guidelines, the study area is analyzed for an Opening Year (2025) and Design Year (2035). This section describes the growth and development considerations included in the 2025 and 2035 No-Build traffic volumes.

3.1 Traffic Growth

To develop the traffic volumes for the 2025 and 2035 No-Build Conditions, the 2023 Existing traffic volumes were grown by one percent per year to represent the general growth of traffic on the study area roadways. This growth rate is consistent with the average growth rate in NHDOT Region E - Southeast, the region in which Portsmouth is located. Background NHDOT growth data is included in Appendix B.

NHDOT and the City of Portsmouth were contacted about other planned/approved developments in the area that may add new traffic to the study area prior to 2025. The following developments were identified:

- **428 US Route 1 Bypass – West End Yards Mixed-use Development:** The project includes 273 residential units, 22,000 SF of retail/ restaurant space, and 22,000 SF of office space. The project is constructed and occupied except for Parcel D of the project which includes a proposed commercial space. A review of the previous traffic analyses indicates negligible site traffic from the remaining development is anticipated to be added to the study intersections. Therefore, the remaining projected site traffic is assumed to be included in the background traffic volume growth.

- **105 Bartlett Street – North Mill Pond Residential Development:** The project proposes to construct 152 residential units. The project has been approved and construction is anticipated to begin in Spring 2024. Based on a review of the previous analyses, it was determined that the estimated project trips will not add traffic to the study intersections based on anticipated travel patterns, and therefore was not added to the No-Build traffic volumes.

It is assumed that other smaller developments or small vacancies in existing developments are also captured by the background traffic growth rate. The 2025 and 2035 No-Build traffic volumes for the weekday morning and weekday afternoon peak hours are shown in Figures 4 through 7.

3.2 Capacity and Queue Analyses – No-Build Conditions

Capacity and queue analyses were conducted for the 2025 and 2035 No-Build Conditions traffic volumes for both peak periods using the methodology described in Section 2.4. Tables 2 and 3 in Section 7 summarize the capacity and queue results, respectively. Capacity analysis worksheets with full inputs, settings, and results are provided in Appendix E.

The increase in expected future traffic based on the one percent per year compounded growth rate added to the future No-Build Conditions results in some degradation of operations when compared to existing conditions. In the 2025 No-Build Condition, most overall intersections and individual intersection approaches operate at a similar LOS to the Existing Condition. The 2035 No-Build Condition includes some additional degradation of LOS based on the addition of ten years of compounded annual growth. The following identifies intersections and approaches which predict a degradation of LOS, increased delay or queues exceeding available storage between the 2023 Existing and 2025 No-Build Condition, and/or between the 2025 and 2035 No-Build Condition:

- **Lafayette Road at Greenleaf Woods Drive/Lafayette Plaza North Driveway:**
  - The southbound left turn movement degrades from LOS D to LOS E in the 2035 weekday afternoon peak hour.
  - The northbound through/right turn movement exceeds the available storage by less than one vehicle length in the 2035 weekday afternoon peak hour.
- **Lafayette Road at Mirona Road:**
  - The northbound left turn movement degrades from LOS D to LOS E in the 2035 weekday morning and afternoon peak hours.
  - The southbound left turn movement degrades from LOS D to LOS E in the 2035 weekday morning peak hour and degrades from LOS E to LOS F in the 2025 weekday afternoon peak hour.
  - The eastbound shared through/left turn movement degrades from LOS D to LOS E in the 2035 weekday afternoon peak hour.
  - It important to note that while the overall LOS of the intersection degrades and volume-to-capacity ratio nears 1.0 in 2035 during the weekday afternoon due to the increase in traffic volume, the southbound left movement does experience an improvement in LOS from F to D. This improvement is offset by the degradation in LOS on the northbound left and shared eastbound through/ left movements.

It should be noted that in instances where 95th percentile queues slightly exceed available storage, average (50th percentile) queues are well within the available storage for the turn lane, and that the 95th percentile is the queue length that is predicted to be reached only 5 percent of the time, or approximately 3 minutes out of 60 minutes in the affected peak hour.

Section 4
Proposed Conditions

The proposed 72-unit residential development will include three buildings with structured parking on the ground floor of each building and a separate surface parking lot. The proposed development is expected to be complete and occupied in 2025. The Site Plan is presented in Appendix H.

4.1 Site Access

Access to the Site will be provided via the existing full access, unsignalized driveway on the east side of Lafayette Road. The driveway is located approximately 750 feet south of the intersection with Greenleaf Woods Drive. All tenants will utilize this driveway on Lafayette Road to access the site.

Intersection sight distance was reviewed at the proposed site driveway on Lafayette Road, in accordance with criteria set forth in the AASHTO publication *A Policy on the Geometric Design of Highways and Streets*, 7th Edition, 2018. Stopping sight distance was also reviewed along Lafayette Road. Available site distances were estimated based on the site layout plan and available aerial mapping. The 85th percentile speeds were measured to be approximately 45 mph in the northbound direction and 43 mph in the southbound direction on Lafayette Road. A design speed of 45 mph was used as a basis for the analysis.

Based on AASHTO guidelines and the 85th percentile speed of the roadway, the northbound and southbound intersection sight distance requirement is 530 feet for passenger cars and 675 feet for single-unit trucks turning left under *Case B – Left Turn from Stop*. The site driveway provides intersection sight distance in excess of 700 feet in each direction, exceeding the AASHTO requirements for passenger vehicles and single-unit trucks.

Based on AASHTO guidelines, roadway grades, and the 85th percentile speed of the roadway, the stopping sight distance requirement is 360 feet for vehicles traveling in both the northbound and southbound directions. The sight distance provided is in excess of the requirement.

4.2 Trip Generation

Site generated traffic volumes for the proposed residential development were estimated using rates published in the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition, 2021. The proposed site generated traffic volumes were calculated based on the number of proposed apartments. Trip generation is based on the peak hour of the adjacent street (site). It is estimated that the proposed development may generate a total of 45 trips (11 entering, 34 exiting) during weekday morning peak hour and 52 trips (32 entering, 20 exiting) during weekday afternoon peak hour. The proposed site generated traffic is summarized in Table 1.

TABLE 1
Site-Generated Traffic Summary

Proposed - 72 Apartments (3 Stories) Peak Hour Period	Enter	Exit	LUC 220 Total
Weekday Morning	11	34	45
Weekday Afternoon	32	20	52
Weekday	268	269	537

Source: Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021
Land Use - 220 [Multifamily Housing (Low-Rise)]

4.3 Arrival and Departure Distribution

The distribution of the proposed site-generated traffic entering and exiting the Site was applied to the roadway network based on existing traffic patterns within the study area as well as a review of US Census Journey-to-Work data which is included in Appendix G. The following arrival/departure distributions are anticipated:

- 30% North to/from US Route 1
- 25% South to/from US Route 1
- 20% North to/from NH Route 4
- 15% South to/from I-95
- 5% North to/from I-95
- 5% West to/from Route 33

Figure 8 presents the arrival and departure distributions of the traffic through the study area by intersection movement. Figures 9 and 10 show the proposed site generated traffic distributed to the study area roadways for the morning and afternoon peak periods, respectively.

4.4 Off-Site Mitigation Review

Right and left turn bay analyses were conducted to determine the potential need for turning bays at the site driveway based on guidance outlined in National Cooperative Highway Research Program (NCHRP) Report 457, Evaluating Intersection Improvements: An Engineering Study Guide. Figures 2-5 and Figure 2-6 provide guidance for left and right turn bay warrants, respectively. Based on the 85th percentile speeds and projected 2035 Build Condition traffic volumes, a northbound right turn bay is not warranted. The analysis does indicate that a southbound left turn bay is warranted. However, due to the presence of the existing center turn lane, a dedicated left turn lane is not recommended as site traffic turning into the site can utilize the existing center turn lane for left turns. It is not recommended to modify the existing striping to maintain cross section continuity along the corridor. The turn bay analyses calculation and results are included in Appendix I.

Section 5
Build Conditions

The anticipated site generated traffic volumes associated with the proposed development were added to the 2025 and 2035 No-Build Conditions traffic volumes to develop the 2025 and 2035 Build Conditions traffic volumes, which are presented in Figure 11 through 14 for both peak periods.

5.1 Capacity and Queue Analyses - Build Condition

Capacity and queue analyses were conducted for the 2025 and 2035 Build Conditions for the peak hours using the methodology described in Section 2.4. Tables 2 and 3 in Section 7 summarize the capacity and queue results, respectively. Capacity analysis worksheets with full inputs, settings, and results are provided in Appendix E.

A majority of the study area intersections and individual intersection approaches continue to operate at acceptable LOS D or better during the peak hours in the 2025 and 2035 Build Conditions. Study area intersections that were identified in Section 2.4 and 3.3 to operate at LOS E or LOS F in the No-Build Conditions continue to operate at the same LOS under Build Conditions. The signalized intersection movements experience queue increases of no more than one car length.

The 815 Lafayette Road Development site driveway approach (unsignalized) operates at LOS D in 2025 and LOS E in 2035 during the weekday morning and afternoon peak hours. Queues of less than one vehicle are expected on the driveway approach.

Section 6
Conclusions & Recommendations

1. The project proposes to demolish the existing building (former WHEB radio station) on site and construct a 72-unit residential development comprised of three separate buildings. The project includes approximately 121 parking spaces in both structured parking on the ground level of each building and a surface lot. The development is expected to be complete and occupied in 2025.

2. Access to the site will be provided via the existing full access driveway. The site driveway will continue to operate under stop control.

3. Based on the ITE data, the project is expected to generate 45 trips during the weekday morning peak hour (11 entering, 34 exiting) and 52 trips during the weekday afternoon peak hour (32 entering, 20 exiting).

4. The project proposes internal sidewalk connections to the existing sidewalk network along Lafayette Road, promoting connections to the existing sidewalk network along study area roadways.

5. Consistent with NHDOT guidelines, existing traffic volumes have been seasonally adjusted to the peak month condition and adjusted as necessary based on a comparison between 2023 and 2019 continuous count station data to represent a pre-pandemic condition.

6. The capacity analyses show that the study area intersections will continue to operate at the same LOS under Build Conditions as compared to the No-Build Conditions for both the 2025 opening year and 2035 design year with minimal increases in delay or queues.

7. Based on the left and right turn bay analysis, it was determined that a southbound left-turn bay is warranted. However, the existing center turn lane can accommodate southbound left-turn traffic. Restriping the roadway to provide a directional southbound left-turn lane is not recommended in order to maintain roadway cross section continuity along the corridor.

8. Based on the results of the foregoing analysis, it is the professional opinion of Tighe & Bond that the addition of site-generated traffic is expected to have a negligible effect on traffic operations within the study area.

Section 7
Tables

TABLE 2
Intersection Operation Summary - Capacity

	Lane Use	Weekday Morning Peak Hour																Weekday Afternoon Peak Hour											
		2023 Existing			2025 No-Build			2025 Build			2035 No-Build			2035 Build				2023 Existing			2025 No-Build			2025 Build			2035 No-Build			2035 Build		
		LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C		LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C
Traffic Signal - Lafayette Road (U.S. Route 1) at Greenleaf Woods Drive/North Plaza Driveway																													
Overall		**B**	**14.7**	**0.79**	**B**	**15.2**	**0.80**	**B**	**15.4**	**0.82**	**B**	**18.2**	**0.89**	**B**	**18.8**	**0.91**		**C**	**22.3**	**0.83**	**C**	**23.0**	**0.84**	**C**	**23.2**	**0.85**	**C**	**28.1**	**0.93**	**C**	**28.6**	**0.94**
	NBL	D	38.1	0.44	D	38.5	0.46	D	38.5	0.46	D	39.8	0.51	D	39.8	0.51		D	45.7	0.43	D	45.9	0.42	D	46.0	0.42	D	48.4	0.47	D	48.4	0.47
Lafayette Road	NBTR	B	15.1	0.79	B	15.8	0.80	B	16.3	0.82	C	20.8	0.89	C	21.8	0.91		C	23.1	0.83	C	24.0	0.84	C	24.2	0.85	C	31.7	0.93	C	32.9	0.94
(U.S. Route 1)	SBL	D	37.4	0.57	D	37.4	0.58	D	37.4	0.58	D	40.0	0.63	D	40.0	0.63		D	48.1	0.74	D	50.5	0.76	D	50.6	0.76	E	63.4	0.85	E	63.4	0.85
	SBTR	A	9.0	0.56	A	9.2	0.57	A	9.3	0.57	B	10.2	0.63	B	10.2	0.63		B	12.6	0.60	B	12.9	0.62	B	13.0	0.63	B	14.6	0.68	B	14.9	0.70
Greenleaf Woods Drive	EB	C	31.4	0.02	C	31.4	0.02	C	31.4	0.02	C	31.4	0.02	C	31.4	0.02		C	30.3	0.30	C	30.6	0.30	C	30.7	0.30	C	31.2	0.33	C	31.2	0.33
North Plaza Driveway	WBLT	D	35.6	0.47	D	35.7	0.48	D	35.7	0.48	D	36.1	0.50	D	36.1	0.50		D	44.6	0.73	D	45.8	0.74	D	46.5	0.74	D	52.2	0.80	D	52.2	0.80
	WBR	C	31.5	0.03	C	31.5	0.03	C	31.5	0.03	C	31.5	0.03	C	31.5	0.03		C	28.7	0.07	C	29.0	0.07	C	29.1	0.07	C	29.3	0.08	C	29.3	0.08
Traffic Signal - Lafayette Road (U.S. Route 1) at Mirona Road																													
Overall		**B**	**19.1**	**0.75**	**B**	**19.6**	**0.76**	**B**	**19.8**	**0.76**	**C**	**22.8**	**0.83**	**C**	**22.9**	**0.83**		**C**	**21.0**	**0.75**	**C**	**21.3**	**0.78**	**C**	**21.7**	**0.80**	**C**	**24.5**	**0.93**	**C**	**25.1**	**0.96**
	NBL	D	46.4	0.53	D	47.8	0.55	D	48.6	0.55	E	59.7	0.64	E	59.9	0.64		D	44.5	0.52	D	45.5	0.54	D	46.1	0.54	E	55.8	0.63	E	56.8	0.63
Lafayette Road	NBTR	B	16.6	0.75	B	17.1	0.76	B	17.3	0.76	C	20.6	0.83	C	20.6	0.83		B	17.1	0.70	B	17.1	0.71	B	17.1	0.71	B	18.4	0.75	B	18.4	0.76
(U.S. Route 1)	SBL	D	48.5	0.35	D	49.4	0.36	D	49.7	0.36	E	55.4	0.42	E	55.7	0.42		E	71.6	0.57	F	80.1	0.59	F	80.2	0.59	D	51.5	0.35	D	51.7	0.35
	SBTR	B	15.8	0.62	B	16.0	0.63	B	16.3	0.63	B	18.0	0.68	B	18.2	0.69		B	19.7	0.70	B	19.8	0.71	B	19.8	0.71	B	19.7	0.73	B	19.6	0.73
	EBLT	D	44.7	0.75	D	45.6	0.75	D	45.5	0.75	D	51.6	0.80	D	52.3	0.80		D	39.8	0.75	D	42.5	0.78	D	45.1	0.80	E	70.2	0.93	E	77.4	0.96
Mirona Road	EBR	B	19.9	0.03	C	20.3	0.03	C	20.3	0.03	C	21.9	0.03	C	22.1	0.03		B	16.8	0.04	B	17.2	0.04	B	17.3	0.04	C	20.3	0.04	C	20.6	0.05
	WB	C	28.7	0.05	C	29.0	0.05	C	29.0	0.05	C	30.8	0.05	C	31.0	0.05		C	25.0	0.07	C	25.6	0.07	C	25.7	0.07	C	29.1	0.08	C	29.4	0.09
Unsignalized TWSC - Lafayette Road (U.S. Route 1) at Site Driveway																													
Site Driveway	WB	--	--	--	--	--	--	D	30.1	0.21	--	--	--	E	36.6	0.25		--	--	--	--	--	--	D	27.7	0.12	--	--	--	E	35.3	0.16
Lafayette Road (U.S. Route 1)	SBL	--	--	--	--	--	--	B	14.7	0.02	--	--	--	C	16.4	0.02		--	--	--	--	--	--	B	14.1	0.05	--	--	--	C	15.7	0.06

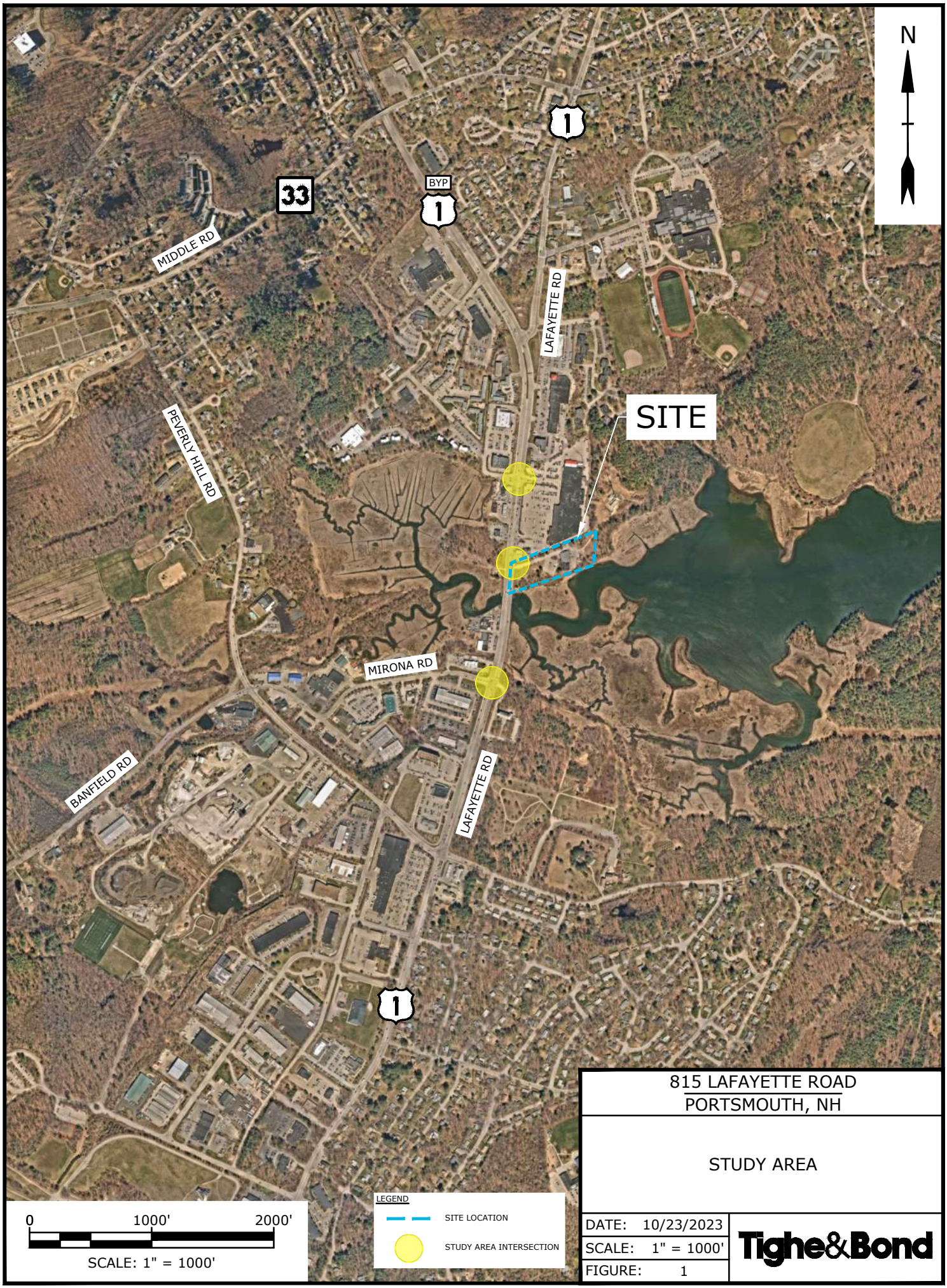
Legend
LOS - Level of Service
Delay - average delay per vehicle in seconds
V/C - volume to capacity ratio

TABLE 3
Intersection Operation Summary - Queues (In Feet)

	Lane Use	Available Storage	Weekday Morning Peak Hour										Weekday Afternoon Peak Hour									
			2023 Existing		2025 No-Build		2025 Build		2035 No-Build		2035 Build		2023 Existing		2025 No-Build		2025 Build		2035 No-Build		2035 Build	
			50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th
Traffic Signal - Lafayette Road (U.S. Route 1) at Greenleaf Woods Drive/North Plaza Driveway																						
	NBL	150	18	45	18	46	18	46	20	50	20	50	12	37	12	37	12	37	14	40	14	40
Lafayette Road	NBTR	625	296	407	308	462	317	475	386	556	410	569	330	515	345	533	350	542	448	628	463	637
(U.S. Route 1)	SBL	550	42	90	43	92	43	92	48	100	48	100	86	172	89	177	89	177	103	201	103	201
	SBTR	>1000	172	266	177	274	180	277	213	328	215	331	146	322	153	331	157	341	203	385	208	395
Greenleaf Woods Drive	EB	100	0	0	0	0	0	0	0	0	0	0	28	45	29	45	29	45	33	50	33	50
North Plaza Driveway	WBLT	250	25	60	26	61	26	61	29	65	29	65	76	106	77	108	77	108	87	119	87	119
	WBR	250	0	0	0	0	0	0	0	3	0	3	0	21	0	21	0	21	0	22	0	22
Traffic Signal - Lafayette Road (U.S. Route 1) at Mirona Road																						
	NBL	475	28	81	29	83	29	83	34	95	35	95	30	80	31	83	31	83	38	108	38	108
Lafayette Road	NBTR	>1000	232	393	247	405	252	407	301	480	302	482	205	375	213	386	215	391	251	448	254	452
(U.S. Route 1)	SBL	225	7	34	8	34	8	34	9	37	9	37	7	28	7	28	7	28	9	34	9	34
	SBTR	875	235	300	247	308	254	315	291	357	297	365	265	333	274	341	276	344	320	390	323	394
	EBLT	>1000	89	224	92	232	94	233	113	266	117	269	119	229	124	243	129	255	157	325	162	334
Mirona Road	EBR	225	0	20	0	21	0	21	0	21	0	21	0	18	0	19	0	19	1	23	2	24
	WB	250	5	17	6	18	6	18	7	20	7	20	9	16	9	16	9	16	11	20	12	20
Unsignalized TWSC - Lafayette Road (U.S. Route 1) at Site Driveway																						
Site Driveway	WB	250	--	--	--	--	--	20	--	--	--	23	--	--	--	--	--	10	--	--	--	13
Lafayette Road (U.S. Route 1)	SBL	350	--	--	--	--	--	3	--	--	--	3	--	--	--	--	--	5	--	--	--	5

Legend
50th & 90th - 50th and 95th percentile queue lengths in feet

Section 8
Figures

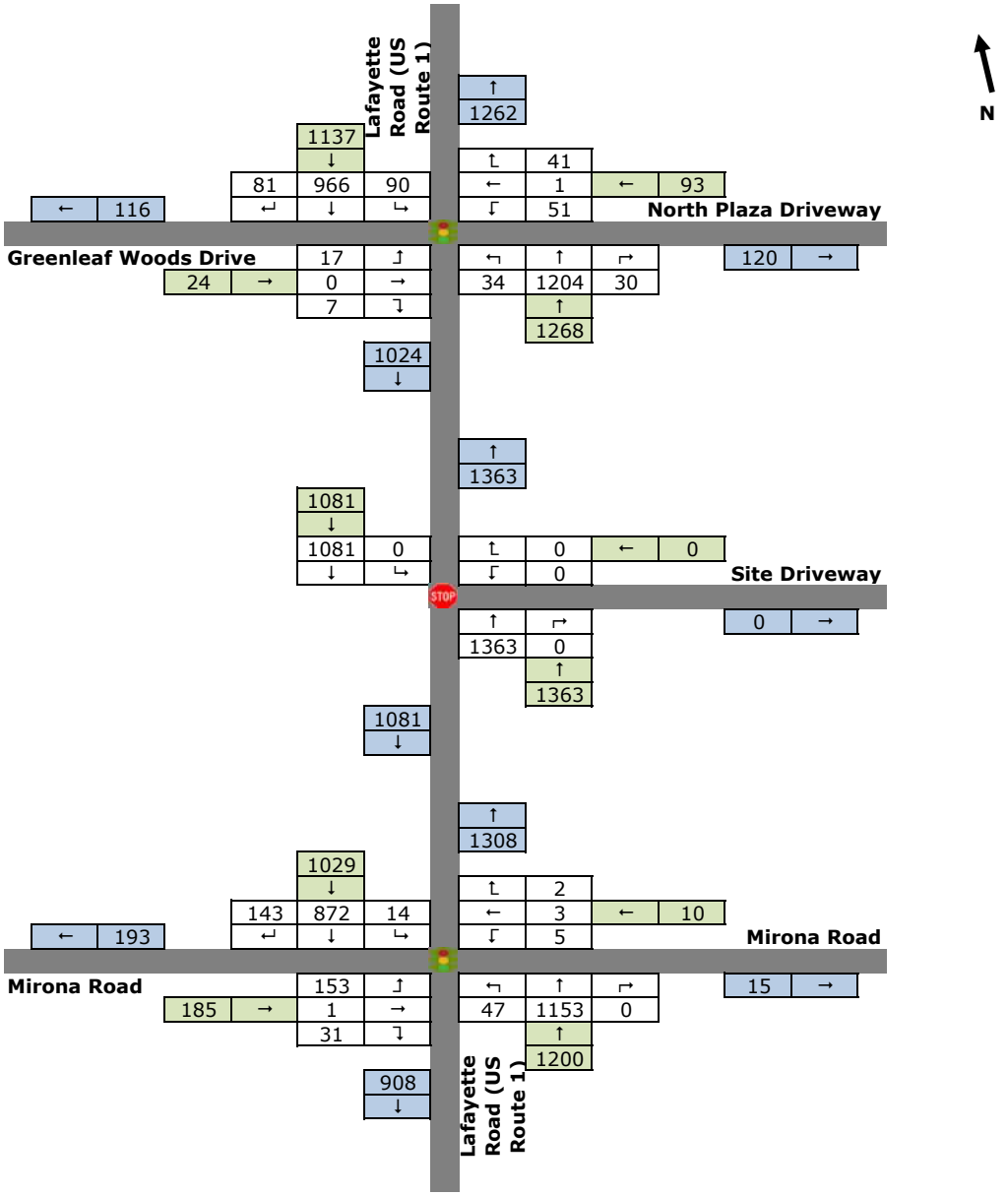


815 LAFAYETTE ROAD
PORTSMOUTH, NH

STUDY AREA

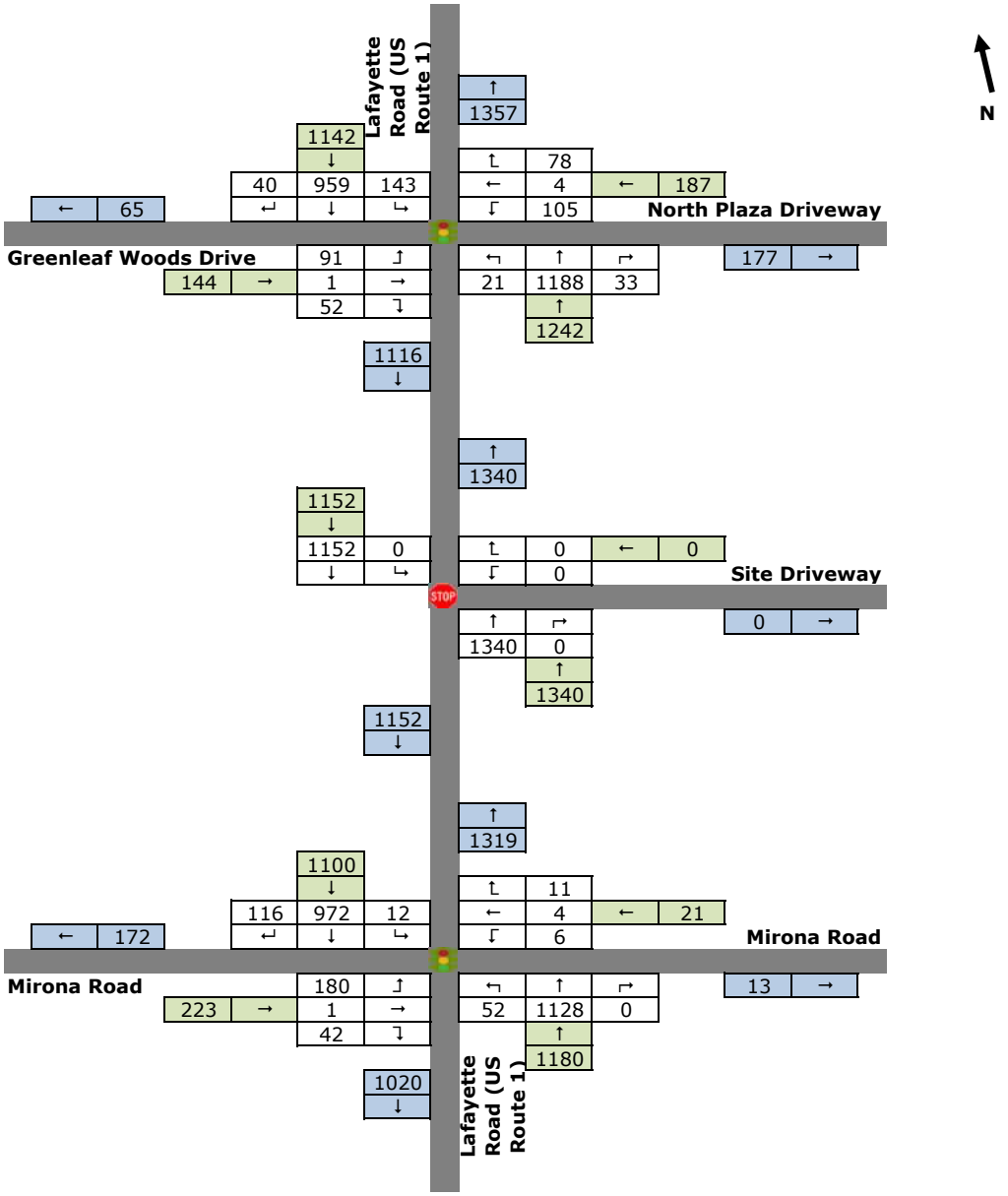
DATE:	10/23/2023
SCALE:	1" = 1000'
FIGURE:	1

Tighe&Bond



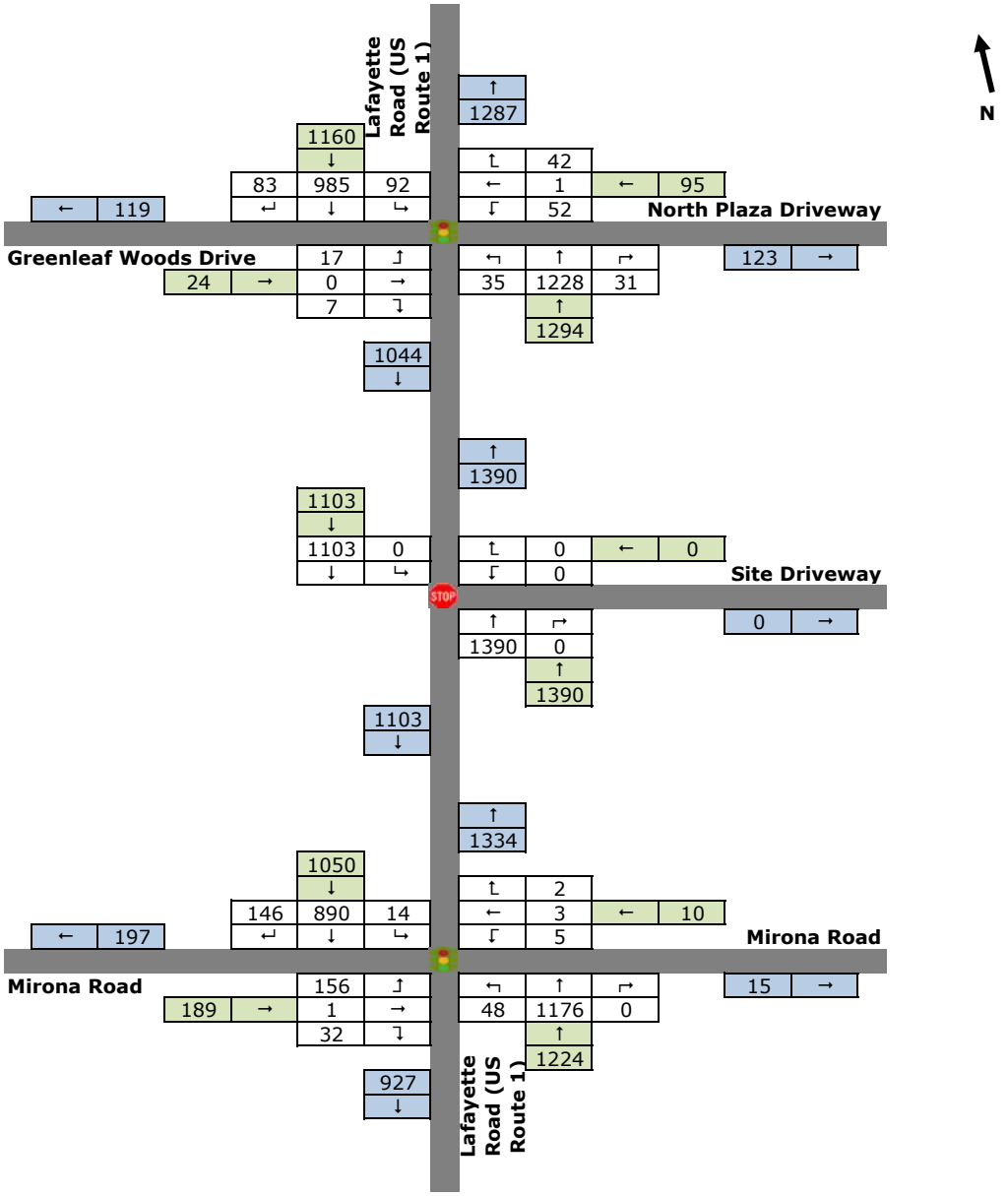
2023 Existing Condition Traffic Volumes
Weekday AM Peak
815 Lafayette Road Development

Figure 2



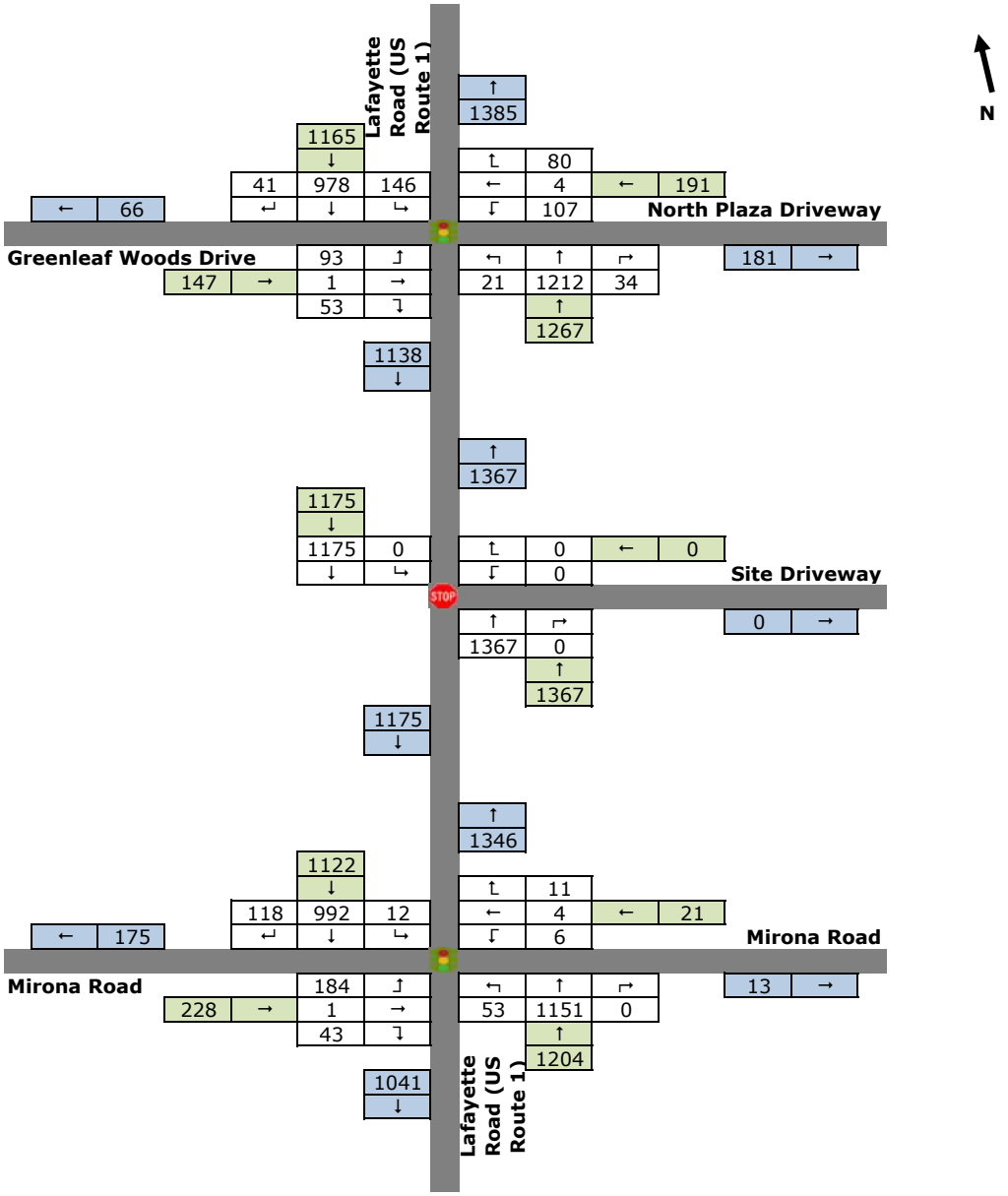
2023 Existing Condition Traffic Volumes
Weekday PM Peak
815 Lafayette Road Development

Figure 3



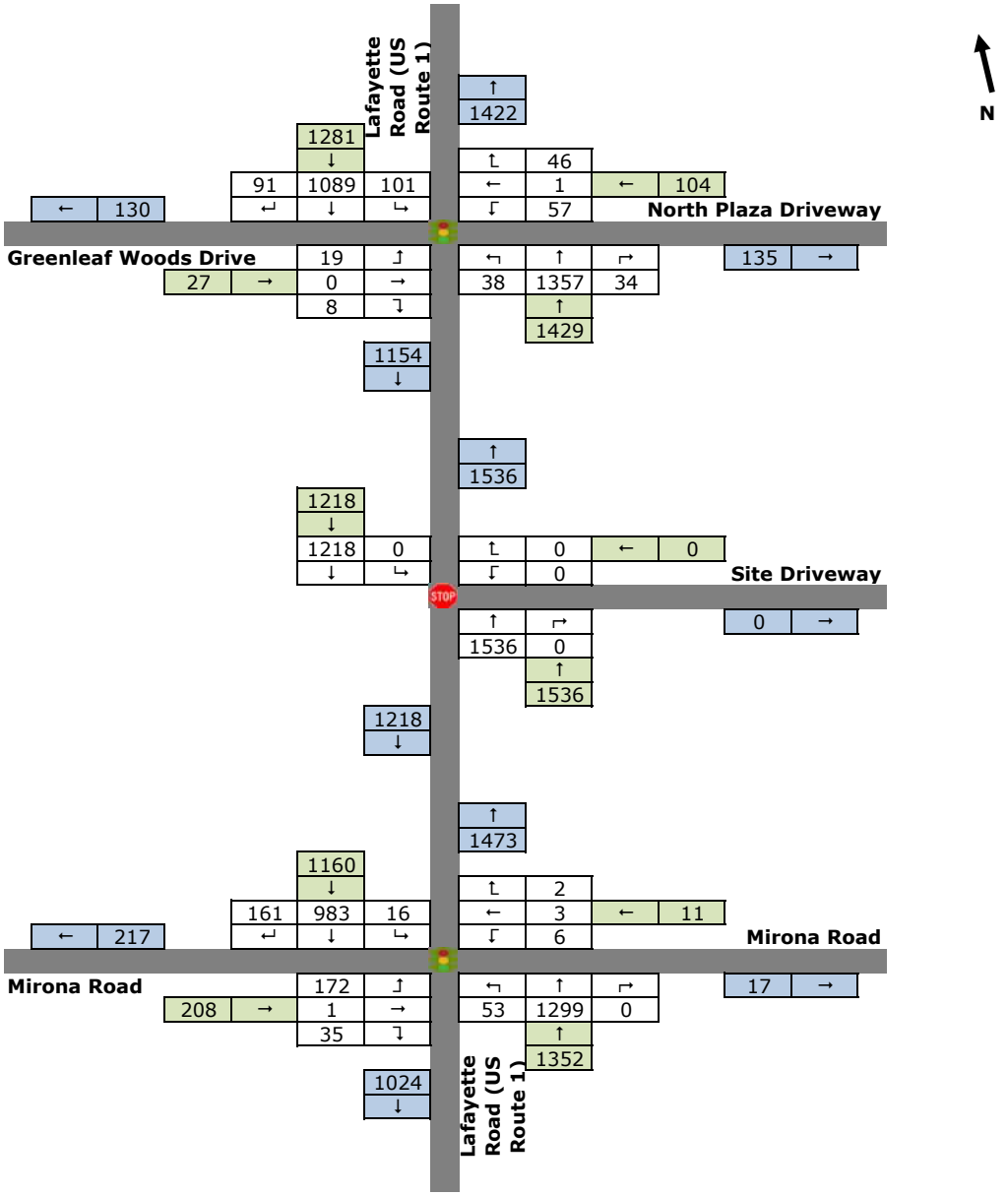
2025 No-Build Condition Traffic Volumes
Weekday AM Peak
815 Lafayette Road Development

Figure 4



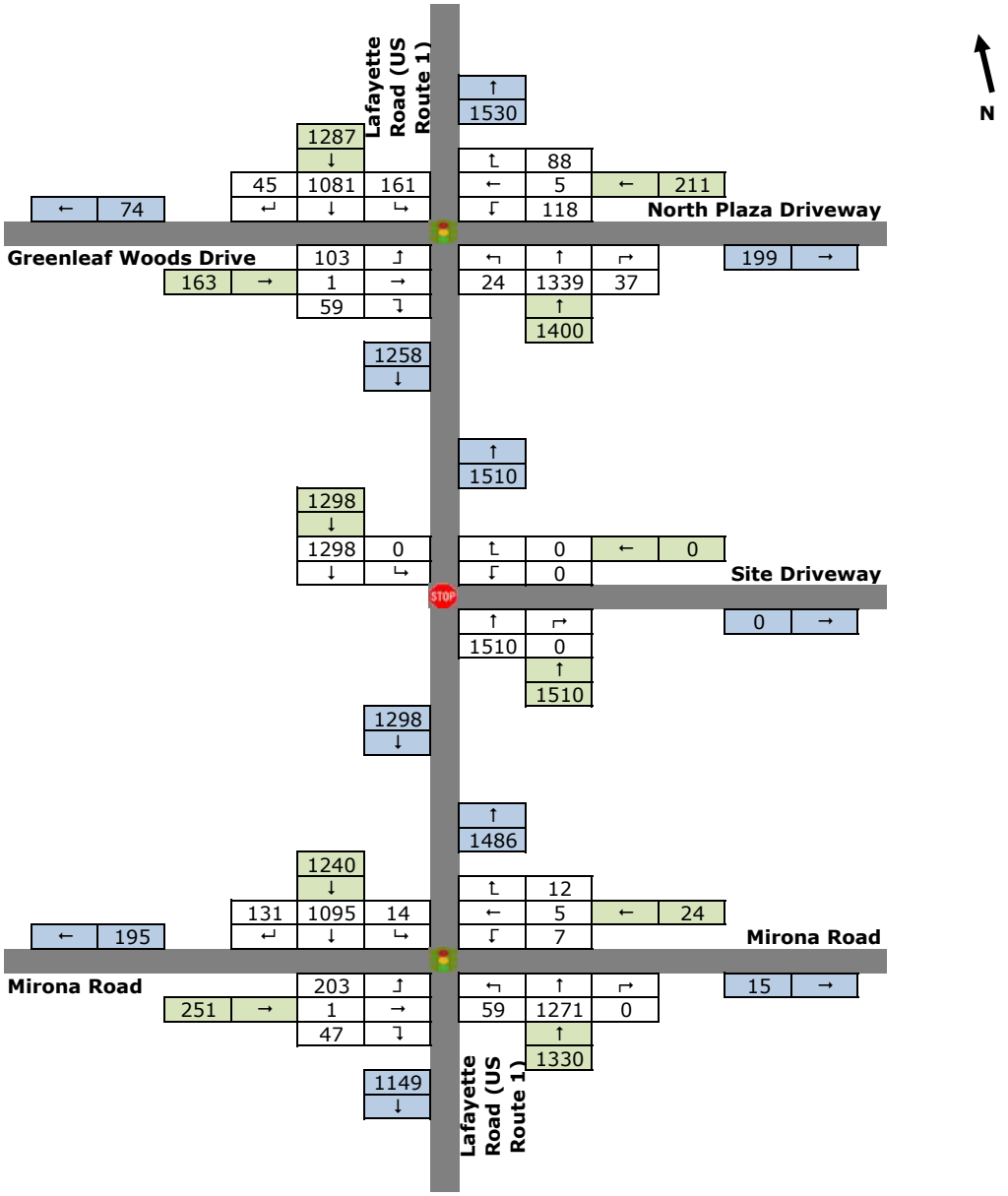
2025 No-Build Condition Traffic Volumes
Weekday PM Peak
815 Lafayette Road Development

Figure 5



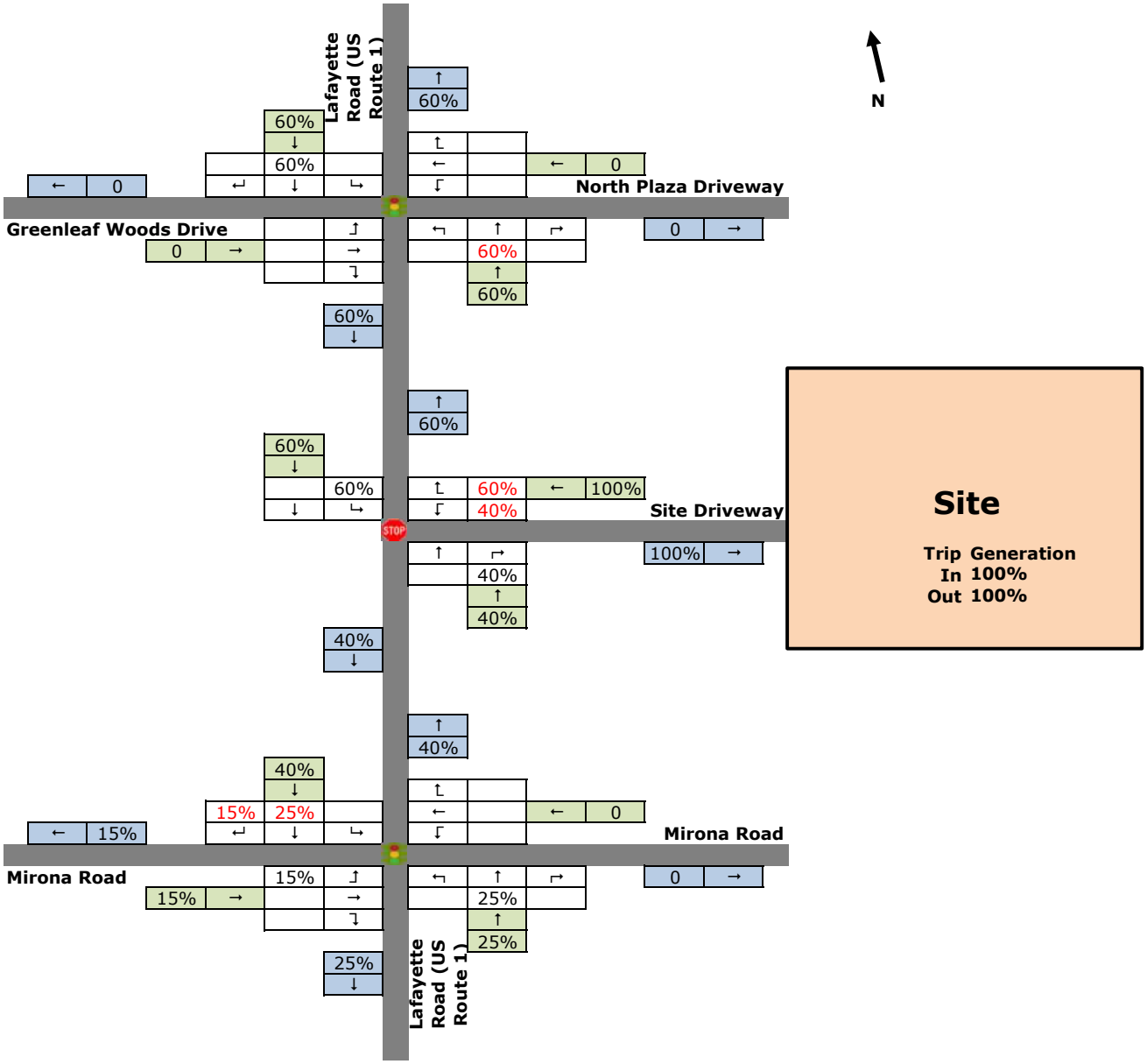
2035 No-Build Condition Traffic Volumes
Weekday AM Peak
815 Lafayette Road Development

Figure 6



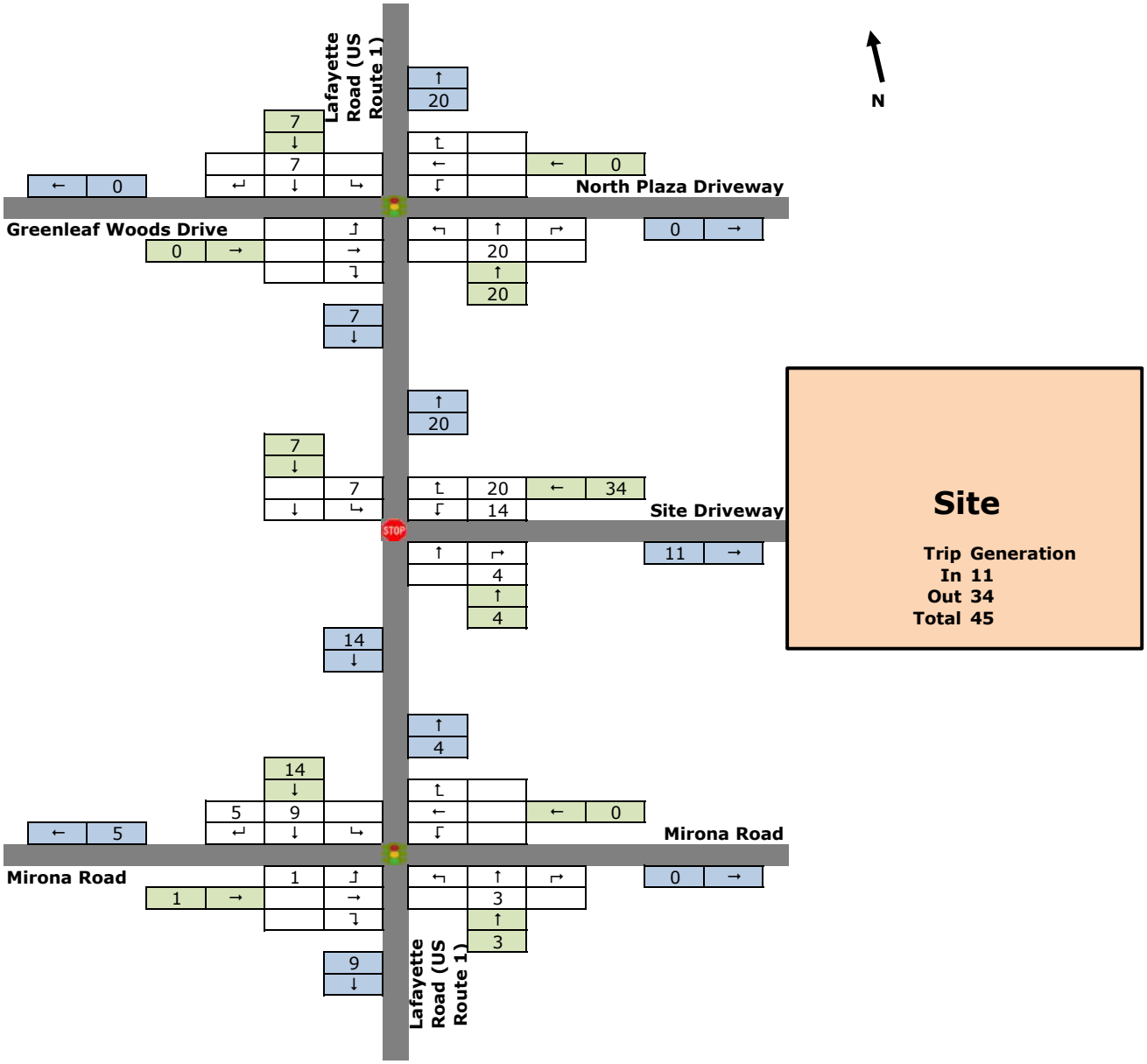
2035 No-Build Condition Traffic Volumes
Weekday PM Peak
815 Lafayette Road Development

Figure 7



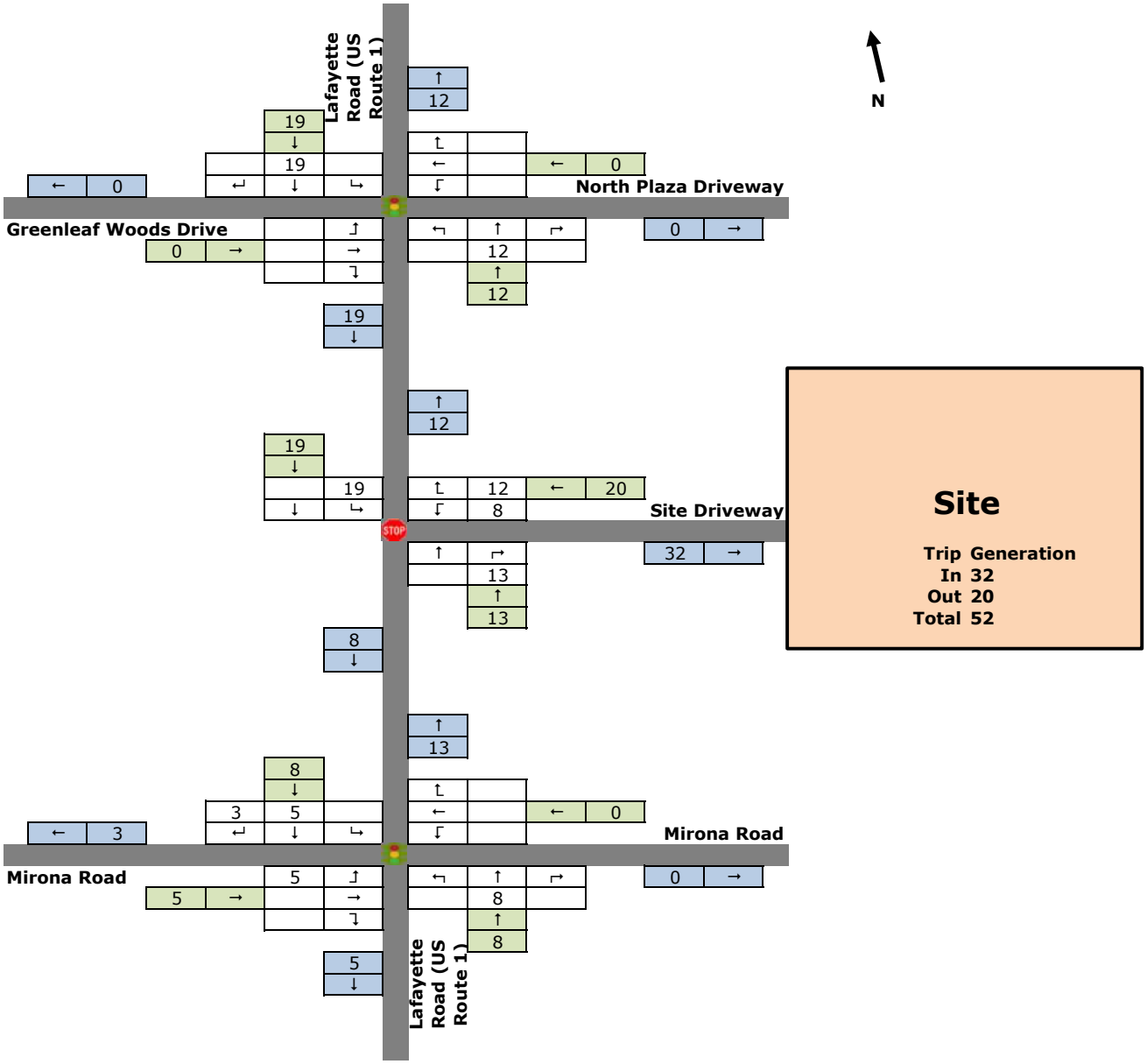
Trip Distribution Traffic Volumes
815 Lafayette Road Development

Figure 8



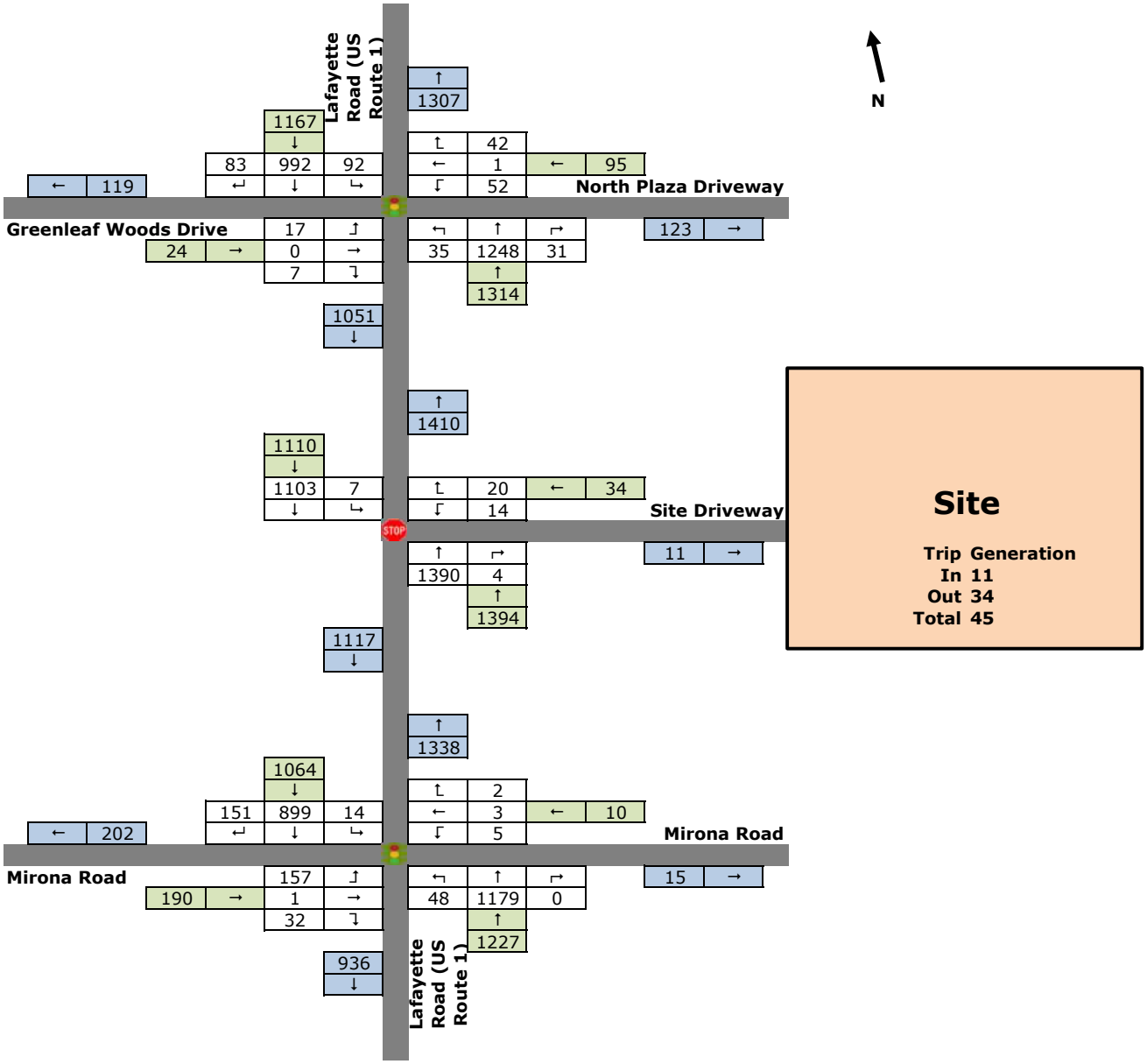
Site Generated Traffic Volumes
Weekday AM Peak
815 Lafayette Road Development

Figure 9



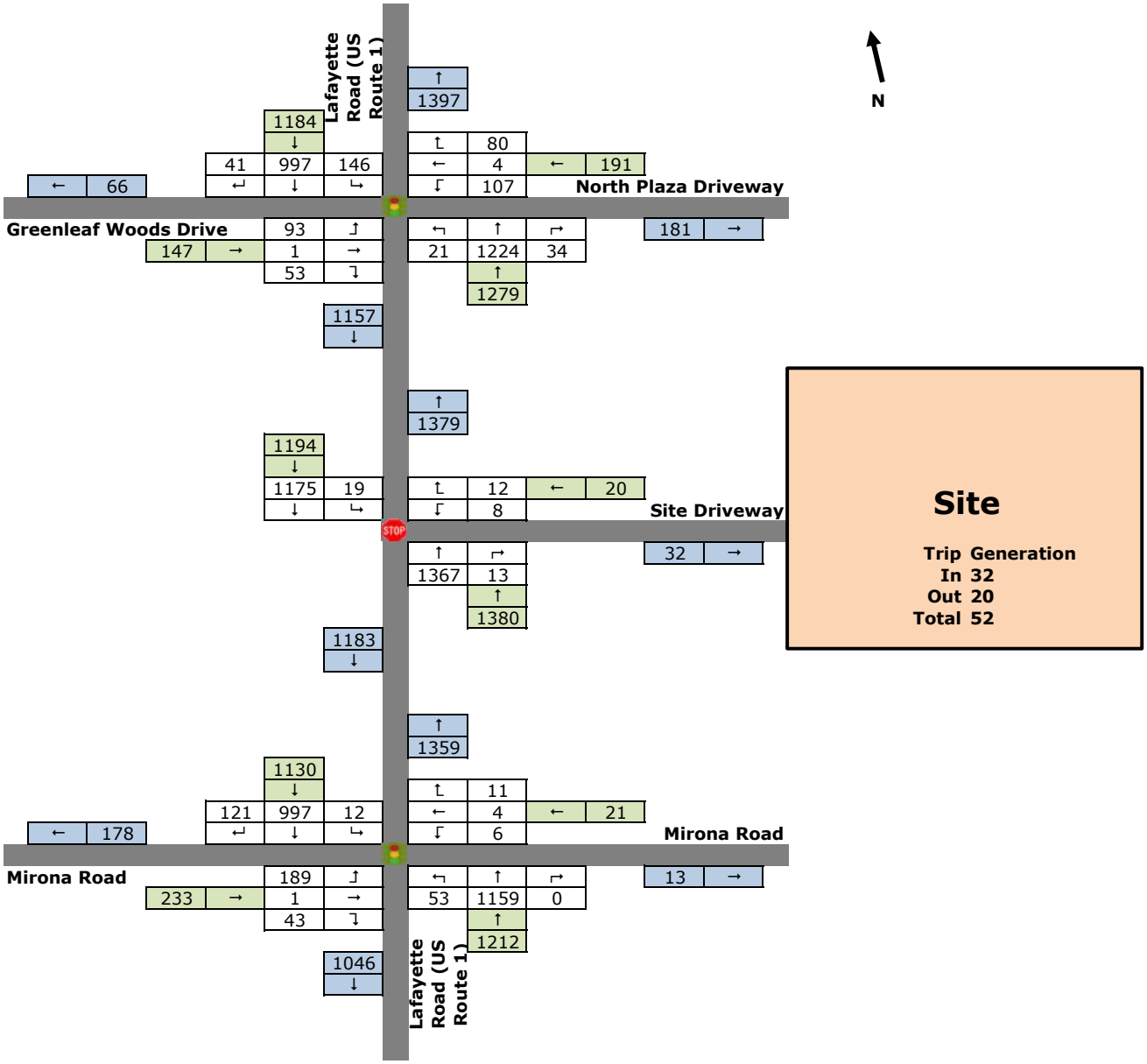
Site Generated Traffic Volumes
Weekday PM Peak
815 Lafayette Road Development

Figure 10



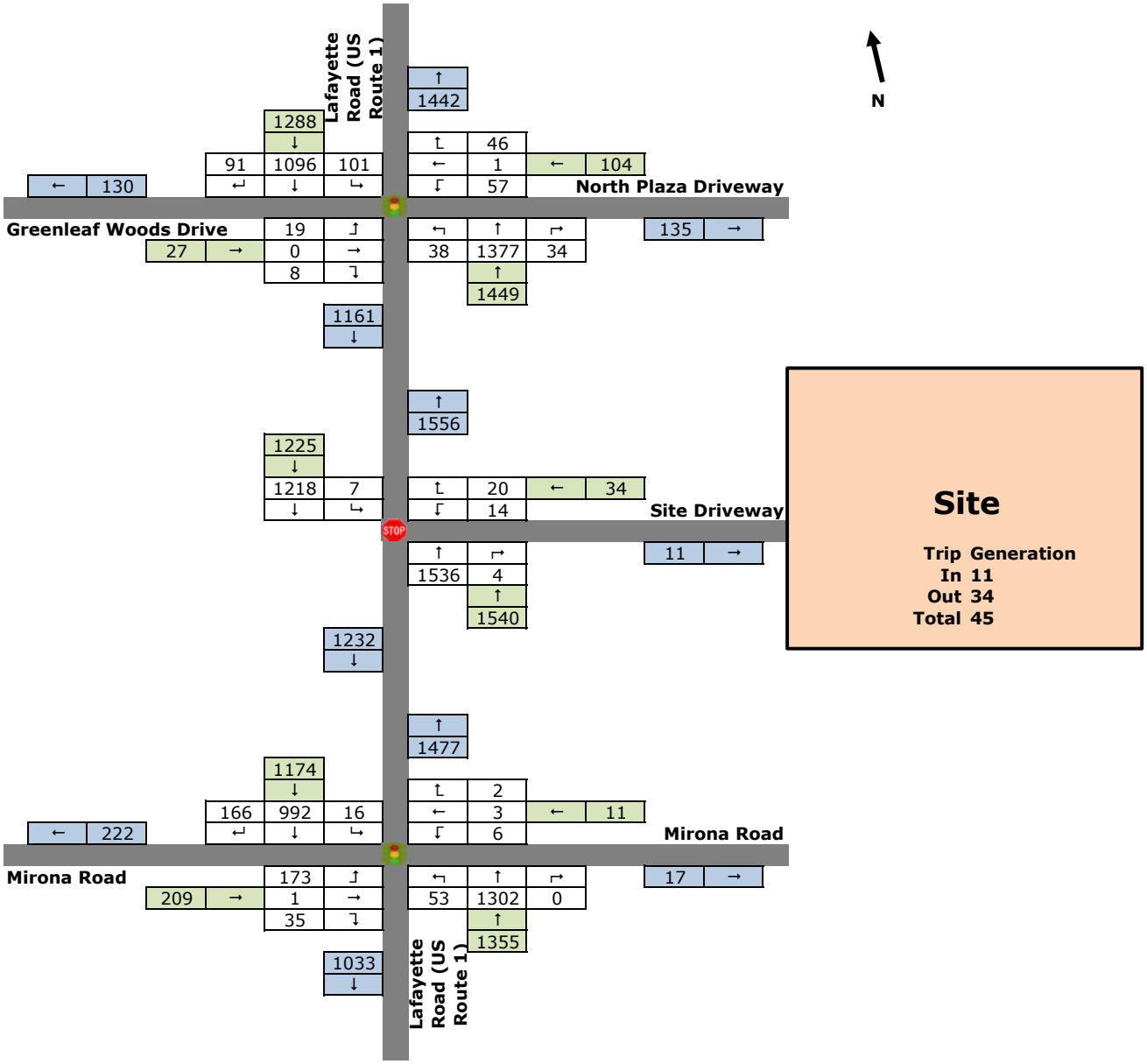
2025 Build Condition Traffic Volumes
Weekday AM Peak
815 Lafayette Road Development

Figure 11



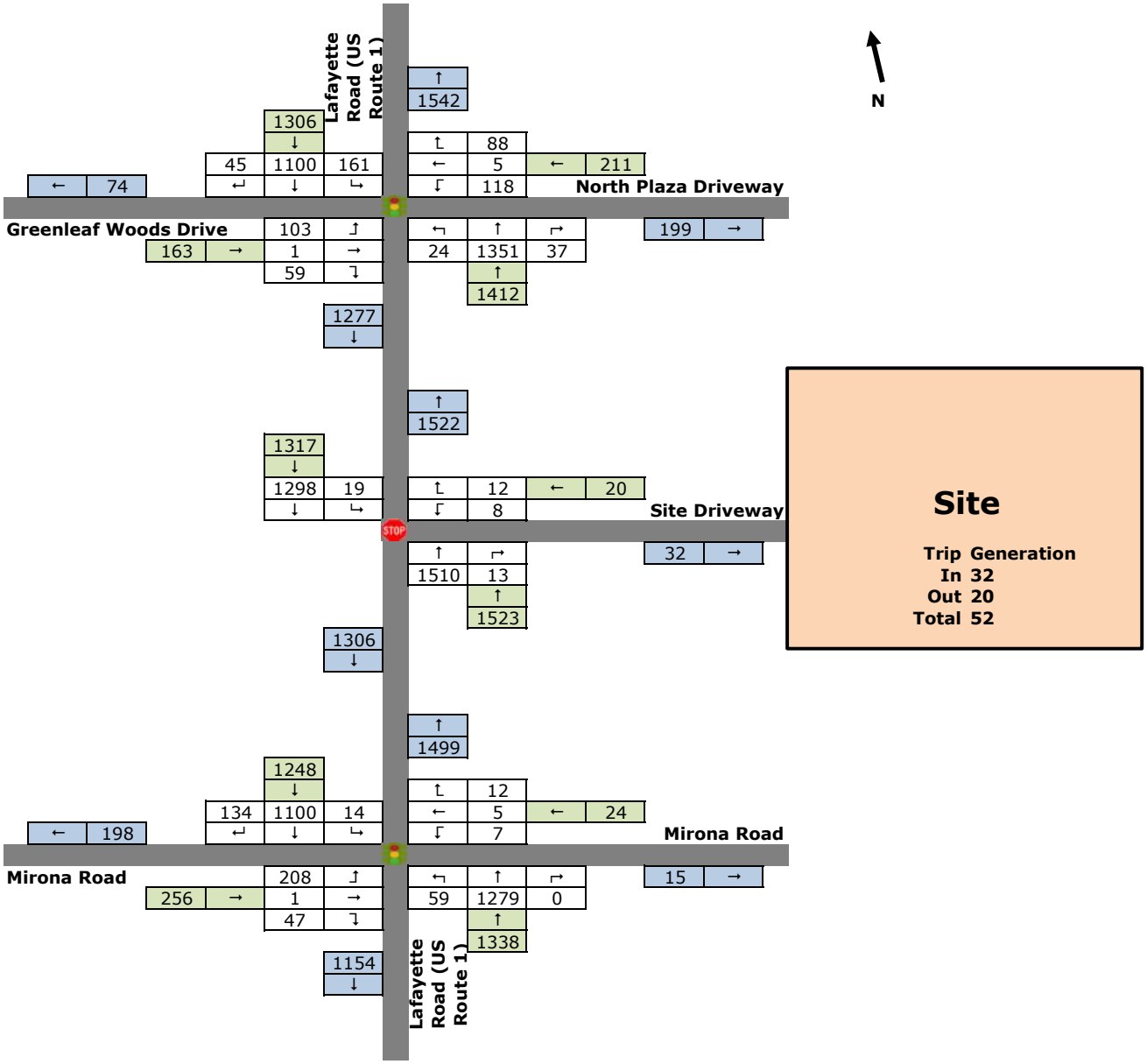
2025 Build Condition Traffic Volumes
Weekday PM Peak
815 Lafayette Road Development

Figure 12



2035 Build Condition Traffic Volumes
Weekday AM Peak
815 Lafayette Road Development

Figure 13



2035 Build Condition Traffic Volumes
Weekday PM Peak
815 Lafayette Road Development

Figure 14

APPENDIX A

Traffic Count Data

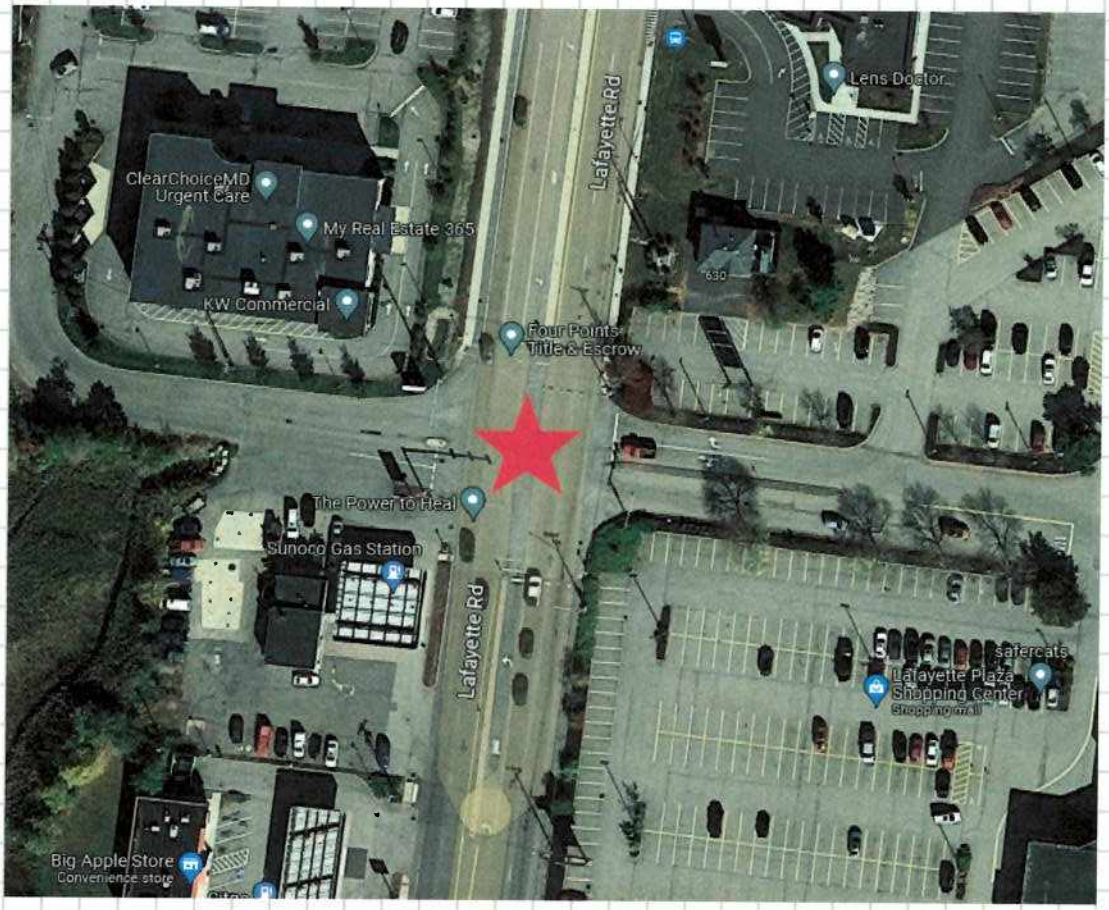
CALCULATION SHEET

Stephen G. Pernaw & Company, Inc.

Project:	VAI - Portsmouth	Job Number:	2268A
Calculated By:		Date:	
Checked By:		Date:	
Sheet No:		Of.	
Subject:	TMC Data - Intersection 1		

US1 - Lafayette Plaza North Driveway / Greenleaf Woods

Thursday May 25, (7:00 - 9:00 AM & 3:00 - 6:00 PM)

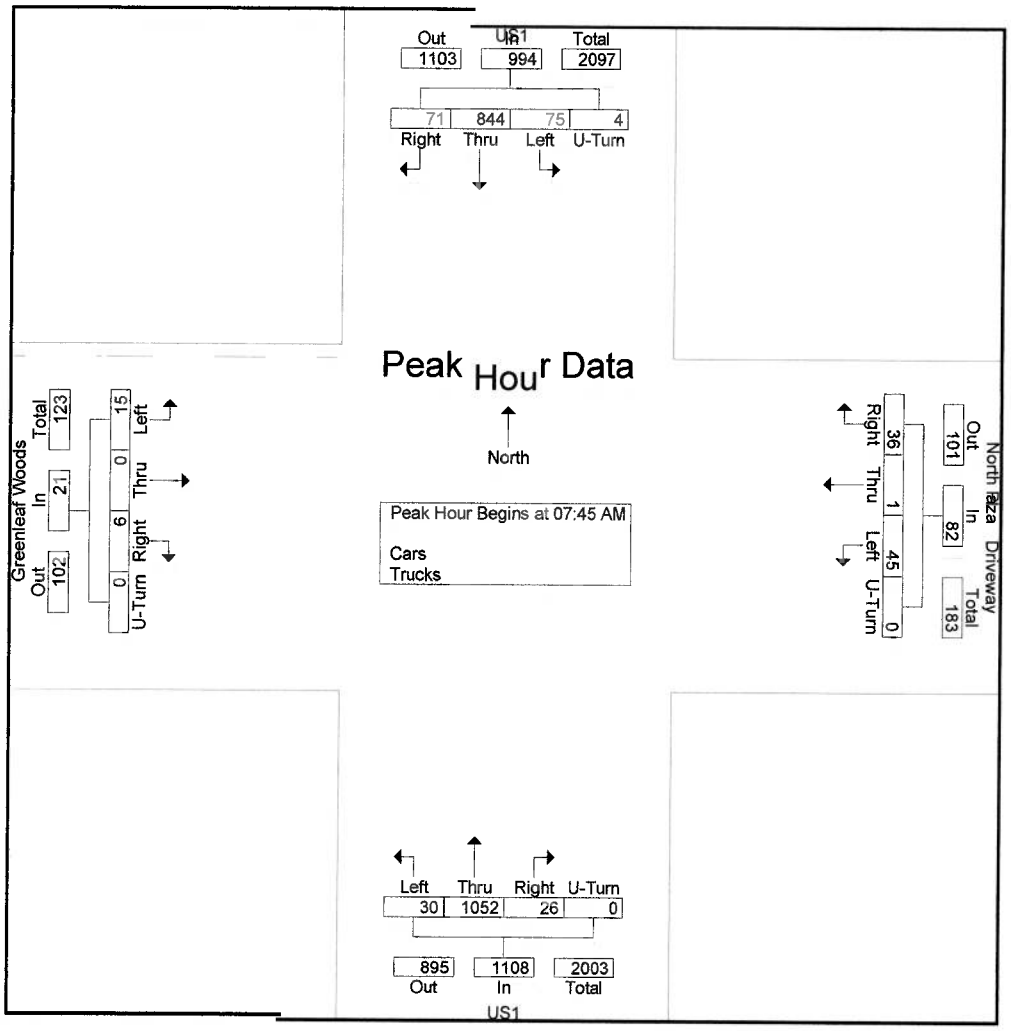


Stephen G. Pernaw & Company, Inc.

P.O. Box 1721
Concord, New Hampshire 03302

File Name : 2268A_N_Plaza_1073869_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 2

	US1 From North					North Plaza Driveway From East					US1 From South					Greenleaf Woods From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07.00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	15	**217**	14	1	247	9	0	7	0	16	3	249	6	0	258	1	0	0	0	1	522
08:00 AM	11	201	15	**2**	229	10	0	11	0	21	7	**318**	8	0	**333**	1	0	**9**	0	**10**	593
08:15 AM	**25**	217	**24**	0	**266**	6	**1**	**16**	0	**23**	6	289	**10**	0	305	**2**	0	2	0	4	**598**
08:30 AM	20	209	22	1	252	**11**				22	**10**	196	6	0	212	2	0	4	0		
Total Volume	71	844	75	4			0	11	0	82	26	1052	30	0	1108	6				6	492
% App. Total	7.1	84.9	7.5	0.4	994	36	1	45	0		2.3	94.9	2.7	0		28.6	0	71.4	0	21	2205
PHF	.710	.972	.781	.500	.934	.818								.000	.832	.750	.000	.417	.000		
							.250	.703	.000	.891	.650	.827	.750							.525	.922



Stephen G. Pernaw & Company, Inc.

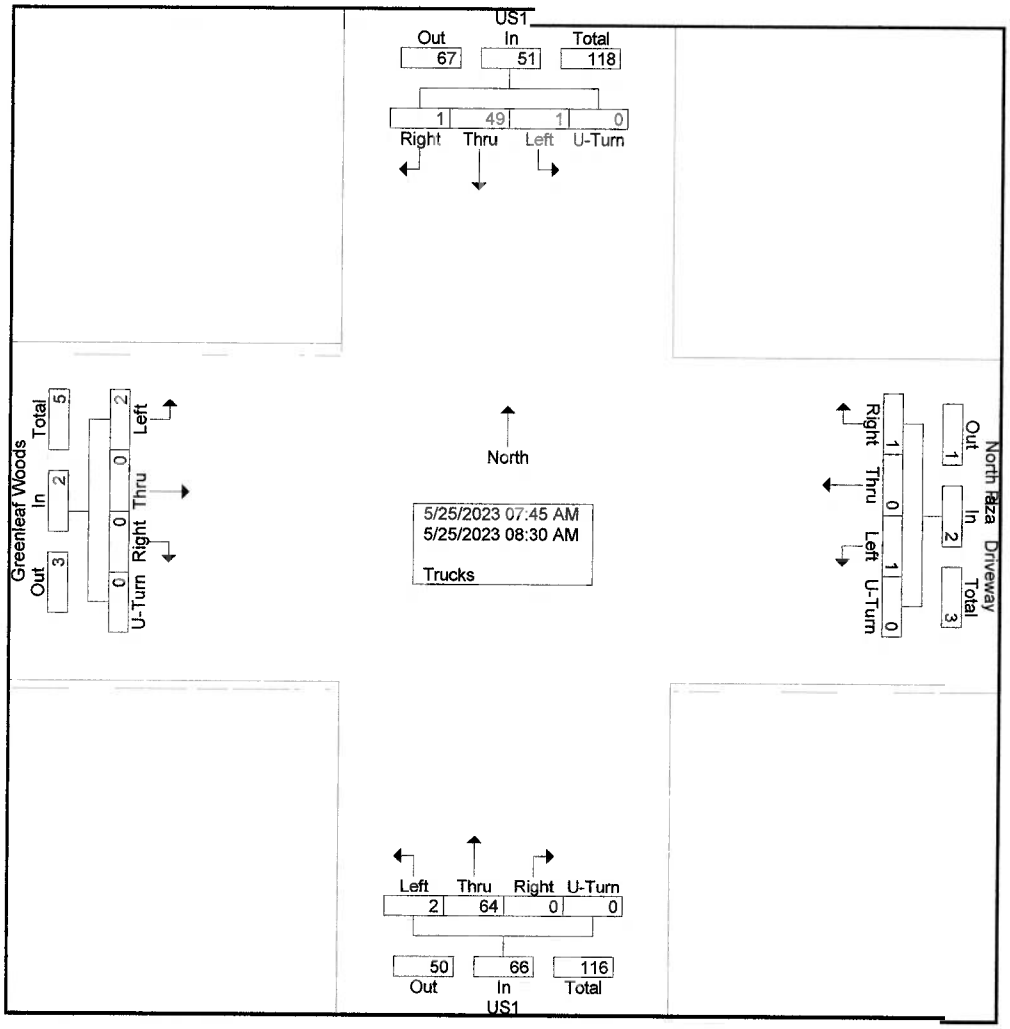
P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Nu . 2268A
Town/State: Portsmouth, New Hampshire

File Name : 2268A_N_Plaza_1073869_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No . 1

Grou Printed- Trucks

	US1 From North					North Plaza Driveway From East					US1 From South					reenleaf Woods m West					
Start Time	Right	Thru	Left	U-Turn	App. Total	ght	Thru	Left	U-Turn	Total	Ri ht	Thru		U-Turn	App. Total	Right	ru	Left	Turn	App. Total	Int. Total
07:45 AM	0	13				Ri			0	App 1	9 0	17	Left				Th		U-		32
Total	0	13	0	0	13	1	0	0	0	1	0	17	1	0	18	0	0	0	0	0	2
			0	0	13	1	0	0								0	0	0	0	0	3
08:00 AM	0	12	1	0	13	0	0	0	0	0	0	15	0	0	15	0	0	1	0	1	29
08:15 AM	0	12	0	0	12	0	0	1	0	1	0	19	1	0	20	0	0	0	0	0	33
08:30 AM	1	12	0	0	13	0	0	0	0	0	0	13	0	0	13	0	0	1	0	1	27
Grand Total	1	49	1	0	51	1	0	1	0	2	0	64	2	0	66	0	0	2	0	2	121
Apprch %	2	96.1	2	0		50	0	50	0		0	97	3	0		0	0	100	0		
Total %	0.8	40.5	0.8	0	42.1	0.8	0	0.8	0	1.7	0	52.9	1.7	0	54.5	0	0	1.7	0	1.7	



Stephen G. Pernaw & Company, Inc.

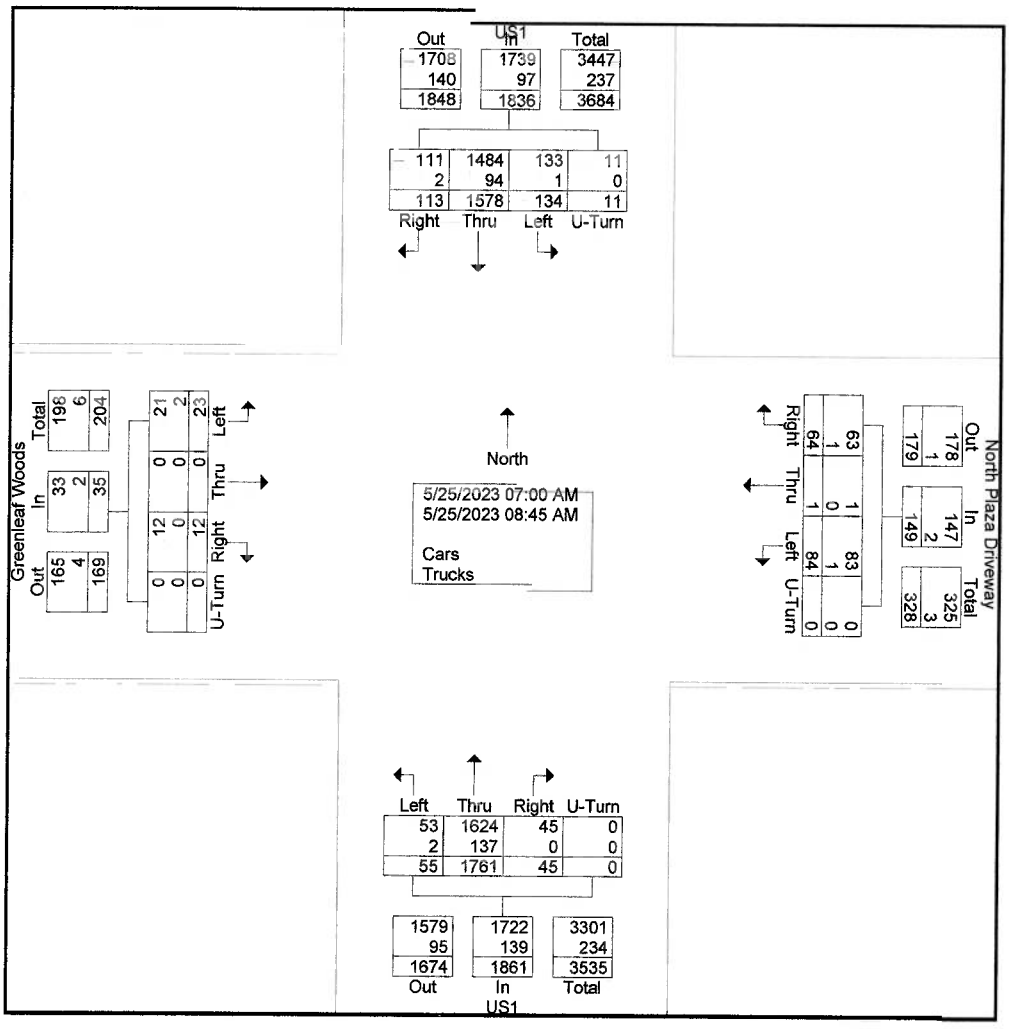
P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Number: 2268A
Town/State: Portsmouth, New Hampshire

File Name : 2268A_N_Plaza_1073869_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 1

s Printed- Cars - Trucks

Start Time	From North US1					From East North Plaza Driveway					From South US1					From West Greenleaf Woods					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
07:00 AM	10	170	13	3	196	10	0	4	0	14	2	138	2	0	142	2	0	1	0	3	354
07:15 AM	6	160	18	4	188	10	0	8	0	18	2	155	5	0	162	1	0	2	0	3	368
07:30 AM	10	196	6	2	214	5	0	12	0	17	5	203	8	0	216	1	0	1	0	2	449
07:45 AM	15	217	14	1	247	9	0	7	0	16	3	249	6	0	258	1	0	0	0	1	522
Total	41	743	51	7	842	30	0	35	0	65	12	745	20	0	777	5	0	4	0	9	1693
08:00 AM	11	201	15	2	229	10	0	11	0	21	7	318	8	0	333	1	0	9	0	10	593
08:15 AM	25	217	24	0	266	6	1	16	0	23	6	289	10	0	305	2	0	2	0	4	598
08:30 AM	20	209	22	1	252	11	0	11	0	22	10	196	6	0	212	2	0	4	0	6	492
08:45 AM	16	208	22	1	247	7	0	11	0	18	10	213	11	0	234	2	0	4	0	6	505
Total	72	835	83	4	994	34	1	49	0	84	33	1016	35	0	1084	7	0	19	0	26	2188
Grand Total	113	1578	134	11	1836	64	1	84	0	149	45	1761	55	0	1861	12	0	23	0	35	3881
Apprch %	6.2	85.9	7.3	0.6		43	0.7	56.4	0		2.4	94.6	3	0		34.3	0	65.7	0		
Total %	2.9	40.7	3.5	0.3	47.3	1.6	0	2.2	0	3.8	1.2	45 4	1.4	0	48	0.3	0	0.6	0	0.9	
Cars	111	1484	133	11	1739	63	1	83	0	147	45	1624	53	0	1722	12	0	21	0	33	3641
% Cars	98.2	94	99.3	100	94.7	98.4	100	98.8	0	98.7	100	92.2	96.4	0	92.5	100	0	91.3	0	94.3	93.8
Trucks	2	94	1	0	97	1	0	1	0	2	0	137	2	0	139	0	0	2	0	2	240
% Trucks	1.8	6	0.7	0	5.3	1.6	0	1.2	0	1.3	0	7.8	3.6	0	7.5	0	0	8.7	0	5.7	6.2



Stephen G. Pernaw & Company, Inc.

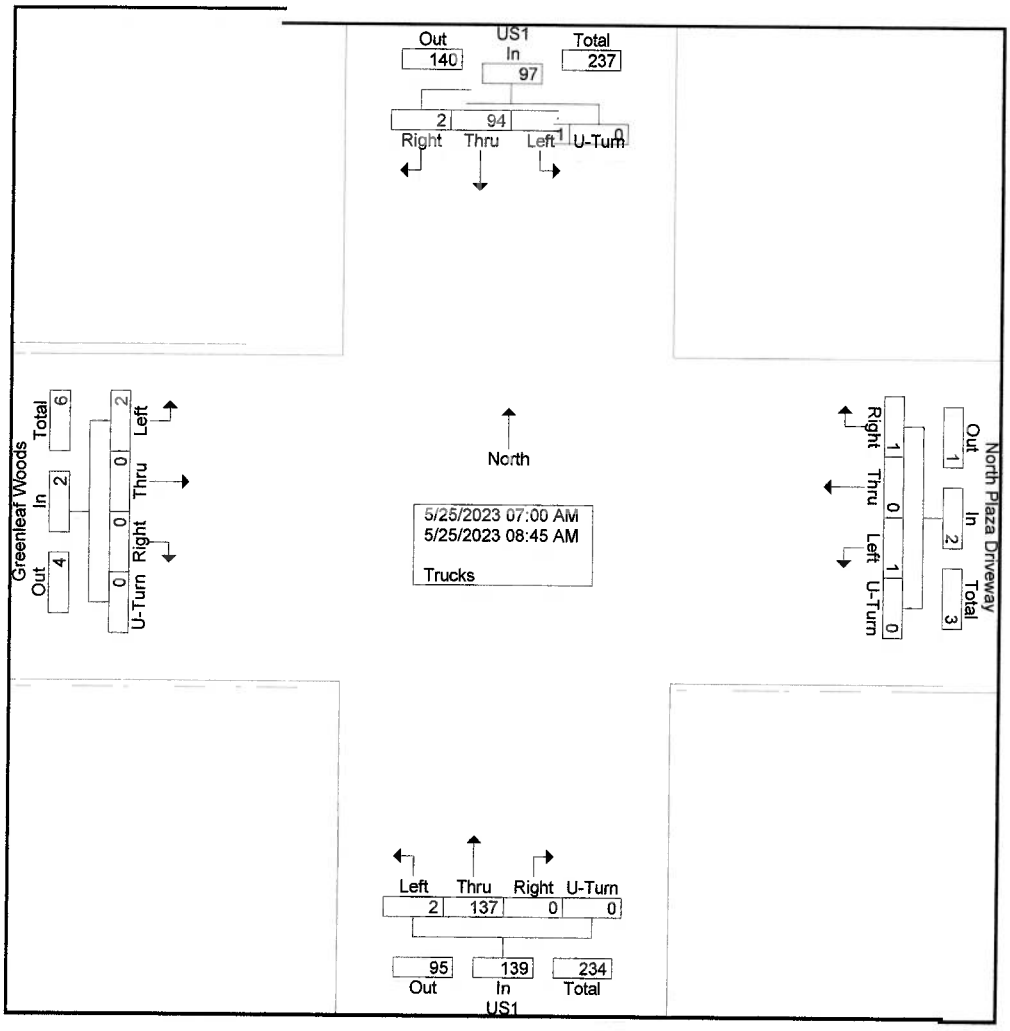
P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Number: 2268A
Town/State: Portsmouth, New Hampshire

File Name : 2268A_N_Plaza_1073869_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 1

Groups Printed- Trucks

	US1 From North					North Plaza Driveway From East					US1 From South					Greenleaf Woods From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:00 AM	0	9	0	0	9	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	23
07:15 AM	0	6	0	0	6	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	20
07:30 AM	0	17	0	0	17	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	41
07:45 AM	0	13	0	0	13	1	0	0	0	1	0	17	1	0	18	0	0	0			32
Total	0	45	0	0	45	1	0	0	0	1	0	69	1	0	70	0			0	0	
																0	0	0	0	0	116
08:00 AM	0	12	1	0	13	0	0	0	0	0	0	15	0	0	15	0	0	1	0	1	29
08:15 AM	0	12	0	0	12	0	0	1	0	1	0	19	1	0	20	0	0	0	0	0	33
08:30 AM	1	12	0	0	13	0	0	0	0	0	0	13	0	0	13	0	0	1	0	1	27
08:45 AM	1	13	0	0	14	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	35
Total	2	49	1	0	52	0	0	1	0	1	0	68	1	0	69	0	0	2	0	2	124
Grand Total	2	94	1	0	97	1	0	1	0	2	0	137	2	0	139	0	0	2	0	2	240
Apprch %	2.1	96.9	1	0		50	0	50	0		0	98.6	1.4	0		0	0	100	0		
Total %	0.8	39.2	0.4	0	40.4	0.4	0	0.4	0	0.8	0	57.1	0.8	0	57.9	0	0	0.8	0	0.8	

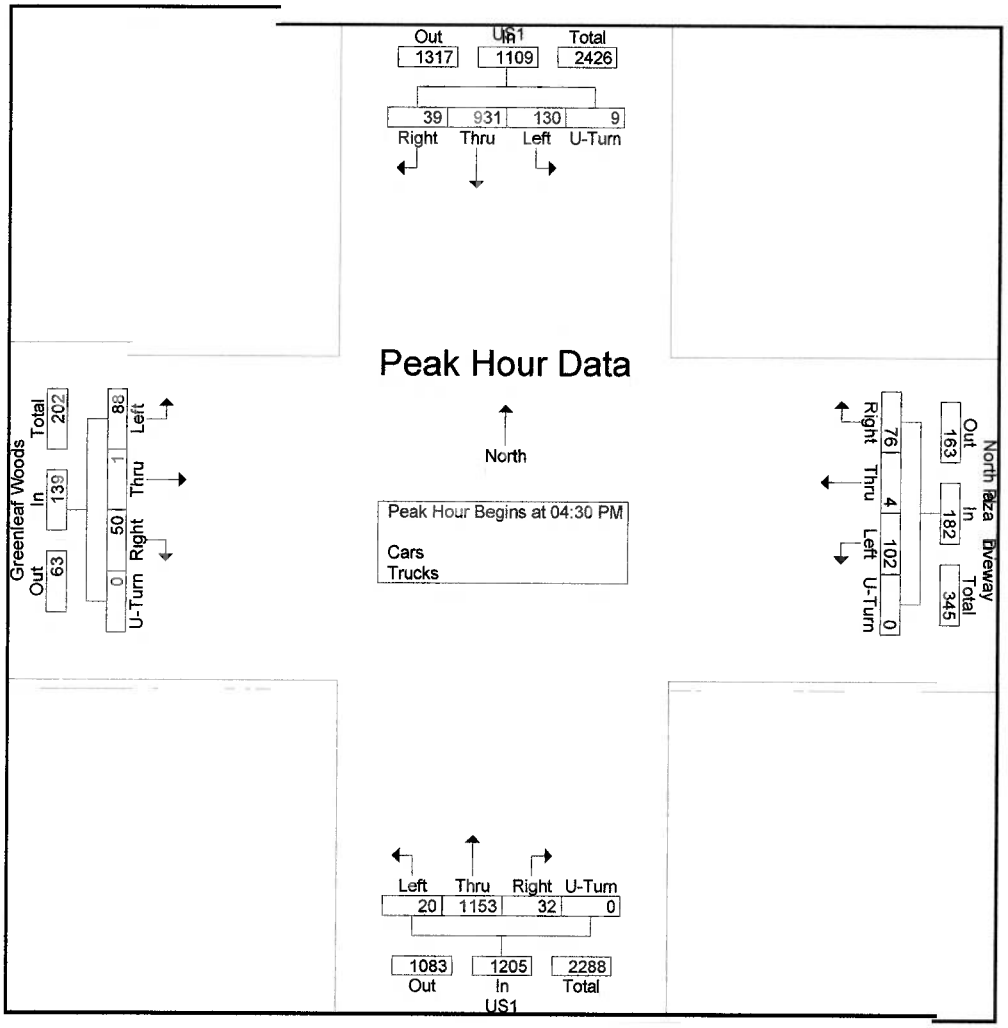


Stephen G. Pernaw & Company, Inc.

P.O. Box 1721
Concord, New Hampshire 03302

File Name : 2268A_N_Plaza_1073872_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 3

	US1 From North					North Plaza Driveway From East					US1 From South					Greenleaf Woods From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	7	224	32	3	266	17	0	27	0	44	2	278	5	0	285	**16**	0	21	0	37	632
04.45 PM	8	**276**	**37**	**4**	**325**	15	0	12	0	27	9	245	3	0	257	12	0	20	0	32	641
05:00 PM	9	211	35	1	256	**22**	1	**40**	0	**63**	7	313	**6**	0	326	13	**1**	**32**	0	**46**	**691**
05:15 PM	**15**	220	26	1				23	0	48	**14**	**317**	6	0	**337**	9	0	15	0	24	1
Total Volume	39	931	130	9	262	22	2	1	0	182	32	1153	20	0	1205	50	1				67
% App. Total	3.5	83.9	11.7	0.8	1109	41.8	2.2	56	0		2.7	95.7	1.7	0		36	0.7	63.9	0	139	2635
PHF	.650	.843											.833	.000	.894	.781	.250	.688	.000	.755	
			.878	.563	.853	.864	.333	.638	.000	.722	.571	.909									.953



Stephen G. Pernaw & Company, Inc.

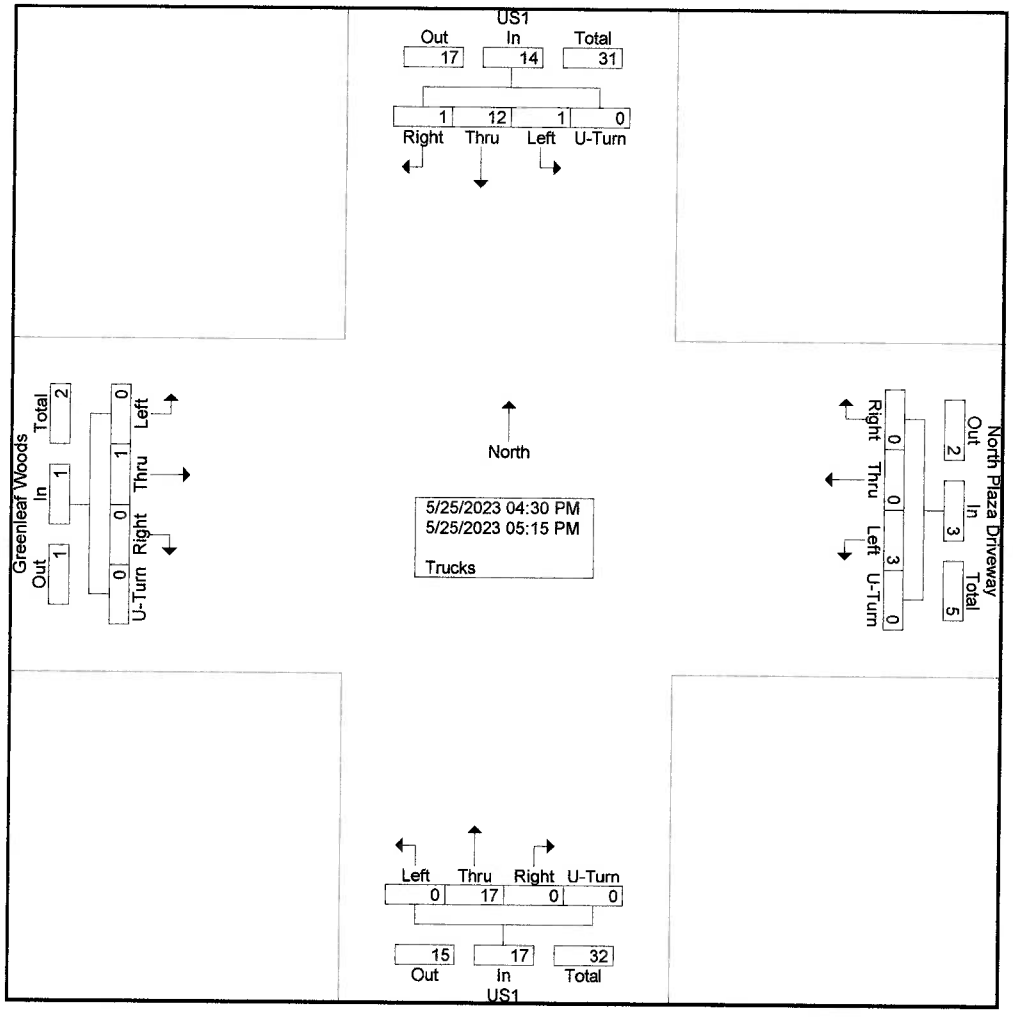
P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Number: 2268A
Town/State: Portsmouth, New Hampshire

File Name : 2268A_N_Plaza_1073872_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 1

Groups Printed- Trucks

	US1 From North					North Plaza Driveway From East					US1 From South					Greenleaf Woods From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
04:30 PM	0	4	1	0	5	0	0	1	0	1	0	6	0	0	6	0	0	0	0	0	12
04:45 PM	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	7
Total	0	7	1	0	8	0	0	1	0	1	0	10	0	0	10	0	0	0	0	0	19
05:00 PM	1	3	0	0	4	0	0	2	0	2	0	2	0	0	2	0	1	0	0	1	9
05:15 PM	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	7
Grand Total	1	12	1	0	14	0	0	3	0	3	0	17	0	0	17	0	1	0	0	1	35
Apprch %	7.1	85.7	7.1	0		0	0	100	0		0	100	0	0		0	100	0	0		
Total %	2.9	34.3	2.9	0	40	0	0	8.6	0	8.6	0	48.6	0	0	48.6	0	2.9	0	0	2.9	



Stephen G. Pernaw & Company, Inc.

P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Number: 2268A
Town/State: Portsmouth, New Hampshire

File Name : 2268A_N_Plaza_1073872_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 1

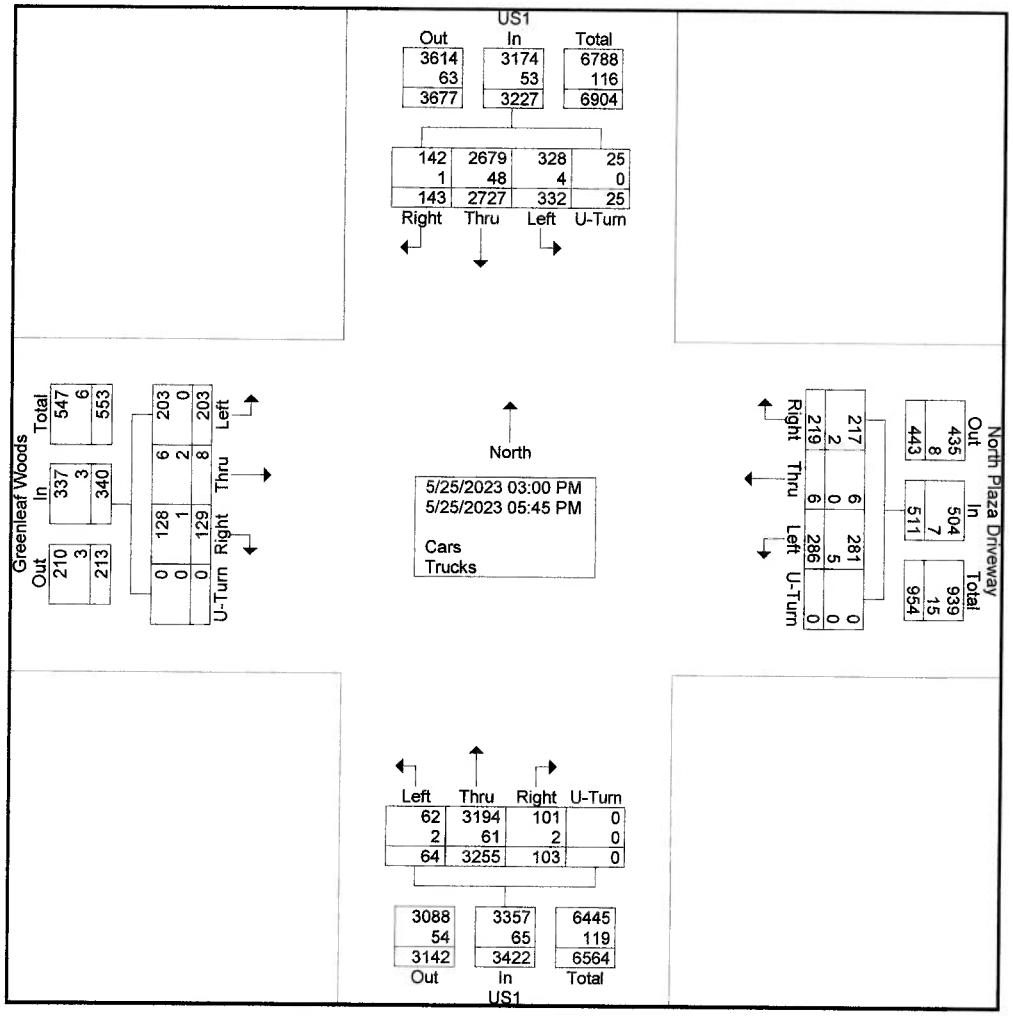
Groups Printed- Cars - Trucks

	US1 From North					North Plaza Driveway From East					US1 From South					Greenleaf Woods From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
03:00 PM	17	220	25	0	262	19	0	19	0	38	5	278	3	0	286	14	1	18	0	33	619
03:15 PM	8	230	20	1	259	18	1	39	0	58	11	275	8	0	294	8	0	2	0	10	621
03:30 PM	27	224	22	4	277	14	0	22	0	36	5	247	10	0	262	15	0	15	0	30	605
03:45 PM	15	246	22	1	284	13	0	15	0	28	11	238	6	0	255	8	3	20	0	31	598
Total	67	920	89	6	1082	64	1	95	0	160	32	1038	27	0	1097	45	4	55	0	104	2443
04:00 PM	22	222	27	3	274	27	0	29	0	56	9	264	7	0	280	10	2	24	0	36	646
04:15 PM	11	260	27	4	302	18	1	13	0	32	7	275	3	0	285	14	0	15	0	29	648
04:30 PM	7	224	32	3	266	17	0	27	0	44	2	278	5	0	285	16	0	21	0	37	632
04:45 PM	8	276	37	4	325	15	0	12	0	27	9	245	3	0	257	12	0	20	0	32	641
Total	48	982	123	14	1167	77	1	81	0	159	27	1062	18	0	1107	52	2	80	0	134	2567
05:00 PM	9	211	35	1	256	22	1	40	0	63	7	313	6	0	326	13	1	32	0	46	691
05:15 PM	15	220	26	1	262	22	3	23	0	48	14	317	6	0	337	9	0	15	0	24	671
05:30 PM	1	204	27	1	233	18	0	23	0	41	13	288	0	0	301	7	1	12	0	20	595
05:45 PM	3	190	32	2	227	16	0	24	0	40	10	237	7	0	254	3	0	9	0	12	533
Total	28	825	120	5	978	78	4	110	0	192	44	1155	19	0	1218	32	2	68	0	102	2490
Grand Total	143	2727	332	25	3227	219	6	286	0	511	103	3255	64	0	3422	129	8	203	0	340	7500
Apprch %	4.4	84.5	10.3	0.8		42.9	1.2	56	0		3	95.1	1.9	0		37.9	2.4	59.7	0		
Total %	1.9	36.4	4.4	0.3	43	2.9	0.1	3.8	0	6.8	1.4	43.4	0.9	0	45.6	1.7	0.1	2.7	0	4.5	
Cars	142	2679	328	25	3174	217	6	281	0	504	101	3194	62	0	3357	128	6	203	0	337	7372
% Cars	99.3	98.2	98.8	100	98.4	99.1	100	98.3	0	98.6	98.1	98.1	96.9	0	98.1	99.2	75	100	0	99.1	98.3
Trucks	1	48	4	0	53	2	0	5	0	7	2	61	2	0	65	1	2	0	0	3	128
% Trucks	0.7	1.8	1.2	0	1.6	0.9	0	1.7	0	1.4	1.9	1.9	3.1	0	1.9	0.8	25	0	0	0.9	1.7

Stephen G. Pernaw & Company, Inc.

P.O. Box 1721
Concord, New Hampshire 03302

File Name : 2268A_N_Plaza_1073872_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 2



Stephen G. Pernaw & Company, Inc.

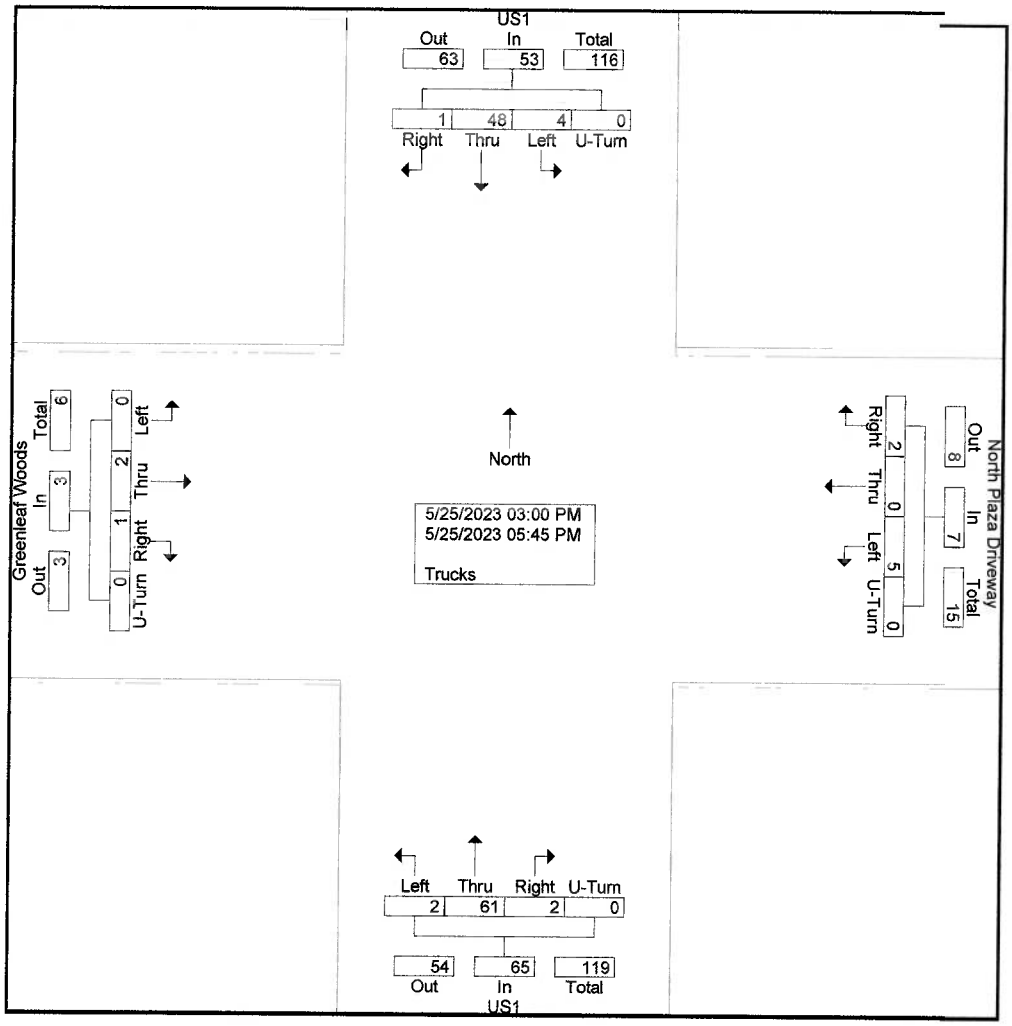
P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Number: 2268A
Town/State: Portsmouth, New Hampshire

File Name : 2268A_N_Plaza_1073872_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 1

Groups Printed- Trucks

	US1 From North					North Plaza Driveway From East					US1 From South					Greenleaf Woods From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
03:00 PM	0	4	1	0	5	1	0	1	0	2	0	9	0	0	9	0	0	0	0	0	16
03:15 PM	0	8	0	0	8	0	0	1	0	1	1	10	0	0	11	0	0	0	0	0	20
03:30 PM	0	10	0	0	10	0	0	0	0	0	0	4	2	0	6	1	0	0	0	1	17
03:45 PM	0	6	1	0	7	1	0	0	0	1	0	11	0	0	11	0	1			1	20
Total	0	28	2	0	30	2	0	2	0	4	1	34	2	0	37			0	0	2	73
																1	1	0	0		
04:00 PM	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	9
04:15 PM	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5
04:30 PM	0	4	1	0	5	0	0	1	0	1	0	6	0	0	6	0	0	0	0	0	12
04:45 PM	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	7
Total	0	13	2	0	15	0	0	1	0	1	0	17	0	0	17	0	0	0	0	0	33
05:00 PM	1	3	0	0	4	0	0	2	0	2	0	2	0	0	2	0	1	0	0	1	9
05:15 PM	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	7
05:30 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
05:45 PM	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	3
Total	1	7	0	0	8	0	0	2	0	2	1	10	0	0	11	0	1	0	0	1	22
Grand Total	1	48	4	0	53	2	0	5	0	7	2	61	2	0	65	1	2	0	0	3	128
Apprch %	1 9	90.6	7.5	0		28.6	0	71.4	0		3.1	93.8	3.1	0		33.3	66.7	0	0		
Total %	0:8	37.5	3.1	0	41 4	1.6	0	3.9	0	5.5	1.6	47.7	1.6	0	50.8	0.8	1.6	0	0	2.3	



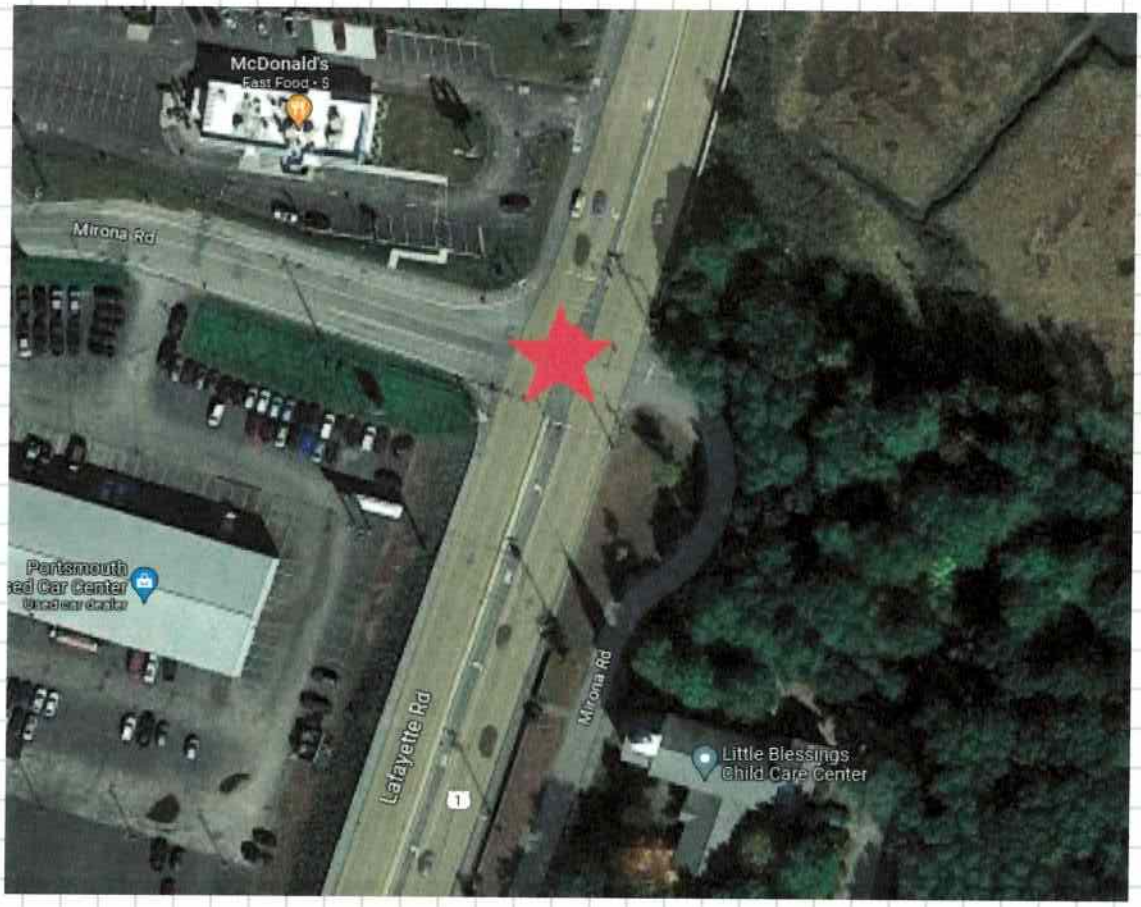
CALCULATION SHEET

Stephen G. Pernaw & Company, Inc.

Project:	VAI - Portsmouth	Job Number:	2268A
Calculated By:		Date:	
Checked By:		Date:	
Sheet No:		Of:	
Subject:	TMC Data - Intersection 3		

US1 - Mirona Road

Thursday, May 25, (7:00 - 9:00 AM & 3:00 - 6:00 PM)

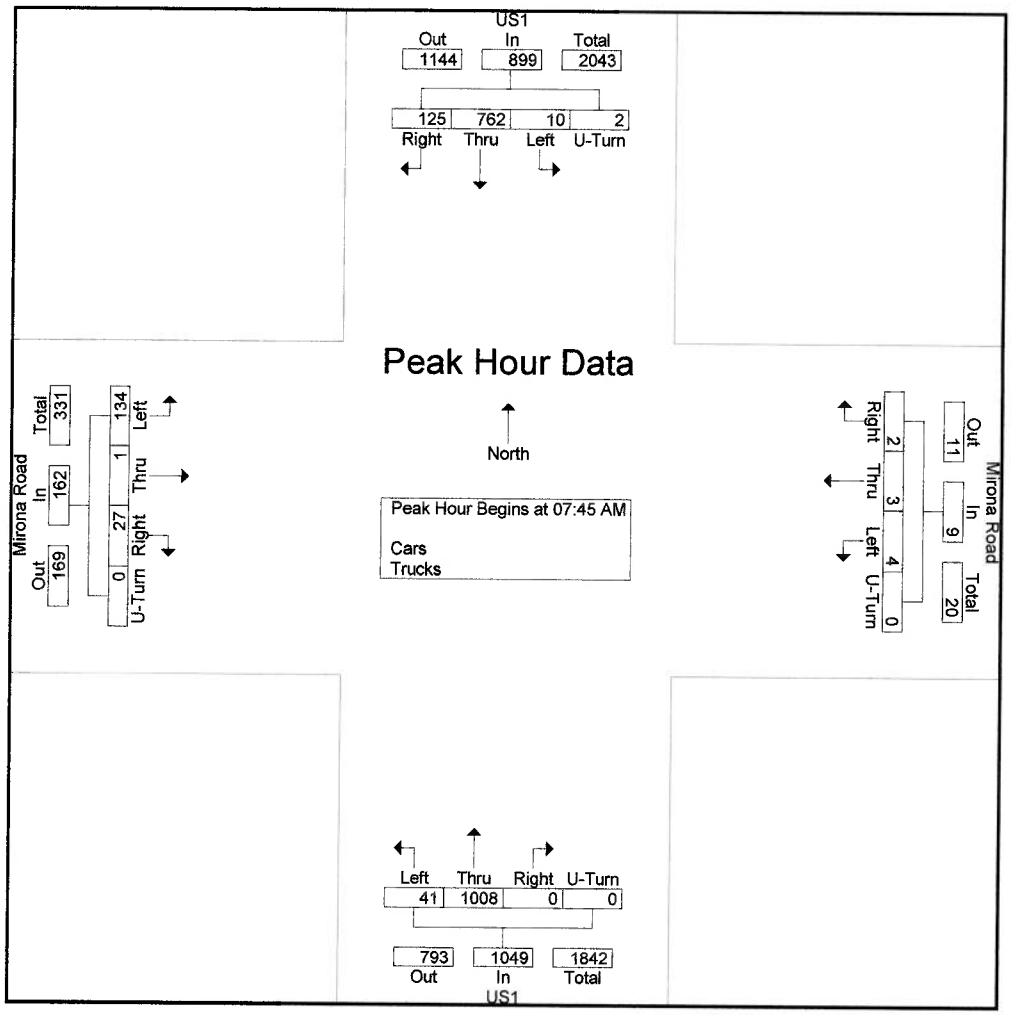


Stephen G. Pernaw & Company, Inc.

P.O. Box 1721
Concord, New Hampshire 03302

File Name : 2268A_Mirona_1073884_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 2

	US1 From North					Mirona Road From East					US1 From South					Mirona Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	**40**	188	**3**	**1**	232	0	0	0	0	0	0	249	9	0	258	2	0	33	0	35	525
08:00 AM	29	172	2	0	203	0	**2**	1	0	3	0	**297**	**15**	0	**312**	**9**	**1**	**41**	0	**51**	**569**
08:15 AM	26	**213**	3	0	**242**	**1**	0	1	0	2	0	266	11	0	277	9	0	38	0	47	568
08:30 AM	30	189	2	1	222	1	1	**2**	0	**4**	0	196	6	0	202	7	0	22	0	29	457
Total Volume	125	762	10	2	899	2	3	4	0	9	0	1008	41	0	1049	27	1	134	0	162	2119
% App. Total	13.9	84.8	1.1	0.2		22.2	33.3	44.4	0		0	96.1	3.9	0		16.7	0.6	82.7	0		
PHF	.781	.894	.833	.500	.929	.500	.375	.500	.000	.563	.000	.848	.683	.000	.841	.750	.250	.817	.000	.794	.931



Stephen G. Pernaw & Company, Inc.

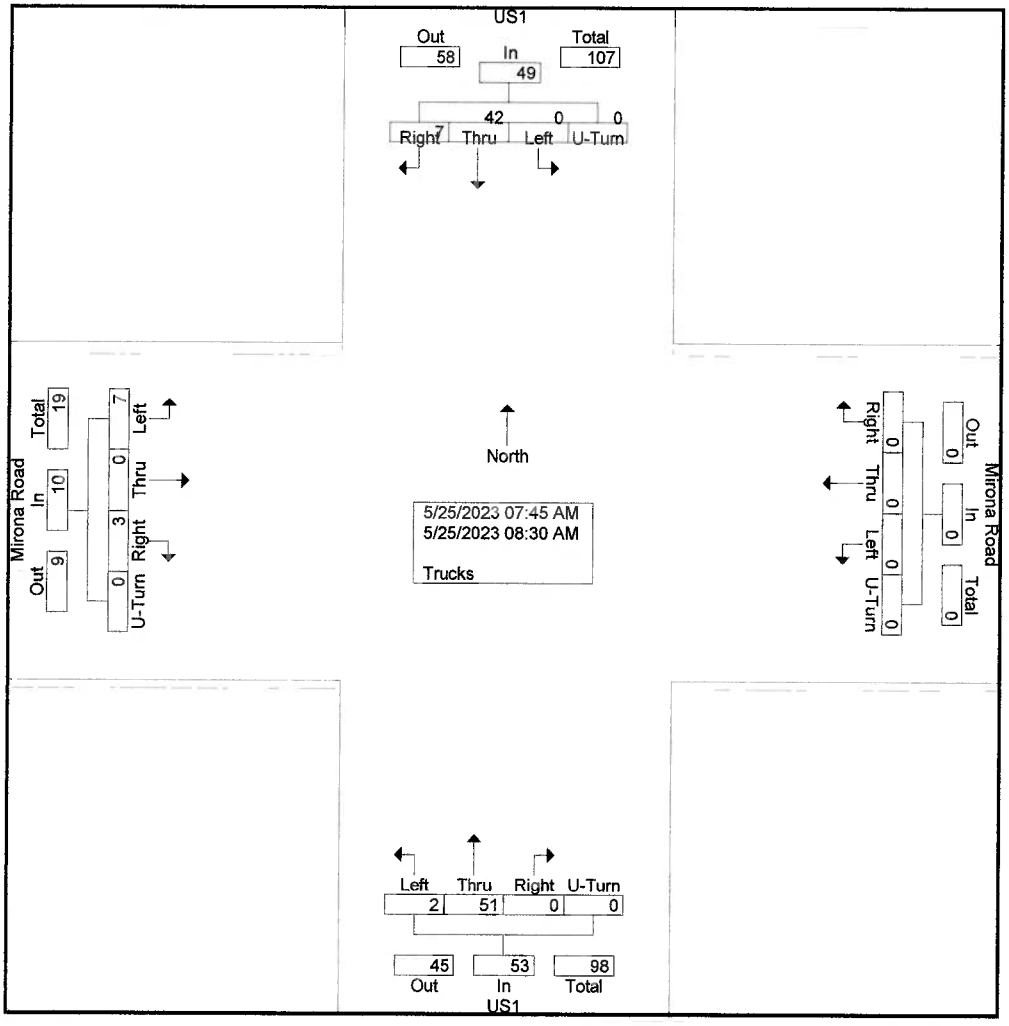
P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Number: 2268A
Town/State: Portsmouth, New Hampshire

File Name : 2268A_Mirona_1073884_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 1

Printed- Trucks Groups

Start Time	US1 From North					Mirona Road From East					US1 From South					Mirona Road From West					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:45 AM	0	16	0	0	16	0	0	0	0	0	0	14	0	0	14	1	0	1	0	2	32
Total	0	16	0	0	16											1	0	1	0	2	32
08:00 AM	3	9	0	0	12	0	0	0	0	0	0	12	2	0	14	1	0	2	0	3	29
08:15 AM	3	9	0	0	12	0	0	0	0	0	0	14	0	0	14	1	0	3	0	4	30
08:30 AM	1	8	0	0	9	0	0	0	0	0	0	11	0	0	11	0	0	1	0	1	21
Grand Total	7	42	0	0	49	0	0	0	0	0	0	51	2	0	53	3	0	7	0	10	112
Apprch %	14.3	85.7	0	0		0	0	0	0		0	96.2	3.8	0		30	0	70	0		
Total %	6.2	37.5	0	0	43.8	0	0	0	0	0	0	45.5	1.8	0	47.3	2.7	0	6.2	0	8.9	



Stephen G. Pernaw & Company, Inc.

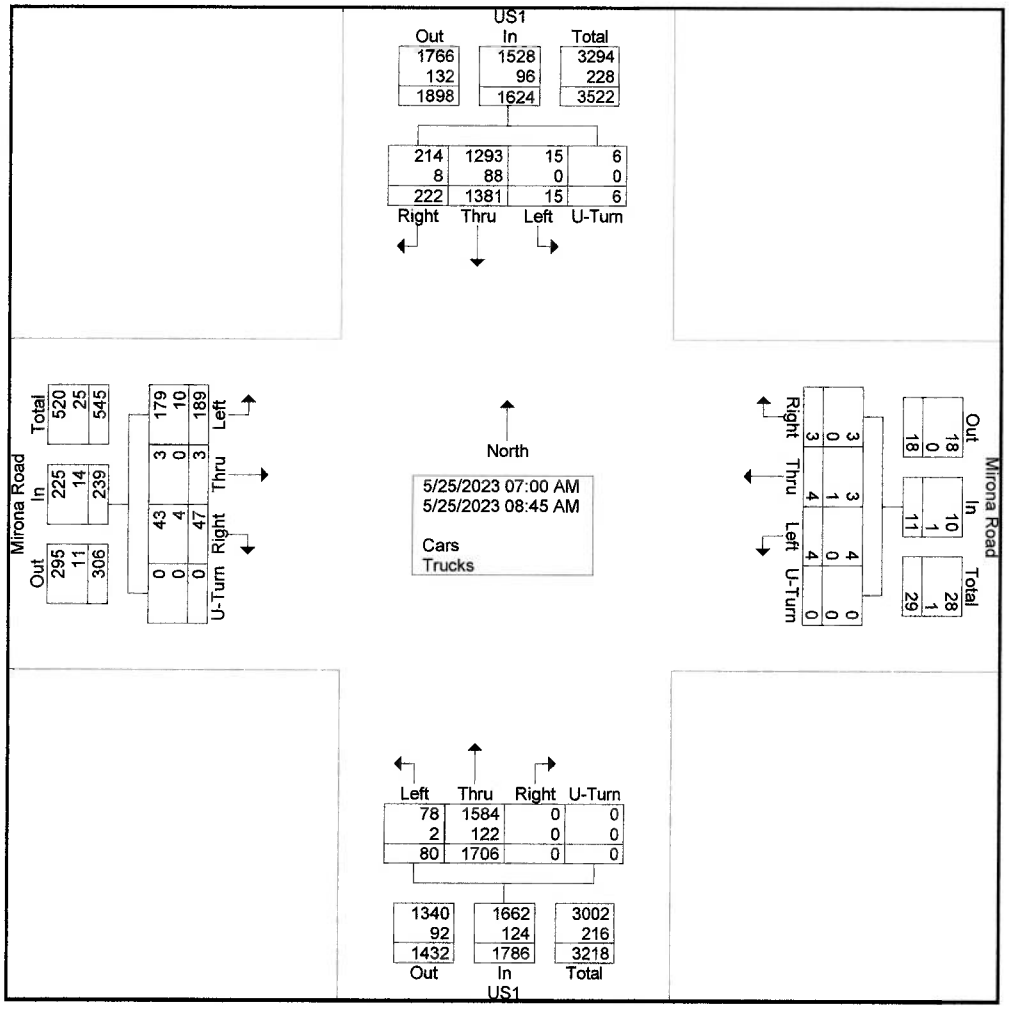
P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Number: 2268A
Town/State: Portsmouth, New Hampshire

File Name : 2268A_Mirona_1073884_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 1

Groups Printed- Cars - Trucks

	US1 From North					Mirona Road From East					US1 From South					Mirona Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:00 AM	23	130	2	1	156	1	0	0	0	1	0	134	12	0	146	2	0	7	0	9	312
07:15 AM	20	159	1	0	180	0	1	0	0	1	0	167	6	0	173	2	0	8	0	10	364
07:30 AM	35	149	1	3	188	0	0	0	0	0	0	188	13	0	201	7	1	19	0	27	416
07:45 AM	40	188	3	1	232	0	0	0	0	0	0	249	9	0	258	2	0	33	0	35	525
Total	118	626	7	5	756	1	1	0	0	2	0	738	40	0	778	13	1	67	0	81	1617
08:00 AM	29	172	2	0	203	0	2	1	0	3	0	297	15	0	312	9	1	41	0	51	569
08:15 AM	26	213	3	0	242	1	0	1	0	2	0	266	11	0	277	9	0	38	0	47	568
08:30 AM	30	189	2	1	222	1	1	2	0	4	0	196	6	0	202	7	0	22	0	29	457
08:45 AM	19	181	1	0	201	0	0	0	0	0	0	209	8	0	217	9	1	21	0	31	449
Total	104	755	8	1	868	2	3	4	0	9	0	968	40	0	1008	34	2	122	0	158	2043
Grand Total	222	1381	15	6	1624	3	4	4	0	11	0	1706	80	0	1786	47	3	189	0	239	3660
Apprch %	13.7	85	0.9	0.4		27.3	36.4	36.4	0		0	95.5	4.5	0		19.7	1.3	79.1	0		
Total %	6.1	37.7	0.4	0.2	44.4	0.1	0.1	0.1	0	0.3	0	46.6	2.2	0	48.8	1.3	0.1	5.2	0	6.5	
Cars	214	1293	15	6	1528	3	3	4	0	10	0	1584	78	0	1662	43	3	179	0	225	3425
% Cars	96.4	93.6	100	100	94.1	100	75	100	0	90.9	0	92.8	97.5	0	93.1	91.5	100	94.7	0	94.1	93.6
Trucks	8	88	0	0	96	0	1	0	0	1	0	122	2	0	124	4	0	10	0	14	235
% Trucks	3.6	6.4	0	0	5.9	0	25	0	0	9.1	0	7.2	2.5	0	6.9	8.5	0	5.3	0	5.9	6.4



Stephen G. Pernaw & Company, Inc.

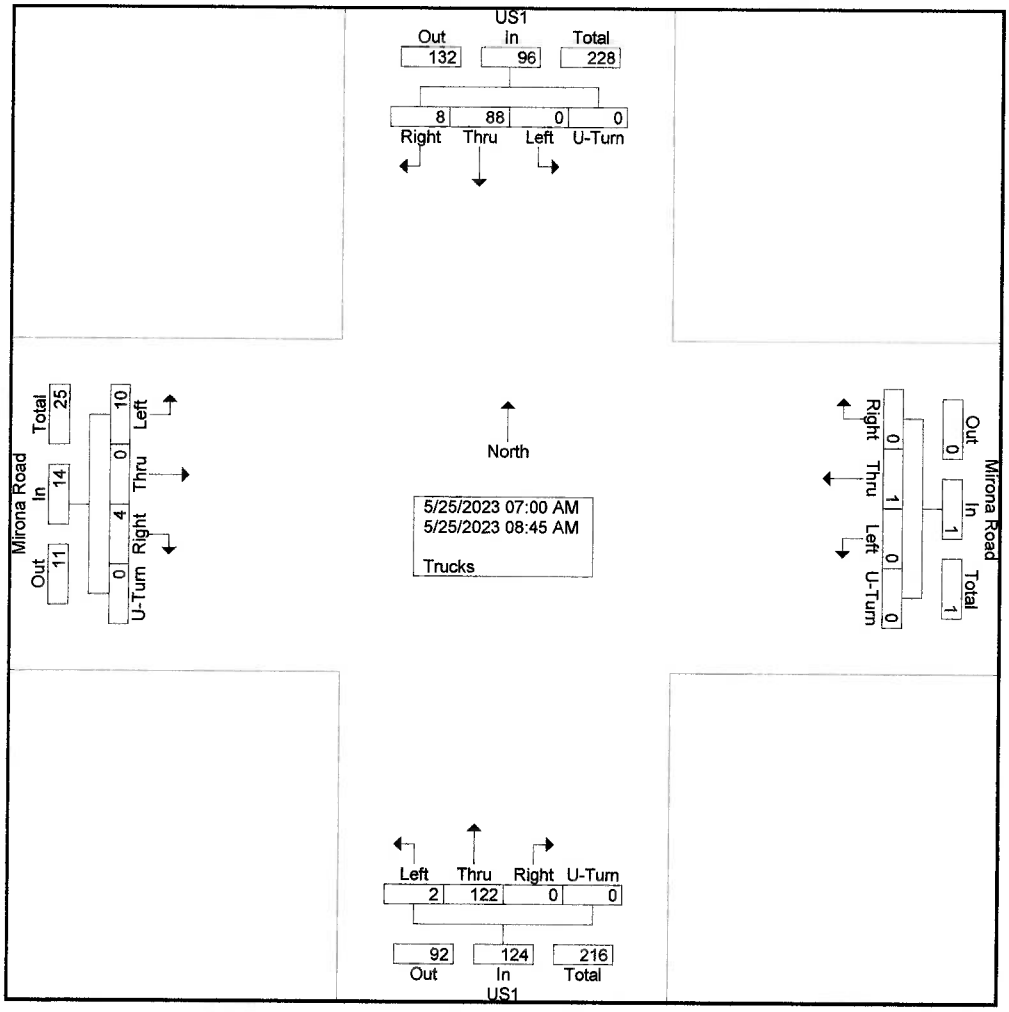
P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Number: 2268A
Town/State: Portsmouth, New Hampshire

File Name : 2268A_Mirona_1073884_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 1

Groups Printed- Trucks

	US1 From North					Mirona Road From East					US1 From South					Mirona Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:00 AM	0	10	0	0	10	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	24
07:15 AM	0	8	0	0	8	0	1	0	0	1	0	16	0	0	16	0	0	0	0	0	25
07:30 AM	1	16	0	0	17	0	0	0	0	0	0	19	0	0	19	0	0	3	0	3	39
07:45 AM	0	16	0	0	16	0	0	0	0	0	0	14	0	0	14	1	0	1	0	2	32
Total	1	50	0	0	51	0	1	0	0	1	0	63	0	0	63	1	0	4	0	5	120
08:00 AM	3	9	0	0	12	0	0	0	0	0	0	12	2	0	14	1	0	2	0	3	29
08:15 AM	3	9	0	0	12	0	0	0	0	0	0	14	0	0	14	1	0	3	0	4	30
08:30 AM	1	8	0	0	9	0	0	0	0	0	0	11	0	0	11	0	0	1	0	1	21
08:45 AM	0	12	0	0	12	0	0	0	0	0	0	22	0	0	22	1	0	0	0	1	35
Total	7	38	0	0	45	0	0	0	0	0	0	59	2	0	61	3	0	6	0	9	115
Grand Total	8	88	0	0	96	0	1	0	0	1	0	122	2	0	124	4	0	10	0	14	235
Apprch %	8.3	91.7	0	0		0	100	0	0		0	98.4	1.6	0		28.6	0	71.4	0		
Total %	3.4	37.4	0	0	40.9	0	0.4	0	0	0.4	0	51.9	0.9	0	52.8	1.7	0	4.3	0	6	

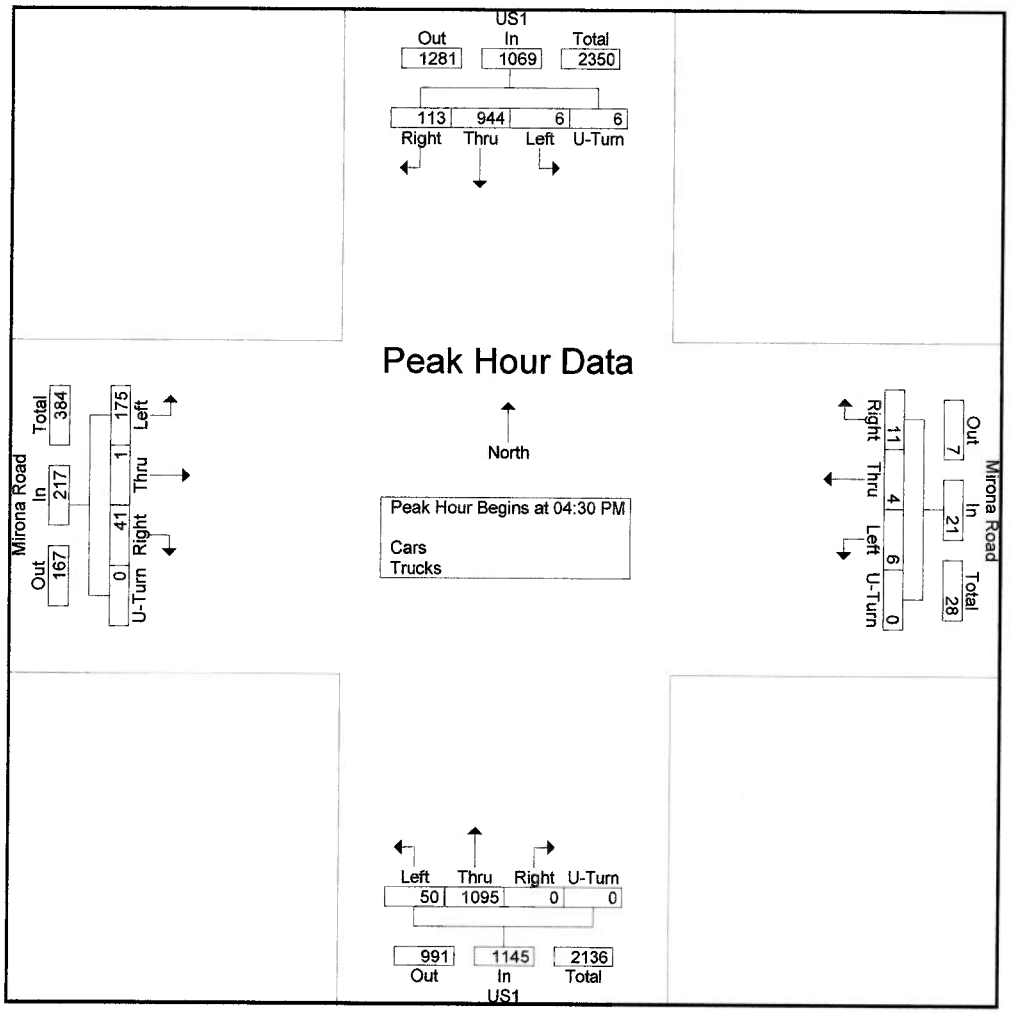


Stephen G. Pernaw & Company, Inc.

P.O. Box 1721
Concord, New Hampshire 03302

File Name : 2268A_Mirona_1073885_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 3

	US1 From North					Mirona Road From East					US1 From South					Mirona Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	**33**	240	1	2	276	2	0	0	0	2	0	261	8	0	269	8	0	36	0	44	591
04:45 PM	28	**253**	**5**	**3**	**289**	3	**2**	**3**	0	8	0	222	**19**	0	241	**13**	**1**	35	0	49	587
05:00 PM	22	233	0	1	256	**6**	2	3	0	**11**	0	302	11	0	313	12	0	**60**	0	**72**	**652**
05:15 PM	30	218	0	0	248	0	0	0	0	0	0	**310**	12	0	**322**	8	0	44	0	52	622
Total Volume	113	944	6	6	1069	11	4	6	0	21	0	1095	50	0	1145	41	1	175	0	217	2452
% App. Total	10.6	88.3	0.6	0.6		52.4	19	28.6	0		0	95.6	4.4	0		18.9	0.5	80.6	0		
PHF	.856	.933	.300	.500	.925	.458	.500	.500	.000	.477	.000	.883	.658	.000	.889	.788	.250	.729	.000	.753	.940



Stephen G. Pernaw & Company, Inc.

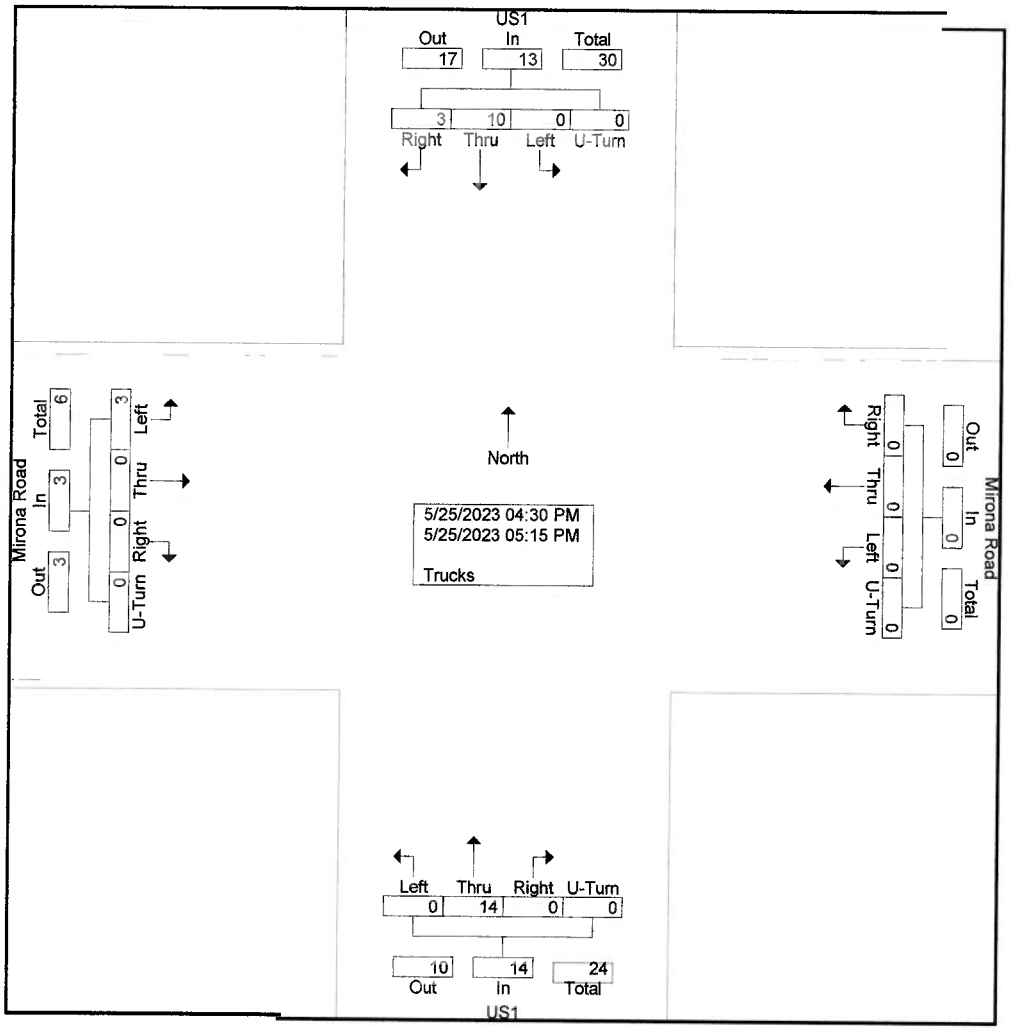
P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Number: 2268A
Town/State: Portsmouyh, New Hampshire

File Name : 2268A_Mirona_1073885_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 1

Groups Printed- Trucks

	US1 From North					Mirona Road From East					US1 From South					Mirona Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
04:30 PM	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	9
04:45 PM	1	2	0	0	3	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	8
Total	1	7	0	0	8	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	17
05:00 PM	1	3	0	0	4	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	8
05:15 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	3	0	3	5
Grand Total	3	10	0	0	13	0	0	0	0	0	0	14	0	0	14	0	0	3	0	3	30
Apprch %	23.1	76.9	0	0		0	0	0	0		0	100	0	0		0	0	100	0		
Total %	10	33.3	0	0	43.3	0	0	0	0	0	0	46.7	0	0	46.7	0	0	10	0	10	



Stephen G. Pernaw & Company, Inc.

P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Number: 2268A
Town/State: Portsmouyh, New Hampshire

File Name . 2268A_Mirona_1073885_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 1

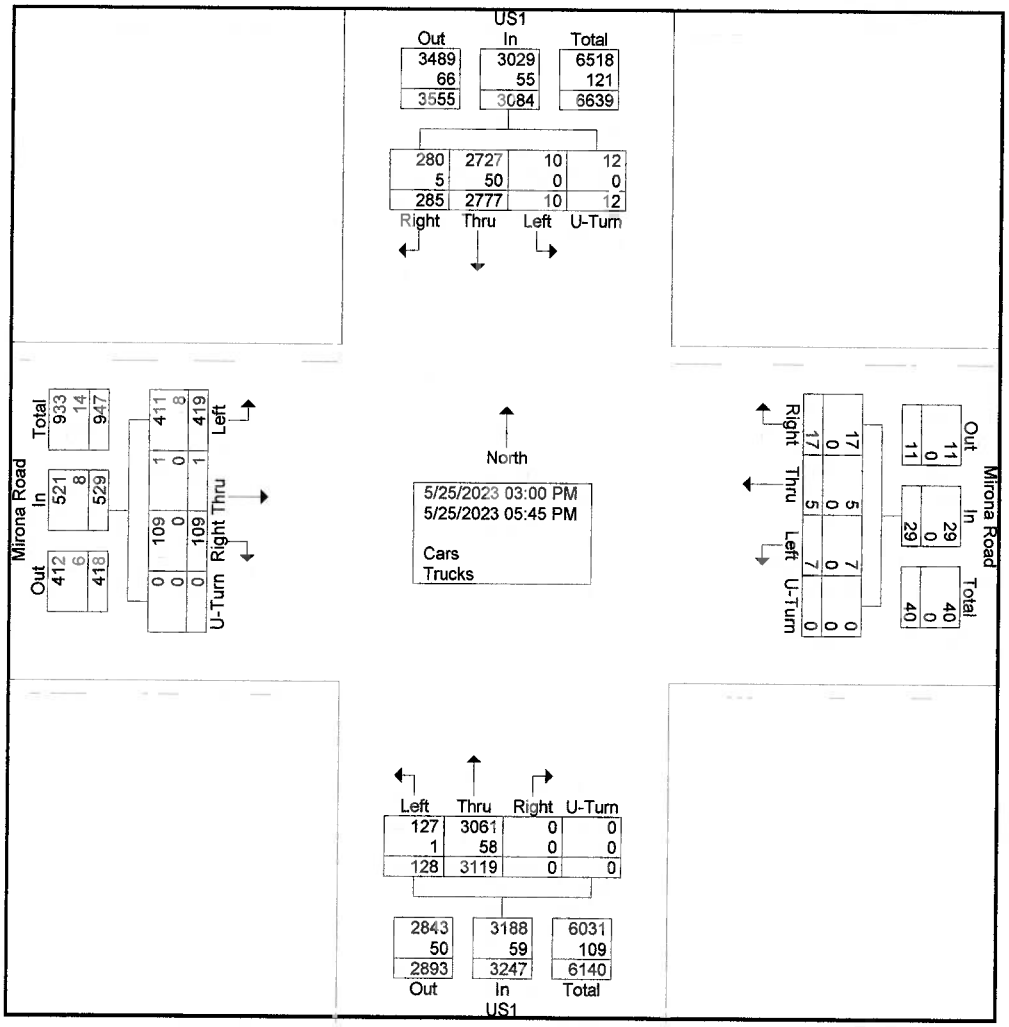
s Printed- Cars - Trucks

	US1 From North					Mirona Group					US1 From South					Mirona Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
03:00 PM	23	207	0	1	231	0	0	0	0	0	0	271	13	0	284	5	0	28	0	33	548
03:15 PM	23	260	0	1	284	0	0	0	0	0	0	253	10	0	263	9	0	30	0	39	586
03:30 PM	18	247	1	0	266	1	0	0	0	1	0	233	8	0	241	8	0	35	0	43	551
03:45 PM	23	234	0	0	257	2	0	0	0	2	0	237	8	0	245	6	0	34	0	40	544
Total	87	948	1	2	1038	3	0	0	0	3	0	994	39	0	1033	28	0	127	0	155	2229
04:00 PM	18	247	0	2	267	0	0	0	0	0	0	253	12	0	265	4	0	29	0	33	565
04:15 PM	29	231	2	2	264	2	1	1	0	4	0	283	11	0	294	10	0	25	0	35	597
04:30 PM	33	240	1	2	276	2	0	0	0	2	0	261	8	0	269	8	0	36	0	44	591
04:45 PM	28	253	5	3	289	3	2	3	0	8	0	222	19	0	241	13	1	35	0	49	587
Total	108	971	8	9	1096	7	3	4	0	14	0	1019	50	0	1069	35	1	125	0	161	2340
05:00 PM	22	233	0	1	256	6	2	3	0	11	0	302	11	0	313	12	0	60	0	72	652
05:15 PM	30	218	0	0	248	0	0	0	0	0	0	310	12	0	322	8	0	44	0	52	622
05:30 PM	23	212	1	0	236	0	0	0	0	0	0	256	12	0	268	10	0	41	0	51	555
05:45 PM	15	195	0	0	210	1	0	0	0	1	0	238	4	0	242	16	0	22	0	38	491
Total	90	858	1	1	950	7	2	3	0	12	0	1106	39	0	1145	46	0	167	0	213	2320
Grand Total	285	2777	10	12	3084	17	5	7	0	29	0	3119	128	0	3247	109	1	419	0	529	6889
Apprch %	9.2	90	0.3	0.4		58.6	17.2	24.1	0		0	96.1	3.9	0		20.6	0.2	79.2	0		
Total %	4.1	40.3	0.1	0.2	44.8	0.2	0.1	0.1	0	0.4	0	45.3	1.9	0	47.1	1.6	0	6.1	0	7.7	
Cars	280	2727	10	12	3029	17	5	7	0	29	0	3061	127	0	3188	109	1	411	0	521	6767
% Cars	98.2	98.2	100	100	98.2	100	100	100	0	100	0	98.1	99.2	0	98.2	100	100	98.1	0	98.5	98.2
Trucks	5	50	0	0	55	0	0	0	0	0	0	58	1	0	59	0	0	8	0	8	122
% Trucks	1.8	1.8	0	0	1.8	0	0	0	0	0	0	1.9	0.8	0	1.8	0	0	1.9	0	1.5	1.8

Stephen G. Pernaw & Company, Inc.

P.O. Box 1721
Concord, New Hampshire 03302

File Name : 2268A_Mirona_1073885_05-25-2023
Site Code :
Start Date : 5/25/2023
Page No : 2



Stephen G. Pernaw & Company, Inc.

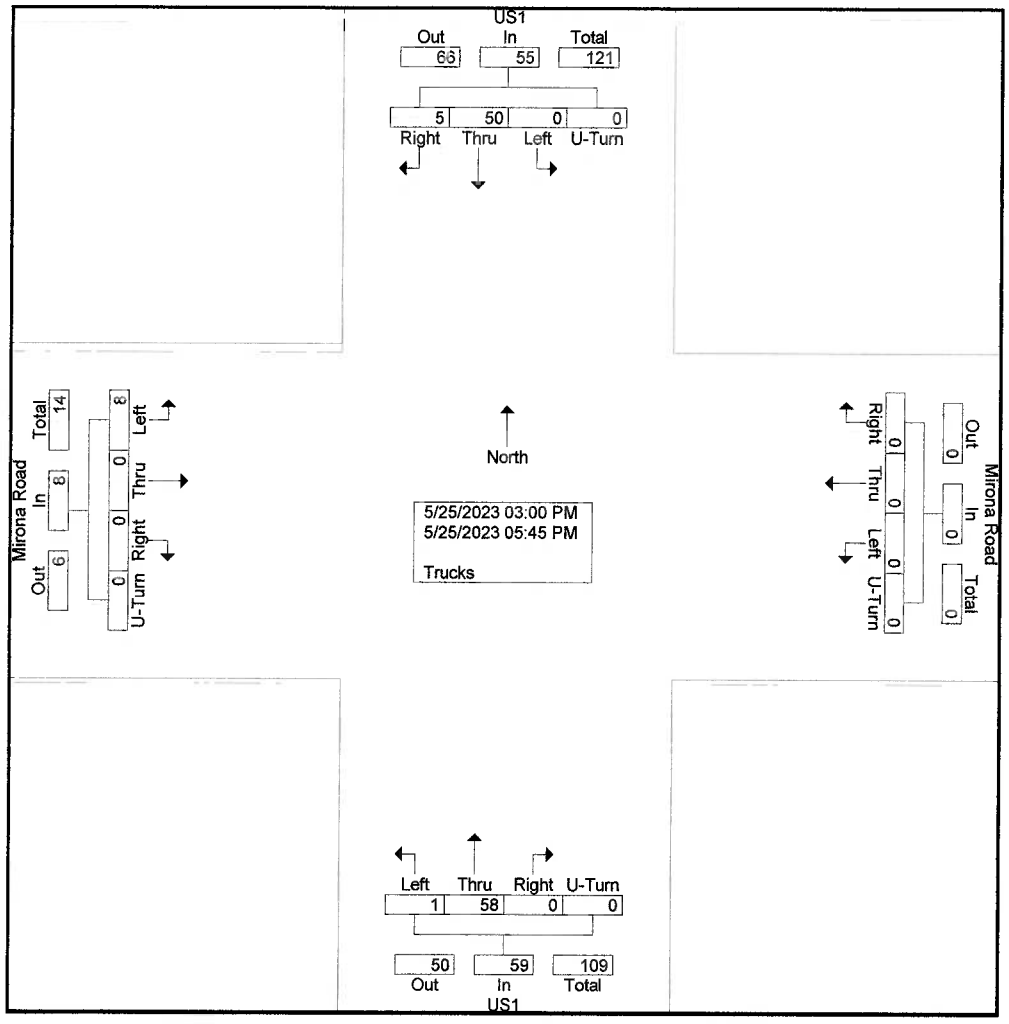
P.O. Box 1721
Concord, New Hampshire 03302

Weather: Fair
Collected By: MV
Job Number: 2268A
Town/State: Portsmouyh, New Hampshire

File Name : 2 _1073885_05-25-2023
Site Code : 268A_Mirona
Start Date : 5/25/2023
Page No : 1

Groups Printed- Trucks

	US1 From North					Mirona Road From East					US1 From South					rona Mi Road From West						
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	Total App.	Thru	Right		Left	U-Turn	App. Total	Int. Total
03:00 PM	0	6	0	0	6	0	0	0	0	0	0	8	0	0	8	0	0		0	0	0	14
03:15 PM	0	9	0	0	9	0	0	0	0	0	0	10	0	0	10	0	0		1	0	1	20
03:30 PM	1	11	0	0	12	0	0	0	0	0	0	7	0	0	7	0	0		1	0	1	20
03:45 PM	0	5	0	0	5	0	0	0	0	0	0	8	1	0	9	0	0		2	0	2	16
Total	1	31	0	0	32	0	0	0	0	0	0	33	1	0	34	0	0		4	0	4	70
04:00 PM	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	0	0		0	0	0	10
04:15 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0		0	0	0	4
04:30 PM	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	0	0		0	0	0	9
04:45 PM	1	2	0	0	3	0	0	0	0	0	0	5	0	0	5	0	0		0	0	0	8
Total	1	14	0	0	15	0	0	0	0	0	0	16	0	0	16	0	0		0	0	0	31
05:00 PM	1	3	0	0	4	0	0	0	0	0	0	4	0	0	4	0	0		0	0	0	8
05:15 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0		3	0	3	5
05:30 PM	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0		1	0	1	4
05:45 PM	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0		0	0	0	4
Total	3	5	0	0	8	0	0	0	0	0	0	9	0	0	9	0	0		4	0	4	21
Grand Total	5	50	0	0	55	0	0	0	0	0	0	58	1	0	59	0	0		8	0	8	122
Apprch %	9.1	90.9	0	0		0	0	0	0		0	98.3	1.7	0		0	0		100	0		
Total %	4.1	41	0	0	45.1	0	0	0	0	0	0	47.5	0.8	0	48.4	0	0		6.6	0	6.6	



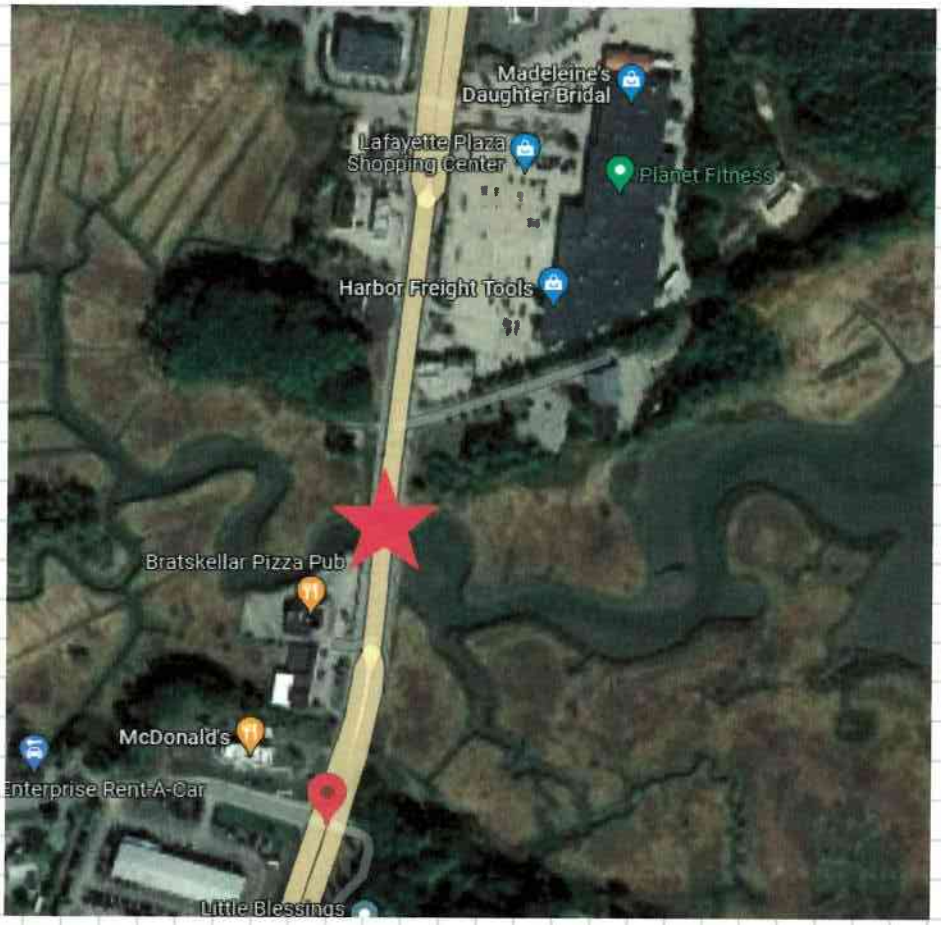
CALCULATION SHEET

Stephen G. Pernaw & Company, Inc.

Project:	VAI - Portsmouth	Job Number:	2268A
Calculated By:		Date:	
Checked By:		Date.	
Sheet No:		Of:	
Subject:	ATR Count - US1		

US1 ATR Count (Over Sagamore Creek)

Wednesday, May 24, 2023 & Thursday, May 25, 2023



Weekly Volumes

Unit ID: SGP15

Location: Lafayette Road, North of Mirona Road

Week of 05/23/2023

Start Time	05/23 Tue	05/24 Wed	05/25 Thu	05/26 Fri	05/27 Sat	05/28 Sun	05/29 Mon	Average
	NB	NB	NB	NB	NB	NB	NB	NB
00:00	-	40	24	45	-	-	-	36
01:00	-	21	14	26	-	-	-	20
02:00	-	17	17	12	-	-	-	15
03:00	-	62	66	65	-	-	-	64
04:00	-	78	84	80	-	-	-	81
05:00	-	246	247	231	-	-	-	241
06:00	-	414	455	397	-	-	-	422
07:00	-	841	831	799	-	-	-	824
08:00	-	1089	1135	1016	-	-	-	1080
09:00	-	907	960	971	-	-	-	946
10:00	233	950	951	1093	-	-	-	807
11:00	1048	1023	1079	243	-	-	-	848
12:00	1075	1156	1160	-	-	-	-	1130
13:00	1139	1125	1138	-	-	-	-	1134
14:00	1105	1037	1066	-	-	-	-	1069
15:00	1217	1213	1153	-	-	-	-	1194
16:00	1264	1170	1162	-	-	-	-	1199
17:00	1183	1172	1279	-	-	-	-	1211
18:00	877	896	954	-	-	-	-	909
19:00	638	536	645	-	-	-	-	606
20:00	432	357	475	-	-	-	-	421
21:00	285	231	308	-	-	-	-	275
22:00	143	156	202	-	-	-	-	167
23:00	70	68	84	-	-	-	-	74
Lane Total	10709	14805	15489	4978	-	-	-	14773
Day Total	10709	14805	15489	4978	-	-	-	14773
AM Peak	11:00	07:28	07:41	10:04	-	-	-	08:00
AM Count	1048	1198	1191	1104	-	-	-	1080
PM Peak	16:27	16:32	16:33	-	-	-	-	17:00
PM Count	1341	1265	1301	-	-	-	-	1211

Weekly Volumes

Unit ID: SGP13

Location: Laffayette Road, North of Mirona Road

Week of 05/23/2023

Start Time	05/23 Tue	05/24 Wed	05/25 Thu	05/26 Fri	05/27 Sat	05/28 Sun	05/29 Mon	Average
	SB	SB	SB	SB	SB	SB	SB	SB
00:00	-	33	44	77	-	-	-	51
01:00	-	28	29	31	-	-	-	29
02:00	-	16	25	20	-	-	-	20
03:00	-	16	19	28	-	-	-	21
04:00	-	73	71	73	-	-	-	72
05:00	-	210	212	201	-	-	-	208
06:00	-	443	421	418	-	-	-	427
07:00	-	689	791	774	-	-	-	751
08:00	-	950	924	896	-	-	-	923
09:00	-	815	860	867	-	-	-	847
10:00	7	886	877	878	-	-	-	662
11:00	998	905	923	215	-	-	-	760
12:00	1040	966	1036	-	-	-	-	1014
13:00	942	889	961	-	-	-	-	931
14:00	903	910	929	-	-	-	-	914
15:00	1003	1028	1061	-	-	-	-	1031
16:00	1058	994	1091	-	-	-	-	1048
17:00	1069	1017	956	-	-	-	-	1014
18:00	817	696	721	-	-	-	-	745
19:00	545	460	619	-	-	-	-	541
20:00	392	338	426	-	-	-	-	385
21:00	221	228	338	-	-	-	-	262
22:00	139	136	240	-	-	-	-	172
23:00	98	77	119	-	-	-	-	98
Lane Total	9232	12803	13693	4478	-	-	-	12926
Day Total	9232	12803	13693	4478	-	-	-	12926
AM Peak	11:00	08:03	08:11	07:31	-	-	-	08:00
AM Count	998	964	945	926	-	-	-	923
PM Peak	16:33	16:49	15:22	-	-	-	-	16:00
PM Count	1154	1076	1118	-	-	-	-	1048

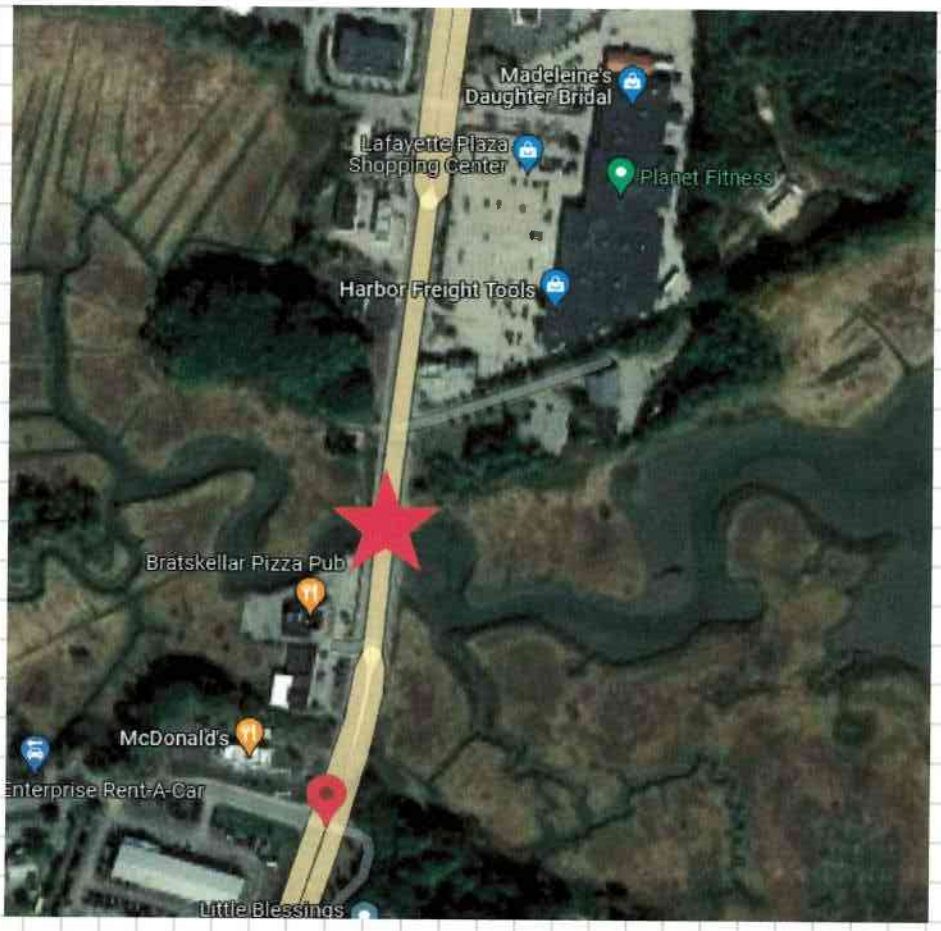
CALCULATION SHEET

Stephen G. Pernaw & Company, Inc.

Project:	VAI - Portsmouth	Job Number:	2268A
Calculated By:		Date:	
Checked By:		Date:	
Sheet No:		Of:	
Subject:	Speed Survey - US1		

US1 Speed Survey (Over Sagamore Creek)

Wednesday, May 24, 2023 & Thursday, May 25, 2023



Daily Northbound Speeds (MPH)

Study Date: Wednesday, 05/24/2023
Unit ID: SGP15
Location: Lafayette Road, North of Mirona Road

Posted Speed. 35

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	1	7	9	12	2	3	0	0	0	0	0	0	34
01:00 - 01:59	0	0	0	0	5	6	6		0	0	0	0	0	0	0	17
02:00 - 02:59	0	0	0		2	2	9	0	0	0	0	0	0	0		15
03:00 - 03:59	0	0	0	1	4	11		1	3	1		0	0	0	0	5
04:00 - 04:59	0	0	0	2	2	15	20	20		0	0	0	0	0	0	79
05:00 - 05:59	0	0	0	0	6	34	8	87	17		0	0	0	0	0	231
06:00 - 06:59	0	0	0	3	25	66	134	109	47	3	0		0	0	0	391
07:00 - 07:59	0	0		1	159	203	232	111	26	4	2	0	0	0	0	
08:00 - 08:59	0	0	2	2	2	363	259	110	3	0	0	0	0	0		754
09:00 - 09:59	0	0	1	2	21		5	86	14	0	0	0		0	0	976
10:00 - 10:59	0	0	1	8	1	263	256		12	0	0	0	0	0	0	7
11:00 - 11:59	0	1	7	26	155	300	283	81	1	3	1	0	0	0	1	861
12:00 - 12:59	0	1	7	21	156	334	295	99	0		1	0	0	0	0	923
13:00 - 13:59	0	1	7	27	227	335	315	107	7	2		0	0	0	0	1038
14:00 - 14:59	0	1	1	48	242	365	265	67	16		0	0	0	0	0	1005
15:00 - 15:59	0	1	0	23	137	368	297	105	12	3	0	0	0	0		949
16:00 - 16:59	0	4	7	25	203	426	324	90	14	1	0	0	0	0	0	1099
17:00 - 17:59	0	0	3	40	197	388	341	101	19	1	0	0	0	0	0	
18:00 - 18:59	2	6	1	48	230	389	2	7	15	2	0	1	0	0	0	1088
19:00 - 19:59	0	5	2	32	17	266	216	92	14	2	0	0	0	0	0	1072
20:00 - 20:59	0	0	3	12	10	195	152	74	18	0	1		0	0	0	812
21:00 - 21:59	0	0	6	14	4	113	110	53	4	0		0	0	0	0	522
22:00 - 22:59	0	0	2		9	62	89	47	7	2	0	0	0	0	0	344
23:00 - 23:59	0	0	3	13	2	54	48	27	3	2	0	0	0	0	0	221
Totals	2	1	0	4	2	26	15	15	3	0	0	0	0	0	0	50
Percent of Total	0.0	0.1	0.6	3.0	18.7	34.0	30.2	11.1	2.0	0.3	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	0.0	0.2	2.3	17.6	31.2	31.4	14.1	2.8	0.4	0.1	0.0	0.0	0.0	0.0	100
Percent of PM	0.0	0.2	0.8	3.4	19.4	35.8	29.5	9.2	1.5	0.2	0.0	0.0	0.0	0.0	0.0	100

Standard Deviation:	5.8 MPH	Ten Mile Pace:	35 to 44 MPH
Mean Speed:	39.1 MPH	Percent in Ten Mile Pace:	64.2%
Median Speed:	39.1 MPH		
Modal Speed:	37.5 MPH		

85th Percentile:	44.7 MPH
15th Percentile:	33.0 MPH
90th Percentile:	46.5 MPH
95th Percentile:	48.8 MPH

Daily Northbound Speeds (MPH)

Study Date: Thursday, 05/25/2023
Unit ID: SGP15
Location: Lafayette Road, North of Mirona Road

Posted Speed: 35

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	1	0	8	5	6	2	0	0	0	0	0	0	22
01:00 - 01:59	0	0	0	0	1	3	4	2	0	0	0	0	0	0	0	10
02:00 - 02:59	0	0	0	0	1	7	3	1	2	1	0	0	0	0	0	15
03:00 - 03:59	0	0	0	0	5	16	19	15	8	1	0	0	0	0	0	64
04:00 - 04:59	0	0	0	2	3	17	26	22	12	0	0	0	0	0	0	82
05:00 - 05:59	0	0	0	1	9	27	83	73	31	10	2	0	0	0	0	236
06:00 - 06:59	0	0	0	7	34	71	153	117	34	3	0	2	0	0	0	421
07:00 - 07:59	0	0	2	12	111	220	244	117	24	1	0	0	0	0	0	731
08:00 - 08:59	0	0	13	34	212	358	275	96	16	2	1	0	0	0	0	1007
09:00 - 09:59	0	0	8	34	209	318	209	70	6	1	0	0	0	0	0	855
10:00 - 10:59	1	0	2	30	202	332	208	79	8	0	0	0	0	0	0	862
11:00 - 11:59	3	1	13	45	232	352	238	56	6	0	0	0	0	0	0	946
12:00 - 12:59	0	4	24	41	274	380	233	62	5	1	0	0	0	0	0	1024
13:00 - 13:59	0	0	3	41	246	383	282	68	6	2	0	0	0	0	0	1031
14:00 - 14:59	0	0	7	26	196	321	306	87	9	1	0	0	0	0	0	953
15:00 - 15:59	0	1	2	30	229	360	291	96	14	1	0	0	0	0	0	1024
16:00 - 16:59	0	1	15	25	225	390	269	98	11	1	0	0	0	0	0	1035
17:00 - 17:59	0	2	17	36	235	437	296	112	9	0	0	0	0	0	0	1144
18:00 - 18:59	0	1	6	16	129	259	326	106	15	4	1	0	0	0	0	863
19:00 - 19:59	0	0	4	23	98	211	180	78	16	2	0	0	0	0	0	612
20:00 - 20:59	0	1	0	13	68	123	183	56	7	0	0	0	0	0	0	451
21:00 - 21:59	0	0	2	7	38	87	110	39	7	2	0	0	0	0	0	292
22:00 - 22:59	0	0	2	7	29	59	75	19	3	2	0	0	0	0	0	196
23:00 - 23:59	0	0	0	2	10	24	30	12	2	0	0	0	0	0	0	80
Totals	**4**	**11**	**120**	**433**	**2796**	**4763**	**4048**	**1487**	**253**	**35**	**4**	**2**	**0**	**0**	**0**	**13956**
Percent of Total	**0.0**	**0.1**	**0.9**	**3.1**	**20.0**	**34.1**	**29.0**	**10.7**	**1.8**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100**
Percent of AM	**0.1**	**0.0**	**0.7**	**3.2**	**19.4**	**32.9**	**27.9**	**12.5**	**2.8**	**0.4**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**100**
Percent of PM	**0.0**	**0.1**	**0.9**	**3.1**	**20.4**	**34.9**	**29.6**	**9.6**	**1.2**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100**

Standard Deviation: 5.8 MPH
Mean Speed: 38.9 MPH
Median Speed: 38.8 MPH
Modal Speed: 37.5 MPH

Ten Mile Pace: 35 to 44 MPH
Percent in Ten Mile Pace: 63.1%

85th Percentile: 44.6 MPH
15th Percentile: 32.7 MPH
90th Percentile: 46.3 MPH
95th Percentile: 48.6 MPH

Daily Southbound Speeds (MPH)

Study Date: Wednesday, 05/24/2023
Unit ID: SGP13
Location: Laffayette Road, North of Mirona Road

Posted Speed: 35

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	2	3	14	7		0			0	0	0	0	29
01:00 - 01:59	0	0		0		10	12	3	1	0	0		0	0	0	28
02:00 - 02:59		0	0	0	3	7	2	2	2	1	0	0		0	0	15
03:00 - 03:59	0	0	0	0		2	4	2	0	0	0	0	0	0	0	14
04:00 - 04:59	0	0	0	2	6			8	6	0	0	0	0	0	0	6
05:00 - 05:59	0	0	0	1	5	19	27	45	14	2	0	0	0	0	0	20
06:00 - 06:59	1		0	35	58	85	12	77	1	4		0	0	0	0	42
07:00 - 07:59	4	1	26	72	115	175	14	54	12	3	0			0	0	622
08:00 - 08:59	7	4	76	107	178	192	14	29	3	1	0	0	0		0	794
09:00 - 09:59	21	8		115	159	173	10	40	4	0	0	0	0	0		701
10:00 - 10:59	16	4	84	1	1	1	10	48	15	3	0	0	0	0	0	772
11:00 - 11:59	38	41	84	111	179	159	9			0	0	0	0	0	0	739
12:00 - 12:59	38	52	87	121	152	183	92	29	2	0	0	0	0	0	0	755
13:00 - 13:59	32	60	93	111	179	156	120	27	1	1		0	0	0		782
14:00 - 14:59	2	57	92	11	152	160	133	34	3	0	0	0	0	0	0	779
15:00 - 15:59	3	46	73	14	160	19	137	32	5	1	0	0	0	0	1	827
16:00 - 16:59	3	40	72	1	142	21	163	40	2	4	1	0	0	0		835
17:00 - 17:59	3	46	85	137		16	152	40	5	1	0	0	0		0	821
18:00 - 18:59	11	23	80	85	157	1		36	6	0	0		0	0	0	630
19:00 - 19:59	2	8	31	46	98	162	122	10	0		0	0	0	0	0	442
20:00 - 20:59	0	6	22	38	71	106	70	10	3	1	0	0	0	0	0	327
21:00 - 21:59		1	7	20	36	79	59	1	2	1	0	0	1	0	0	224
22:00 - 22:59	0	0	6	17	28	42	35	4	0	0	0	0	0	0		132
23:00 - 23:59	0	0	0	7	2	26	13	3	1	1	0	0	0	0	0	75
Totals	321	528	990	1512	2167	2726	2037	620	108	25	1	0	1	0	1	11037
Percent of Total	2.9	4.8	9.0	13.7	19.6	24.7	18.5	5.6	1.0	0.2	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	2.2	4.3	7.8	12.6	19.7	24.3	19.4	7.6	1.7	0.3	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	3.4	5.1	9.8	14.4	19.6	25.0	17.8	4.3	0.5	0.2	0.0	0.0	0.0	0.0	0.0	100

Standard Deviation: 9.0 MPH
Mean Speed: 33.7 MPH
Median Speed: 35.0 MPH
Modal Speed: 37.5 MPH

Ten Mile Pace: 30 to 39 MPH
Percent in Ten Mile Pace: 44.3%

85th Percentile: 42.8 MPH
15th Percentile: 24.1 MPH
90th Percentile: 44.1 MPH
95th Percentile: 46.6 MPH

Daily Southbound Speeds (MPH)

Study Date: Thursday, 05/25/2023
Unit ID: SGP13
Location: Laffayette Road, North of Mirona Road

Posted Speed: 35

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	7	11	15	7	1	0	0	0	0	0	0	41
01:00 - 01:59	0	0	0	0	3	10	5	7	2	0	0	0	0	0	0	2
02:00 - 02:59	0	0	0	1	1	3	8	5	2	1	0	0	0	0	0	21
03:00 - 03:59	0	0	0	0	6	2	6			0	0	0	0	0	0	19
04:00 - 04:59	0	0	0	2	6	12	30	15	5		0	0	0	0	0	70
05:00 - 05:59	0	0	1	4	14	42	70	51	16	5	0	0	0	0	0	203
06:00 - 06:59	2	1	7	26	62	81	119	82	11	3	1	0			0	395
07:00 - 07:59	18	31	54	75	126	163	134	5	17	4	2	0	1	0		681
08:00 - 08:59	24	50	71	120	169	180	130	41	3	1	0	0	0	0	0	789
09:00 - 09:59	18	39	65	132	140	164	124	3	6		1	0	0	0	0	719
10:00 - 10:59	21	34	70	98	160	164	129	3	4	0	0	0	0	0	0	716
11:00 - 11:59	15	40	61	123	131	205	155	4	6	0		0	0	0	0	783
12:00 - 12:59	45	64	101	134	136	154	120	39	5	1	0				0	799
13:00 - 13:59	14	37	78	117	159	189	110	36	2	1	0	0	0		0	743
14:00 - 14:59	28	36	62	104	172	191	139	35	6	2	0	0	0	0	0	775
15:00 - 15:59	33	54	132	141	158	179	118	27	4	0	0	0	0	0	0	846
16:00 - 16:59	32	47	119	147	152	174	131	37	3	0	0	0	0	0	0	842
17:00 - 17:59	30	41	93	112	154	184	135	43		1	0	0	0	0	0	802
18:00 - 18:59	6	19	52	80	114	148	157	59	16			0	0	0	0	654
19:00 - 19:59	7	6	39	67	114	144	129	59	13	3	0	0	0		0	579
20:00 - 20:59	2	8	25	62	86	111	90	23		1	0	0	0	0	0	412
21:00 - 21:59	0	0	10	35	70	100	77	32	5	0	0	0	0	0	0	329
22:00 - 22:59	0	4	16	30	52	66	50	10	4	0	0	0	0	0	0	230
23:00 - 23:59	0	0	7	12	15	39	32	11	2	0	0	0	0	0	0	118
Totals	**295**	**511**	**1063**	**1622**	**2207**	**2716**	**2213**	**793**	**144**	**24**	**4**	**0**	**1**	**0**	**0**	**1159**
Percent of Total	**2.5**	**4.4**	**9.2**	**14.0**	**19.0**	**23.4**	**19.1**	**6.8**	**1.2**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100**
Percent of AM	**2.2**	**4.4**	**7.4**	**13.0**	**18.5**	**23.2**	**20.7**	**8.6**	**1.6**	**0.3**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**100**
Percent of PM	**2.8**	**4.4**	**10.3**	**14.6**	**19.4**	**23.6**	**18.1**	**5.8**	**1.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**100**

Standard Deviation: 9.1 MPH
Mean Speed: 34.1 MPH
Median Speed: 35.2 MPH
Modal Speed: 37.5 MPH

Ten Mile Pace: 35 to 44 MPH
Percent in Ten Mile Pace: 42.5%

85th Percentile: 43.3 MPH
15th Percentile: 24.4 MPH
90th Percentile: 44.6 MPH
95th Percentile: 47.4 MPH

APPENDIX B

NHDOT Traffic Data

Year 2019 Monthly Data

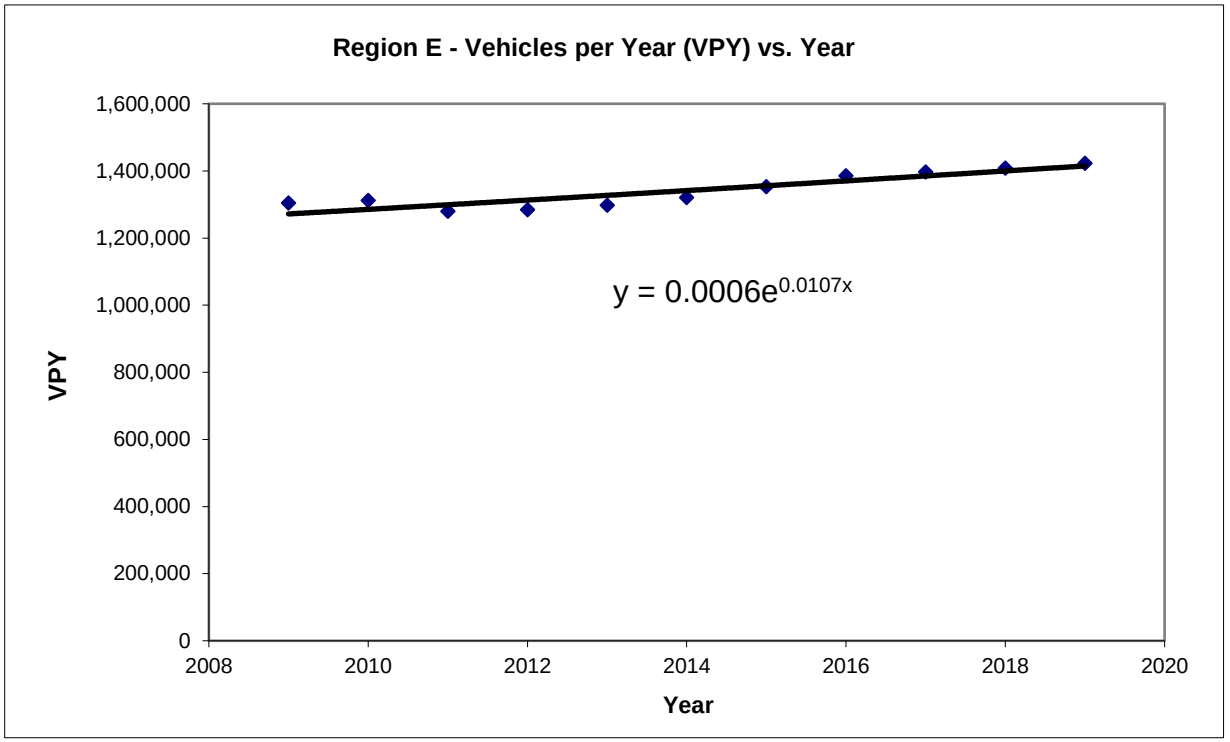
Group 4 Averages: Urban Highways

Month	ADT	Adjustment to Average	Adjustment to Peak
January	11,431	1.12	1.23
February	11,848	1.08	1.18
March	12,141	1.06	1.15
April	12,860	1.00	1.09
May	13,551	0.95	1.03
June	13,785	0.93	1.02
July	13,942	0.92	1.01
August	14,016	0.92	1.00
September	13,379	0.96	1.05
October	13,339	0.96	1.05
November	12,265	1.05	1.14
December	11,496	1.12	1.22
Average ADT:	12,838		
Peak ADT:	14,016		

GROUP	COUNTER	TOWN	LOCATION
04	02051003	BOW	NH 3A south of Robinson Rd
04	02089001	CHICHESTER	NH 28 (Suncook Valley Rd) north of Bear Hill Rd
04	02091001	CLAREMONT	NH 12/103 east of Vermont SL
04	62099056	CONCORD	NH 106 (Sheep Davis Rd) at Loudon TL (north of Ashby Rd)
04	72099278	CONCORD	US 3 (Fisherville Rd) north of Sewalls Falls Rd
04	02125001	DOVER	Dover Point Rd south of Thornwood Ln
04	02133021	DURHAM	US 4 east of NH 108
04	82197076	HAMPTON	US 1 (Lafayette Rd) south of Ramp to NH 101
04	*02229022*	*HUDSON**	*Circumferential Hwy east of Nashua TL*
04	02253025	LEBANON	NH 120 1 mile south of Hanover TL (south of Lahaye Dr)
04	02255001	LEE	NH 125 (Calef Hwy) north of Pinkham Rd
04	02287001	MARLBOROUGH	NH 12 at Swanzey TL
04	02297001	MERRIMACK	US 3 (Daniel Webster Hwy) north of Hilton Dr
04	*02303001*	*MILFORD**	*NH 101A at Amherst TL (west of Overlook Dr)*
04	*02315051*	*NASHUA**	*NH 111 (Bridge / Ferry St) at Hudson TL*
04	02339001	NEWPORT	NH 10 1 mile south of Croydon TL (north of Corbin Rd)
04	02345001	NORTH HAMPTON	US 1 (Lafayette Rd) north of North Rd
04	*62387052*	*RINDGE**	*US 202 at Jaffrey TL (north of County Rd)*
04	02445001	TEMPLE	NH 101 at Wilton TL (west of Old County Farm Rd)
04	02489001	WINDHAM	NH 28 at Derry TL (north of Northland Rd)

** denotes counter that is not included in calculation*

Year	Total
2009	1303948
2010	1312251
2011	1279824
2012	1284314
2013	1298171
2014	1320862
2015	1353486
2016	1385361
2017	1396932
2018	1408237
2019	1422176
CAGR	0.87%
Exp	1.07%
Avg	0.97%



Location Info	
Location ID	2125090
Type	I-SECTION
Functional Class	2
Located On	Spaulding Tpke N
Direction	2-WAY
Community	DOVER
MPO_ID	
HPMS ID	
Agency	New Hampshire DOT

Count Data Info	
Start Date	5/21/2019
End Date	5/22/2019
Start Time	12:00 AM
End Time	12:00 AM
Direction	2-WAY
Notes	
Count Source	1125201
File Name	TRV70_RPT21_201905_CDC.txt
Weather	
Study	
Owner	iwong
QC Status	Accepted

Interval: 60 mins	
Time	**Hourly Count**
00:00 - 01:00	351
01:00 - 02:00	149
02:00 - 03:00	124
03:00 - 04:00	193
04:00 - 05:00	633
05:00 - 06:00	1635
06:00 - 07:00	3114
07:00 - 08:00	4180
08:00 - 09:00	3433
09:00 - 10:00	2251
10:00 - 11:00	2011
11:00 - 12:00	2037
12:00 - 13:00	2112
13:00 - 14:00	2210
14:00 - 15:00	2819
15:00 - 16:00	3496
16:00 - 17:00	3774
17:00 - 18:00	3778
18:00 - 19:00	2300
19:00 - 20:00	1588
20:00 - 21:00	1083
21:00 - 22:00	904
22:00 - 23:00	621
23:00 - 24:00	443
TOTAL	45239

Location Info	
Location ID	2125090
Type	I-SECTION
Functional Class	2
Located On	Spaulding Tpke N
Direction	2-WAY
Community	DOVER
MPO_ID	
HPMS ID	
Agency	New Hampshire DOT

Count Data Info	
Start Date	5/22/2019
End Date	5/23/2019
Start Time	12:00 AM
End Time	12:00 AM
Direction	2-WAY
Notes	
Count Source	1125201
File Name	TRV70_RPT21_201905_CDC.txt
Weather	
Study	
Owner	iwong
QC Status	Accepted

Interval: 60 mins	
Time	**Hourly Count**
00:00 - 01:00	371
01:00 - 02:00	142
02:00 - 03:00	148
03:00 - 04:00	227
04:00 - 05:00	618
05:00 - 06:00	1649
06:00 - 07:00	3090
07:00 - 08:00	4470
08:00 - 09:00	3861
09:00 - 10:00	2498
10:00 - 11:00	2385
11:00 - 12:00	2481
12:00 - 13:00	2505
13:00 - 14:00	2650
14:00 - 15:00	3351
15:00 - 16:00	4064
16:00 - 17:00	4180
17:00 - 18:00	4172
18:00 - 19:00	2659
19:00 - 20:00	1870
20:00 - 21:00	1522
21:00 - 22:00	1184
22:00 - 23:00	749
23:00 - 24:00	505
TOTAL	51351

Location Info	
Location ID	2125090
Type	I-SECTION
Functional Class	2
Located On	Spaulding Tpke N
Direction	2-WAY
Community	DOVER
MPO_ID	
HPMS ID	
Agency	New Hampshire DOT

Count Data Info	
Start Date	5/23/2019
End Date	5/24/2019
Start Time	12:00 AM
End Time	12:00 AM
Direction	2-WAY
Notes	
Count Source	1125201
File Name	TRV70_RPT21_201905_CDC.txt
Weather	
Study	
Owner	iwong
QC Status	Accepted

Interval: 60 mins	
Time	**Hourly Count**
00:00 - 01:00	365
01:00 - 02:00	190
02:00 - 03:00	168
03:00 - 04:00	239
04:00 - 05:00	615
05:00 - 06:00	1656
06:00 - 07:00	3099
07:00 - 08:00	4190
08:00 - 09:00	3595
09:00 - 10:00	2501
10:00 - 11:00	2283
11:00 - 12:00	2423
12:00 - 13:00	2591
13:00 - 14:00	2637
14:00 - 15:00	3271
15:00 - 16:00	3976
16:00 - 17:00	4106
17:00 - 18:00	4010
18:00 - 19:00	2625
19:00 - 20:00	1878
20:00 - 21:00	1470
21:00 - 22:00	1222
22:00 - 23:00	768
23:00 - 24:00	508
TOTAL	50386

Location Info	
Location ID	2125090
Type	I-SECTION
Functional Class	2
Located On	Spaulding Tpke N
Direction	2-WAY
Community	DOVER
MPO_ID	
HPMS ID	
Agency	New Hampshire DOT

Count Data Info	
Start Date	5/23/2023
End Date	5/24/2023
Start Time	12:00 AM
End Time	12:00 AM
Direction	2-WAY
Notes	
Count Source	1125201
File Name	TRV70_RPT21_202305_CDC.txt
Weather	
Study	
Owner	iwong
QC Status	Accepted

Interval: 60 mins	
Time	**Hourly Count**
00:00 - 01:00	284
01:00 - 02:00	142
02:00 - 03:00	153
03:00 - 04:00	274
04:00 - 05:00	764
05:00 - 06:00	1727
06:00 - 07:00	2777
07:00 - 08:00	3787
08:00 - 09:00	3200
09:00 - 10:00	2274
10:00 - 11:00	2132
11:00 - 12:00	2176
12:00 - 13:00	2221
13:00 - 14:00	2418
14:00 - 15:00	3114
15:00 - 16:00	3852
16:00 - 17:00	4176
17:00 - 18:00	3815
18:00 - 19:00	2248
19:00 - 20:00	1543
20:00 - 21:00	1127
21:00 - 22:00	757
22:00 - 23:00	547
23:00 - 24:00	467
TOTAL	45975

Location Info	
Location ID	2125090
Type	I-SECTION
Functional Class	2
Located On	Spaulding Tpke N
Direction	2-WAY
Community	DOVER
MPO_ID	
HPMS ID	
Agency	New Hampshire DOT

Count Data Info	
Start Date	5/24/2023
End Date	5/25/2023
Start Time	12:00 AM
End Time	12:00 AM
Direction	2-WAY
Notes	
Count Source	1125201
File Name	TRV70_RPT21_202305_CDC.txt
Weather	
Study	
Owner	iwong
QC Status	Accepted

Interval: 60 mins	
Time	**Hourly Count**
00:00 - 01:00	308
01:00 - 02:00	135
02:00 - 03:00	143
03:00 - 04:00	272
04:00 - 05:00	781
05:00 - 06:00	1667
06:00 - 07:00	2678
07:00 - 08:00	3854
08:00 - 09:00	3257
09:00 - 10:00	2376
10:00 - 11:00	2138
11:00 - 12:00	2229
12:00 - 13:00	2406
13:00 - 14:00	2524
14:00 - 15:00	3296
15:00 - 16:00	3936
16:00 - 17:00	4456
17:00 - 18:00	3864
18:00 - 19:00	2243
19:00 - 20:00	1471
20:00 - 21:00	1032
21:00 - 22:00	831
22:00 - 23:00	516
23:00 - 24:00	448
TOTAL	46861

Location Info	
Location ID	2125090
Type	I-SECTION
Functional Class	2
Located On	Spaulding Tpke N
Direction	2-WAY
Community	DOVER
MPO_ID	
HPMS ID	
Agency	New Hampshire DOT

Count Data Info	
Start Date	5/25/2023
End Date	5/26/2023
Start Time	12:00 AM
End Time	12:00 AM
Direction	2-WAY
Notes	
Count Source	1125201
File Name	TRV70_RPT21_202305_CDC.txt
Weather	
Study	
Owner	iwong
QC Status	Accepted

Interval: 60 mins	
Time	**Hourly Count**
00:00 - 01:00	400
01:00 - 02:00	188
02:00 - 03:00	160
03:00 - 04:00	264
04:00 - 05:00	750
05:00 - 06:00	1673
06:00 - 07:00	2710
07:00 - 08:00	3770
08:00 - 09:00	3301
09:00 - 10:00	2474
10:00 - 11:00	2382
11:00 - 12:00	2461
12:00 - 13:00	2690
13:00 - 14:00	2699
14:00 - 15:00	3577
15:00 - 16:00	4115
16:00 - 17:00	4320
17:00 - 18:00	4022
18:00 - 19:00	2563
19:00 - 20:00	1914
20:00 - 21:00	1518
21:00 - 22:00	1014
22:00 - 23:00	686
23:00 - 24:00	579
TOTAL	50230

APPENDIX C

Traffic Volume Adjustment Calculation

Traffic Volume Adjustment Check

NHDOT Count Station Data (Loc ID 02125090) - Spaulding Turnpike									
	2019 Traffic Volumes				2023 Traffic Volumes				
Time Period	Tues 5/21/19	Wed 5/22/19	Thurs 5/23/19	Average (Tues-Thurs)	Tues 5/23/23	Wed 5/24/23	Thurs 5/25/23	Average (Tues-Thurs)	Tues-Thurs Average Comparison
DAILY	45,239	51,351	50,386	48,992	45,975	46,861	50,230	47,689	***-2.7%***
AM Peak (7-8AM)	4,180	4,470	4,190	4,280	3,787	3,854	3,770	3,804	***-11.1%***
PM Peak (4-5PM)	3,774	4,180	4,106	4,020	4,176	4,456	4,320	4,317	***7.4%***

APPENDIX D

Capacity Analysis Methodology

CAPACITY ANALYSIS METHODOLOGY

A primary result of capacity analysis is the assignment of levels of service to traffic facilities under various traffic flow conditions. The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual* (HCM).[1] The concept of level of service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year. A description of the operating condition under each level of service is provided below:

- *LOS A* describes conditions with little to no delay to motorists.
- *LOS B* represents a desirable level with relatively low delay to motorists.
- *LOS C* describes conditions with average delays to motorists.
- *LOS D* describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.
- *LOS E* represents operating conditions with high delay values. This level is considered by many agencies to be the limit of acceptable delay.
- *LOS F* is considered to be unacceptable to most drivers with high delay values that often occur, when arrival flow rates exceed the capacity of the intersection.

Signalized Intersections

Levels of service for signalized intersections are also calculated using the operational analysis methodology of the HCM. The methodology for signalized intersections assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on average *control* delay. Control delay is used to establish the operating characteristics for an intersection or an approach to an intersection. Volume-to-capacity (v/c) ratios are also used to help signify the utilization of a lane group's capacity at an intersection. A v/c ratio of ≥1.00 represents conditions when the traffic signal cycle capacity is fully utilized and indicates a capacity failure. The level-of-service criteria for signalized intersections are shown in Table A-1.

[1] *Highway Capacity Manual, 6TH Edition: A Guide for Multimodal Mobility Analysis.* Washington, D.C.: Transportation Research Board, 2016.

Unsignalized Intersections

Levels of service for unsignalized intersections are calculated using the operational analysis methodology of the HCM. The procedure accounts for lane configuration on both the minor and major street approaches, conflicting traffic stream volumes, and the type of intersection control (STOP, YIELD, or all-way STOP control). The definition of level of service for unsignalized intersections is a function of average *control* delay. Control delay at an unsignalized intersection is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. This time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position.

Volume-to-capacity (v/c) ratios are also used to help signify the utilization of a movement's capacity at an intersection. A v/c ratio of ≥1.00 represents conditions when the movement is fully utilized and indicates a capacity failure. The capacity of the movements is based on the distribution of gaps in the major street traffic stream, the selection of gaps to complete the desired movement, and the follow-up headways for each driver in the queue. When an unsignalized intersection is located within 0.25 miles of a signalized intersection, traffic flows may not be random and some platoon structure may exist, thereby affecting the minor street operations. The level-of-service criteria for unsignalized intersections are shown in Table A-1.

TABLE A-1
Level-of-Service Criteria for Intersections

Level of Service	**Signalized Intersection Criteria** Average Control Delay (Seconds per Vehicle)	**Unsignalized Intersection Criteria** Average Control Delay (Seconds per Vehicle)	**V/C Ratio >1.00[a]**
A	≤10	≤10	F
B	>10 and ≤20	>10 and ≤15	F
C	>20 and ≤35	>15 and ≤25	F
D	>35 and ≤55	>25 and ≤35	F
E	>55 and ≤80	>35 and ≤50	F
F	>80	>50	F

Note: [a]For approach-based and intersection-wide assessments, LOS is defined solely by control delay.

Source: *Highway Capacity Manual, 6th Edition: A Guide for Multimodal Mobility Analysis.* Washington, D.C.: Transportation Research Board, 2016. Exhibit 19-8, Pg. 19-16.

For signalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to the entire intersection. For unsignalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups on the minor street approaches or to the left turns from the major street approaches.

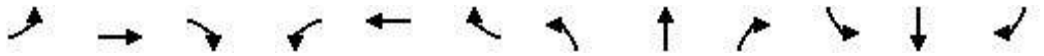
APPENDIX E

Capacity Analysis Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	0	7	51	1	41	34	1204	30	90	966	81
Future Volume (vph)	17	0	7	51	1	41	34	1204	30	90	966	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	11	11	11
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.96			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3146			1793	1599	1616	3330		1662	3285	
Flt Permitted		0.77			0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		2510			1307	1599	1616	3330		1662	3285	
Peak-hour factor, PHF	0.53	0.53	0.53	0.89	0.89	0.89	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	32	0	13	57	1	46	41	1451	36	97	1039	87
RTOR Reduction (vph)	0	41	0	0	0	42	0	1	0	0	5	0
Lane Group Flow (vph)	0	4	0	0	58	4	41	1486	0	97	1121	0
Heavy Vehicles (%)	6%	6%	6%	1%	1%	1%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA	Prot	Prot	NA		Prot	NA	
Protected Phases		4			4	4	1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		7.2			7.2	7.2	4.4	43.4		7.8	46.8	
Effective Green, g (s)		7.2			7.2	7.2	4.4	43.4		7.8	46.8	
Actuated g/C Ratio		0.09			0.09	0.09	0.06	0.57		0.10	0.61	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		236			123	150	93	1891		169	2012	
v/s Ratio Prot						0.00	0.03	c0.45		c0.06	c0.34	
v/s Ratio Perm		0.00			c0.04							
v/c Ratio		0.02			0.47	0.03	0.44	0.79		0.57	0.56	
Uniform Delay, d1		31.4			32.8	31.4	34.8	12.9		32.7	8.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			2.8	0.1	3.3	2.2		4.7	0.3	
Delay (s)		31.4			35.6	31.5	38.1	15.1		37.4	9.0	
Level of Service		C			D	C	D	B		D	A	
Approach Delay (s)		31.4			33.8			15.7			11.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	1	31	5	3	2	47	1153	0	14	872	143
Future Volume (vph)	153	1	31	5	3	2	47	1153	0	14	872	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	12	12	11	11	11	11	12	12
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1651	1524		1650		1631	3261		1646	3334	
Flt Permitted		0.71	1.00		0.85		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1238	1524		1431		1631	3261		1646	3334	
Peak-hour factor, PHF	0.79	0.79	0.79	0.56	0.56	0.56	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	194	1	39	9	5	4	56	1373	0	15	938	154
RTOR Reduction (vph)	0	0	26	0	3	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	195	13	0	15	0	56	1373	0	15	1079	0
Heavy Vehicles (%)	6%	6%	6%	9%	9%	9%	7%	7%	7%	6%	6%	6%
Turn Type	Perm	NA	pt+ov	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4	4 1		4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		19.3	31.2		19.3		5.9	51.5		2.4	48.0	
Effective Green, g (s)		19.3	31.2		19.3		5.9	51.5		2.4	48.0	
Actuated g/C Ratio		0.21	0.34		0.21		0.06	0.56		0.03	0.53	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		261	521		302		105	1841		43	1754	
v/s Ratio Prot			0.01				c0.03	c0.42		0.01	0.32	
v/s Ratio Perm		c0.16			0.01							
v/c Ratio		0.75	0.03		0.05		0.53	0.75		0.35	0.62	
Uniform Delay, d1		33.7	19.9		28.6		41.3	14.9		43.6	15.1	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		11.1	0.0		0.1		5.1	1.7		4.9	0.6	
Delay (s)		44.7	19.9		28.7		46.4	16.6		48.5	15.8	
Level of Service		D	B		C		D	B		D	B	
Approach Delay (s)		40.6			28.7			17.8			16.2	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	91.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1363	0	0	1081
Future Vol, veh/h	0	0	1363	0	0	1081
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	85	85	97	97
Heavy Vehicles, %	2	2	7	7	5	5
Mvmt Flow	0	0	1604	0	0	1114

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2161	802	0	0	1604	0
Stage 1	1604	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.2	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.25	-
Pot Cap-1 Maneuver	40	327	-	-	390	-
Stage 1	150	-	-	-	-	-
Stage 2	537	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	40	327	-	-	390	-
Mov Cap-2 Maneuver	119	-	-	-	-	-
Stage 1	150	-	-	-	-	-
Stage 2	537	-	-	-	-	-

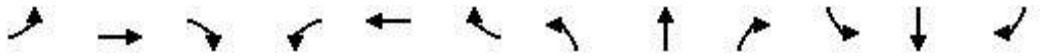
Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	390	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	1	52	105	4	78	21	1188	33	143	959	40
Future Volume (vph)	91	1	52	105	4	78	21	1188	33	143	959	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	11	11	11
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.95			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3277			1795	1599	1711	3525		1711	3401	
Flt Permitted		0.72			0.60	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		2434			1127	1599	1711	3525		1711	3401	
Peak-hour factor, PHF	0.76	0.76	0.76	0.72	0.72	0.72	0.89	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	120	1	68	146	6	108	24	1335	37	168	1128	47
RTOR Reduction (vph)	0	55	0	0	0	88	0	2	0	0	3	0
Lane Group Flow (vph)	0	134	0	0	152	20	24	1370	0	168	1172	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Prot	Prot	NA		Prot	NA	
Protected Phases		4			4	4	1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		15.9			15.9	15.9	2.8	40.2		11.3	48.7	
Effective Green, g (s)		15.9			15.9	15.9	2.8	40.2		11.3	48.7	
Actuated g/C Ratio		0.19			0.19	0.19	0.03	0.47		0.13	0.57	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		453			209	297	56	1659		226	1939	
v/s Ratio Prot						0.01	0.01	c0.39		c0.10	0.34	
v/s Ratio Perm		0.05			c0.13							
v/c Ratio		0.30			0.73	0.07	0.43	0.83		0.74	0.60	
Uniform Delay, d1		29.9			32.7	28.6	40.5	19.6		35.7	12.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			11.9	0.1	5.2	3.5		12.4	0.5	
Delay (s)		30.3			44.6	28.7	45.7	23.1		48.1	12.6	
Level of Service		C			D	C	D	C		D	B	
Approach Delay (s)		30.3			38.0			23.5			17.0	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	85.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	1	42	6	4	11	52	1128	0	12	972	116
Future Volume (vph)	180	1	42	6	4	11	52	1128	0	12	972	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	12	12	11	11	11	11	12	12
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1715	1583		1740		1711	3421		1711	3482	
Flt Permitted		0.69	1.00		0.89		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1251	1583		1567		1711	3421		1711	3482	
Peak-hour factor, PHF	0.75	0.75	0.75	0.48	0.48	0.48	0.89	0.89	0.89	0.93	0.93	0.93
Adj. Flow (vph)	240	1	56	12	8	23	58	1267	0	13	1045	125
RTOR Reduction (vph)	0	0	34	0	17	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	241	22	0	27	0	58	1267	0	13	1160	0
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	pt+ov	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4	4 1		4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		22.8	34.6		22.8		5.8	46.7		1.2	42.1	
Effective Green, g (s)		22.8	34.6		22.8		5.8	46.7		1.2	42.1	
Actuated g/C Ratio		0.26	0.39		0.26		0.07	0.53		0.01	0.47	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		321	617		402		111	1801		23	1652	
v/s Ratio Prot			0.01				c0.03	c0.37		0.01	0.33	
v/s Ratio Perm		c0.19			0.02							
v/c Ratio		0.75	0.04		0.07		0.52	0.70		0.57	0.70	
Uniform Delay, d1		30.3	16.7		24.9		40.1	15.8		43.5	18.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		9.5	0.0		0.1		4.4	1.3		28.1	1.4	
Delay (s)		39.8	16.8		25.0		44.5	17.1		71.6	19.7	
Level of Service		D	B		C		D	B		E	B	
Approach Delay (s)		35.5			25.0			18.3			20.3	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	88.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1340	0	0	1152
Future Vol, veh/h	0	0	1340	0	0	1152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	88	88	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1523	0	0	1371

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2209	762	0	0	1523	0
Stage 1	1523	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	38	347	-	-	434	-
Stage 1	166	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	38	347	-	-	434	-
Mov Cap-2 Maneuver	124	-	-	-	-	-
Stage 1	166	-	-	-	-	-
Stage 2	461	-	-	-	-	-

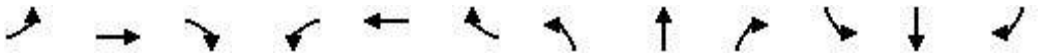
Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	434	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	0	7	52	1	42	35	1228	31	92	985	83
Future Volume (vph)	17	0	7	52	1	42	35	1228	31	92	985	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	11	11	11
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.96			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3146			1793	1599	1616	3330		1662	3285	
Flt Permitted		0.77			0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		2506			1307	1599	1616	3330		1662	3285	
Peak-hour factor, PHF	0.53	0.53	0.53	0.89	0.89	0.89	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	32	0	13	58	1	47	42	1480	37	99	1059	89
RTOR Reduction (vph)	0	41	0	0	0	43	0	1	0	0	5	0
Lane Group Flow (vph)	0	4	0	0	59	4	42	1516	0	99	1143	0
Heavy Vehicles (%)	6%	6%	6%	1%	1%	1%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA	Prot	Prot	NA		Prot	NA	
Protected Phases		4			4	4	1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		7.3			7.3	7.3	4.4	43.3		7.9	46.8	
Effective Green, g (s)		7.3			7.3	7.3	4.4	43.3		7.9	46.8	
Actuated g/C Ratio		0.10			0.10	0.10	0.06	0.57		0.10	0.61	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		239			124	152	92	1884		171	2009	
v/s Ratio Prot						0.00	0.03	c0.46		c0.06	c0.35	
v/s Ratio Perm		0.00			c0.05							
v/c Ratio		0.02			0.48	0.03	0.46	0.80		0.58	0.57	
Uniform Delay, d1		31.4			32.8	31.4	34.9	13.2		32.7	8.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			2.9	0.1	3.6	2.6		4.7	0.4	
Delay (s)		31.4			35.7	31.5	38.5	15.8		37.4	9.2	
Level of Service		C			D	C	D	B		D	A	
Approach Delay (s)		31.4			33.8			16.4			11.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	1	32	5	3	2	48	1176	0	14	890	146
Future Volume (vph)	156	1	32	5	3	2	48	1176	0	14	890	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	12	12	11	11	11	11	12	12
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1651	1524		1650		1631	3261		1646	3334	
Flt Permitted		0.71	1.00		0.85		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1238	1524		1432		1631	3261		1646	3334	
Peak-hour factor, PHF	0.79	0.79	0.79	0.56	0.56	0.56	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	197	1	41	9	5	4	57	1400	0	15	957	157
RTOR Reduction (vph)	0	0	27	0	3	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	198	14	0	15	0	57	1400	0	15	1101	0
Heavy Vehicles (%)	6%	6%	6%	9%	9%	9%	7%	7%	7%	6%	6%	6%
Turn Type	Perm	NA	pt+ov	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4	4 1		4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		19.7	31.6		19.7		5.9	52.4		2.4	48.9	
Effective Green, g (s)		19.7	31.6		19.7		5.9	52.4		2.4	48.9	
Actuated g/C Ratio		0.21	0.34		0.21		0.06	0.57		0.03	0.53	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		263	520		304		104	1847		42	1762	
v/s Ratio Prot			0.01				c0.03	c0.43		0.01	0.33	
v/s Ratio Perm		c0.16			0.01							
v/c Ratio		0.75	0.03		0.05		0.55	0.76		0.36	0.63	
Uniform Delay, d1		34.1	20.2		28.9		42.0	15.2		44.3	15.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		11.5	0.0		0.1		5.8	1.8		5.1	0.7	
Delay (s)		45.6	20.3		29.0		47.8	17.1		49.4	16.0	
Level of Service		D	C		C		D	B		D	B	
Approach Delay (s)		41.3			29.0			18.3			16.5	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	92.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1390	0	0	1103
Future Vol, veh/h	0	0	1390	0	0	1103
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	85	85	97	97
Heavy Vehicles, %	2	2	7	7	5	5
Mvmt Flow	0	0	1635	0	0	1137

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2204	818	0	0	1635	0
Stage 1	1635	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.2	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.25	-
Pot Cap-1 Maneuver	38	319	-	-	379	-
Stage 1	144	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	38	319	-	-	379	-
Mov Cap-2 Maneuver	114	-	-	-	-	-
Stage 1	144	-	-	-	-	-
Stage 2	530	-	-	-	-	-

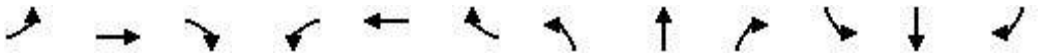
Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	379	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	1	53	107	4	80	21	1212	34	146	978	41
Future Volume (vph)	93	1	53	107	4	80	21	1212	34	146	978	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	11	11	11
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.95			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3276			1795	1599	1711	3525		1711	3401	
Flt Permitted		0.71			0.60	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		2416			1122	1599	1711	3525		1711	3401	
Peak-hour factor, PHF	0.76	0.76	0.76	0.72	0.72	0.72	0.89	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	122	1	70	149	6	111	24	1362	38	172	1151	48
RTOR Reduction (vph)	0	57	0	0	0	90	0	2	0	0	3	0
Lane Group Flow (vph)	0	136	0	0	155	21	24	1398	0	172	1196	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Prot	Prot	NA		Prot	NA	
Protected Phases		4			4	4	1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		16.2			16.2	16.2	2.9	40.8		11.4	49.3	
Effective Green, g (s)		16.2			16.2	16.2	2.9	40.8		11.4	49.3	
Actuated g/C Ratio		0.19			0.19	0.19	0.03	0.47		0.13	0.57	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		453			210	299	57	1664		225	1940	
v/s Ratio Prot						0.01	0.01	c0.40		c0.10	0.35	
v/s Ratio Perm		0.06			c0.14							
v/c Ratio		0.30			0.74	0.07	0.42	0.84		0.76	0.62	
Uniform Delay, d1		30.2			33.1	28.9	40.9	19.9		36.2	12.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			12.7	0.1	5.0	4.0		14.3	0.6	
Delay (s)		30.6			45.8	29.0	45.9	24.0		50.5	12.9	
Level of Service		C			D	C	D	C		D	B	
Approach Delay (s)		30.6			38.8			24.3			17.6	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	86.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	1	43	6	4	11	53	1151	0	12	992	118
Future Volume (vph)	184	1	43	6	4	11	53	1151	0	12	992	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	12	12	11	11	11	11	12	12
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1715	1583		1740		1711	3421		1711	3483	
Flt Permitted		0.69	1.00		0.89		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1251	1583		1564		1711	3421		1711	3483	
Peak-hour factor, PHF	0.75	0.75	0.75	0.48	0.48	0.48	0.89	0.89	0.89	0.93	0.93	0.93
Adj. Flow (vph)	245	1	57	12	8	23	60	1293	0	13	1067	127
RTOR Reduction (vph)	0	0	35	0	17	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	246	22	0	27	0	60	1293	0	13	1184	0
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	pt+ov	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4	4 1		4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		22.8	34.7		22.8		5.9	47.9		1.2	43.2	
Effective Green, g (s)		22.8	34.7		22.8		5.9	47.9		1.2	43.2	
Actuated g/C Ratio		0.25	0.39		0.25		0.07	0.53		0.01	0.48	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		317	611		396		112	1822		22	1673	
v/s Ratio Prot			0.01				c0.04	c0.38		0.01	0.34	
v/s Ratio Perm		c0.20			0.02							
v/c Ratio		0.78	0.04		0.07		0.54	0.71		0.59	0.71	
Uniform Delay, d1		31.2	17.2		25.5		40.7	15.8		44.1	18.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		11.3	0.0		0.1		4.9	1.3		36.0	1.4	
Delay (s)		42.5	17.2		25.6		45.5	17.1		80.1	19.8	
Level of Service		D	B		C		D	B		F	B	
Approach Delay (s)		37.7			25.6			18.3			20.4	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

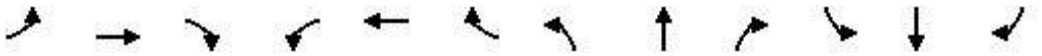
Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1367	0	0	1175
Future Vol, veh/h	0	0	1367	0	0	1175
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	88	88	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1553	0	0	1399

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2253	777	0	0	1553	0
Stage 1	1553	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	35	340	-	-	422	-
Stage 1	160	-	-	-	-	-
Stage 2	454	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	35	340	-	-	422	-
Mov Cap-2 Maneuver	120	-	-	-	-	-
Stage 1	160	-	-	-	-	-
Stage 2	454	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

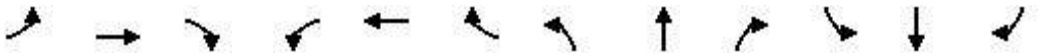
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	422	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	0	7	52	1	42	35	1248	31	92	992	83
Future Volume (vph)	17	0	7	52	1	42	35	1248	31	92	992	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	11	11	11
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.96			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3146			1793	1599	1616	3331		1662	3285	
Flt Permitted		0.77			0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		2506			1307	1599	1616	3331		1662	3285	
Peak-hour factor, PHF	0.53	0.53	0.53	0.89	0.89	0.89	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	32	0	13	58	1	47	42	1504	37	99	1067	89
RTOR Reduction (vph)	0	41	0	0	0	43	0	1	0	0	5	0
Lane Group Flow (vph)	0	4	0	0	59	4	42	1540	0	99	1151	0
Heavy Vehicles (%)	6%	6%	6%	1%	1%	1%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA	Prot	Prot	NA		Prot	NA	
Protected Phases		4			4	4	1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		7.3			7.3	7.3	4.4	43.3		7.9	46.8	
Effective Green, g (s)		7.3			7.3	7.3	4.4	43.3		7.9	46.8	
Actuated g/C Ratio		0.10			0.10	0.10	0.06	0.57		0.10	0.61	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		239			124	152	92	1885		171	2009	
v/s Ratio Prot						0.00	0.03	c0.46		c0.06	c0.35	
v/s Ratio Perm		0.00			c0.05							
v/c Ratio		0.02			0.48	0.03	0.46	0.82		0.58	0.57	
Uniform Delay, d1		31.4			32.8	31.4	34.9	13.4		32.7	8.9	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			2.9	0.1	3.6	2.9		4.7	0.4	
Delay (s)		31.4			35.7	31.5	38.5	16.3		37.4	9.3	
Level of Service		C			D	C	D	B		D	A	
Approach Delay (s)		31.4			33.8			16.9			11.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	1	32	5	3	2	48	1179	0	14	899	151
Future Volume (vph)	157	1	32	5	3	2	48	1179	0	14	899	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	12	12	11	11	11	11	12	12
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1651	1524		1650		1631	3261		1646	3332	
Flt Permitted		0.71	1.00		0.85		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1238	1524		1432		1631	3261		1646	3332	
Peak-hour factor, PHF	0.79	0.79	0.79	0.56	0.56	0.56	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	199	1	41	9	5	4	57	1404	0	15	967	162
RTOR Reduction (vph)	0	0	27	0	3	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	200	14	0	15	0	57	1404	0	15	1116	0
Heavy Vehicles (%)	6%	6%	6%	9%	9%	9%	7%	7%	7%	6%	6%	6%
Turn Type	Perm	NA	pt+ov	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4	4 1		4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		20.0	31.9		20.0		5.9	52.6		2.4	49.1	
Effective Green, g (s)		20.0	31.9		20.0		5.9	52.6		2.4	49.1	
Actuated g/C Ratio		0.22	0.34		0.22		0.06	0.57		0.03	0.53	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		266	522		307		103	1844		42	1759	
v/s Ratio Prot			0.01				c0.03	c0.43		0.01	0.33	
v/s Ratio Perm		c0.16			0.01							
v/c Ratio		0.75	0.03		0.05		0.55	0.76		0.36	0.63	
Uniform Delay, d1		34.2	20.3		29.0		42.3	15.4		44.5	15.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		11.4	0.0		0.1		6.3	1.9		5.1	0.8	
Delay (s)		45.5	20.3		29.0		48.6	17.3		49.7	16.3	
Level of Service		D	C		C		D	B		D	B	
Approach Delay (s)		41.2			29.0			18.5			16.8	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

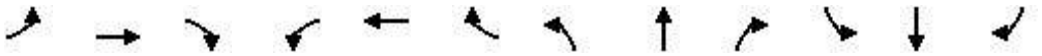
Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	20	1390	4	7	1103
Future Vol, veh/h	14	20	1390	4	7	1103
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	85	85	97	97
Heavy Vehicles, %	2	2	7	7	5	5
Mvmt Flow	16	22	1635	5	7	1137

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2221	820	0	0	1640	0
Stage 1	1638	-	-	-	-	-
Stage 2	583	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.2	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.25	-
Pot Cap-1 Maneuver	37	318	-	-	377	-
Stage 1	144	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	35	318	-	-	377	-
Mov Cap-2 Maneuver	112	-	-	-	-	-
Stage 1	144	-	-	-	-	-
Stage 2	495	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.1	0	0.5
HCM LOS	D		

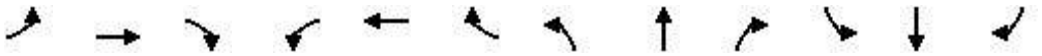
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	181	377	-
HCM Lane V/C Ratio	-	-	0.209	0.019	-
HCM Control Delay (s)	-	-	30.1	14.7	0.4
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	1	53	107	4	80	21	1224	34	146	997	41
Future Volume (vph)	93	1	53	107	4	80	21	1224	34	146	997	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	11	11	11
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.95			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3276			1795	1599	1711	3525		1711	3401	
Flt Permitted		0.71			0.60	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		2415			1122	1599	1711	3525		1711	3401	
Peak-hour factor, PHF	0.76	0.76	0.76	0.72	0.72	0.72	0.89	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	122	1	70	149	6	111	24	1375	38	172	1173	48
RTOR Reduction (vph)	0	57	0	0	0	90	0	2	0	0	3	0
Lane Group Flow (vph)	0	136	0	0	155	21	24	1411	0	172	1218	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Prot	Prot	NA		Prot	NA	
Protected Phases		4			4	4	1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		16.2			16.2	16.2	2.9	41.0		11.4	49.5	
Effective Green, g (s)		16.2			16.2	16.2	2.9	41.0		11.4	49.5	
Actuated g/C Ratio		0.19			0.19	0.19	0.03	0.47		0.13	0.57	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		451			209	299	57	1668		225	1943	
v/s Ratio Prot						0.01	0.01	c0.40		c0.10	0.36	
v/s Ratio Perm		0.06			c0.14							
v/c Ratio		0.30			0.74	0.07	0.42	0.85		0.76	0.63	
Uniform Delay, d1		30.3			33.2	29.0	41.0	20.0		36.3	12.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			13.2	0.1	5.0	4.2		14.3	0.6	
Delay (s)		30.7			46.5	29.1	46.0	24.2		50.6	13.0	
Level of Service		C			D	C	D	C		D	B	
Approach Delay (s)		30.7			39.2			24.5			17.7	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	86.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	1	43	6	4	11	53	1159	0	12	997	121
Future Volume (vph)	189	1	43	6	4	11	53	1159	0	12	997	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	12	12	11	11	11	11	12	12
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1715	1583		1740		1711	3421		1711	3482	
Flt Permitted		0.69	1.00		0.88		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1251	1583		1562		1711	3421		1711	3482	
Peak-hour factor, PHF	0.75	0.75	0.75	0.48	0.48	0.48	0.89	0.89	0.89	0.93	0.93	0.93
Adj. Flow (vph)	252	1	57	12	8	23	60	1302	0	13	1072	130
RTOR Reduction (vph)	0	0	35	0	17	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	253	22	0	27	0	60	1302	0	13	1192	0
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	pt+ov	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4	4 1		4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		22.8	34.7		22.8		5.9	48.2		1.2	43.5	
Effective Green, g (s)		22.8	34.7		22.8		5.9	48.2		1.2	43.5	
Actuated g/C Ratio		0.25	0.38		0.25		0.07	0.53		0.01	0.48	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		316	608		394		111	1828		22	1679	
v/s Ratio Prot			0.01				c0.04	c0.38		0.01	0.34	
v/s Ratio Perm		c0.20			0.02							
v/c Ratio		0.80	0.04		0.07		0.54	0.71		0.59	0.71	
Uniform Delay, d1		31.6	17.3		25.6		40.8	15.8		44.3	18.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		13.5	0.0		0.1		5.3	1.3		36.0	1.4	
Delay (s)		45.1	17.3		25.7		46.1	17.1		80.2	19.8	
Level of Service		D	B		C		D	B		F	B	
Approach Delay (s)		40.0			25.7			18.4			20.5	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	12	1367	13	19	1175
Future Vol, veh/h	8	12	1367	13	19	1175
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	88	88	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	13	1553	15	23	1399

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2307	784	0	0	1568	0
Stage 1	1561	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	32	336	-	-	417	-
Stage 1	159	-	-	-	-	-
Stage 2	430	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	24	336	-	-	417	-
Mov Cap-2 Maneuver	107	-	-	-	-	-
Stage 1	159	-	-	-	-	-
Stage 2	324	-	-	-	-	-

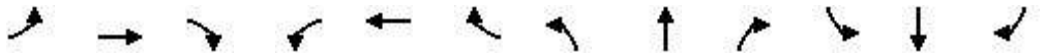
Approach	WB	NB	SB
HCM Control Delay, s	27.7	0	1.9
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	181	417	-
HCM Lane V/C Ratio	-	-	0.123	0.054	-
HCM Control Delay (s)	-	-	27.7	14.1	1.7
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	0	8	57	1	46	38	1357	34	101	1089	91
Future Volume (vph)	19	0	8	57	1	46	38	1357	34	101	1089	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	11	11	11
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.96			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3144			1793	1599	1616	3330		1662	3285	
Flt Permitted		0.77			0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		2494			1298	1599	1616	3330		1662	3285	
Peak-hour factor, PHF	0.53	0.53	0.53	0.89	0.89	0.89	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	36	0	15	64	1	52	46	1635	41	109	1171	98
RTOR Reduction (vph)	0	46	0	0	0	47	0	1	0	0	5	0
Lane Group Flow (vph)	0	5	0	0	65	5	46	1675	0	109	1264	0
Heavy Vehicles (%)	6%	6%	6%	1%	1%	1%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA	Prot	Prot	NA		Prot	NA	
Protected Phases		4			4	4	1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		7.7			7.7	7.7	4.4	43.5		8.1	47.2	
Effective Green, g (s)		7.7			7.7	7.7	4.4	43.5		8.1	47.2	
Actuated g/C Ratio		0.10			0.10	0.10	0.06	0.56		0.10	0.61	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		248			129	159	91	1873		174	2005	
v/s Ratio Prot						0.00	0.03	c0.50		c0.07	c0.38	
v/s Ratio Perm		0.00			c0.05							
v/c Ratio		0.02			0.50	0.03	0.51	0.89		0.63	0.63	
Uniform Delay, d1		31.4			33.0	31.4	35.4	14.9		33.2	9.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			3.1	0.1	4.4	5.9		6.9	0.7	
Delay (s)		31.4			36.1	31.5	39.8	20.8		40.0	10.2	
Level of Service		C			D	C	D	C		D	B	
Approach Delay (s)		31.4			34.0			21.3			12.5	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	1	35	6	3	2	53	1299	0	16	983	161
Future Volume (vph)	172	1	35	6	3	2	53	1299	0	16	983	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	12	12	11	11	11	11	12	12
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1651	1524		1651		1631	3261		1646	3334	
Flt Permitted		0.71	1.00		0.83		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1235	1524		1402		1631	3261		1646	3334	
Peak-hour factor, PHF	0.79	0.79	0.79	0.56	0.56	0.56	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	218	1	44	11	5	4	63	1546	0	17	1057	173
RTOR Reduction (vph)	0	0	29	0	3	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	219	15	0	17	0	63	1546	0	17	1218	0
Heavy Vehicles (%)	6%	6%	6%	9%	9%	9%	7%	7%	7%	6%	6%	6%
Turn Type	Perm	NA	pt+ov	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4	4 1		4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		22.4	34.5		22.4		6.1	57.6		2.5	54.0	
Effective Green, g (s)		22.4	34.5		22.4		6.1	57.6		2.5	54.0	
Actuated g/C Ratio		0.22	0.34		0.22		0.06	0.57		0.02	0.54	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		275	523		312		98	1868		40	1791	
v/s Ratio Prot			0.01				c0.04	c0.47		0.01	0.37	
v/s Ratio Perm		c0.18			0.01							
v/c Ratio		0.80	0.03		0.05		0.64	0.83		0.42	0.68	
Uniform Delay, d1		36.9	21.9		30.7		46.1	17.4		48.3	16.9	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		14.7	0.0		0.1		13.5	3.2		7.1	1.0	
Delay (s)		51.6	21.9		30.8		59.7	20.6		55.4	18.0	
Level of Service		D	C		C		E	C		E	B	
Approach Delay (s)		46.6			30.8			22.1			18.5	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1536	0	0	1218
Future Vol, veh/h	0	0	1536	0	0	1218
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	85	85	97	97
Heavy Vehicles, %	2	2	7	7	5	5
Mvmt Flow	0	0	1807	0	0	1256

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2435	904	0	0	1807	0
Stage 1	1807	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.2	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.25	-
Pot Cap-1 Maneuver	26	280	-	-	324	-
Stage 1	116	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	26	280	-	-	324	-
Mov Cap-2 Maneuver	93	-	-	-	-	-
Stage 1	116	-	-	-	-	-
Stage 2	494	-	-	-	-	-

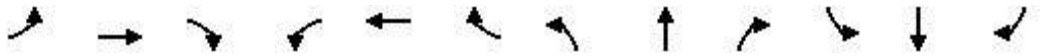
Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	324	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	1	59	118	5	88	24	1339	37	161	1081	45
Future Volume (vph)	103	1	59	118	5	88	24	1339	37	161	1081	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	11	11	11
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.95			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3276			1795	1599	1711	3525		1711	3401	
Flt Permitted		0.69			0.58	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		2340			1097	1599	1711	3525		1711	3401	
Peak-hour factor, PHF	0.76	0.76	0.76	0.72	0.72	0.72	0.89	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	136	1	78	164	7	122	27	1504	42	189	1272	53
RTOR Reduction (vph)	0	63	0	0	0	98	0	2	0	0	3	0
Lane Group Flow (vph)	0	152	0	0	171	24	27	1544	0	189	1322	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Prot	Prot	NA		Prot	NA	
Protected Phases		4			4	4	1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		17.5			17.5	17.5	3.0	42.0		11.6	50.6	
Effective Green, g (s)		17.5			17.5	17.5	3.0	42.0		11.6	50.6	
Actuated g/C Ratio		0.20			0.20	0.20	0.03	0.47		0.13	0.57	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		459			215	314	57	1661		222	1931	
v/s Ratio Prot						0.01	0.02	c0.44		c0.11	0.39	
v/s Ratio Perm		0.07			c0.16							
v/c Ratio		0.33			0.80	0.08	0.47	0.93		0.85	0.68	
Uniform Delay, d1		30.8			34.1	29.2	42.3	22.2		37.9	13.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			18.1	0.1	6.1	9.6		25.5	1.0	
Delay (s)		31.2			52.2	29.3	48.4	31.7		63.4	14.6	
Level of Service		C			D	C	D	C		E	B	
Approach Delay (s)		31.2			42.7			32.0			20.7	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	89.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	1	47	7	5	12	59	1271	0	14	1095	131
Future Volume (vph)	203	1	47	7	5	12	59	1271	0	14	1095	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	12	12	11	11	11	11	12	12
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1715	1583		1746		1711	3421		1711	3482	
Flt Permitted		0.69	1.00		0.87		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1243	1583		1544		1711	3421		1711	3482	
Peak-hour factor, PHF	0.75	0.75	0.75	0.48	0.48	0.48	0.89	0.89	0.89	0.93	0.93	0.93
Adj. Flow (vph)	271	1	63	15	10	25	66	1428	0	15	1177	141
RTOR Reduction (vph)	0	0	38	0	19	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	272	25	0	31	0	66	1428	0	15	1309	0
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	pt+ov	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4	4 1		4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		23.0	35.0		23.0		6.0	53.9		2.5	50.4	
Effective Green, g (s)		23.0	35.0		23.0		6.0	53.9		2.5	50.4	
Actuated g/C Ratio		0.24	0.36		0.24		0.06	0.55		0.03	0.52	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		293	568		364		105	1893		43	1801	
v/s Ratio Prot			0.02				c0.04	c0.42		0.01	0.38	
v/s Ratio Perm		c0.22			0.02							
v/c Ratio		0.93	0.04		0.08		0.63	0.75		0.35	0.73	
Uniform Delay, d1		36.4	20.3		29.0		44.6	16.7		46.6	18.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		33.9	0.0		0.1		11.2	1.8		4.9	1.5	
Delay (s)		70.2	20.3		29.1		55.8	18.4		51.5	19.7	
Level of Service		E	C		C		E	B		D	B	
Approach Delay (s)		60.9			29.1			20.1			20.0	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	97.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

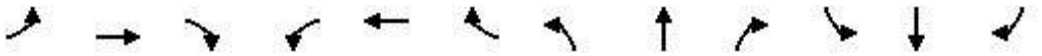
Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1510	0	0	1298
Future Vol, veh/h	0	0	1510	0	0	1298
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	88	88	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1716	0	0	1545

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2489	858	0	0	1716	0
Stage 1	1716	-	-	-	-	-
Stage 2	773	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	24	300	-	-	365	-
Stage 1	130	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	24	300	-	-	365	-
Mov Cap-2 Maneuver	98	-	-	-	-	-
Stage 1	130	-	-	-	-	-
Stage 2	416	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

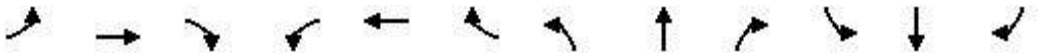
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	365	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	0	8	57	1	46	38	1377	34	101	1096	91
Future Volume (vph)	19	0	8	57	1	46	38	1377	34	101	1096	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	11	11	11
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.96			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3144			1793	1599	1616	3331		1662	3285	
Flt Permitted		0.77			0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		2494			1298	1599	1616	3331		1662	3285	
Peak-hour factor, PHF	0.53	0.53	0.53	0.89	0.89	0.89	0.83	0.83	0.83	0.93	0.93	0.93
Adj. Flow (vph)	36	0	15	64	1	52	46	1659	41	109	1178	98
RTOR Reduction (vph)	0	46	0	0	0	47	0	1	0	0	5	0
Lane Group Flow (vph)	0	5	0	0	65	5	46	1699	0	109	1271	0
Heavy Vehicles (%)	6%	6%	6%	1%	1%	1%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA	Prot	Prot	NA		Prot	NA	
Protected Phases		4			4	4	1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		7.7			7.7	7.7	4.4	43.5		8.1	47.2	
Effective Green, g (s)		7.7			7.7	7.7	4.4	43.5		8.1	47.2	
Actuated g/C Ratio		0.10			0.10	0.10	0.06	0.56		0.10	0.61	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		248			129	159	91	1874		174	2005	
v/s Ratio Prot						0.00	0.03	c0.51		c0.07	c0.39	
v/s Ratio Perm		0.00			c0.05							
v/c Ratio		0.02			0.50	0.03	0.51	0.91		0.63	0.63	
Uniform Delay, d1		31.4			33.0	31.4	35.4	15.1		33.2	9.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			3.1	0.1	4.4	6.7		6.9	0.7	
Delay (s)		31.4			36.1	31.5	39.8	21.8		40.0	10.2	
Level of Service		C			D	C	D	C		D	B	
Approach Delay (s)		31.4			34.0			22.3			12.6	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1	35	6	3	2	53	1302	0	16	992	166
Future Volume (vph)	173	1	35	6	3	2	53	1302	0	16	992	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	12	12	11	11	11	11	12	12
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1651	1524		1651		1631	3261		1646	3333	
Flt Permitted		0.71	1.00		0.83		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1235	1524		1402		1631	3261		1646	3333	
Peak-hour factor, PHF	0.79	0.79	0.79	0.56	0.56	0.56	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	219	1	44	11	5	4	63	1550	0	17	1067	178
RTOR Reduction (vph)	0	0	29	0	3	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	220	15	0	17	0	63	1550	0	17	1232	0
Heavy Vehicles (%)	6%	6%	6%	9%	9%	9%	7%	7%	7%	6%	6%	6%
Turn Type	Perm	NA	pt+ov	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4	4 1		4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		22.5	34.6		22.5		6.1	58.0		2.5	54.4	
Effective Green, g (s)		22.5	34.6		22.5		6.1	58.0		2.5	54.4	
Actuated g/C Ratio		0.22	0.34		0.22		0.06	0.57		0.02	0.54	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		275	522		312		98	1872		40	1795	
v/s Ratio Prot			0.01				c0.04	c0.48		0.01	0.37	
v/s Ratio Perm		c0.18			0.01							
v/c Ratio		0.80	0.03		0.05		0.64	0.83		0.42	0.69	
Uniform Delay, d1		37.1	22.0		30.9		46.4	17.5		48.5	17.1	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		15.2	0.0		0.1		13.5	3.2		7.1	1.1	
Delay (s)		52.3	22.1		31.0		59.9	20.6		55.7	18.2	
Level of Service		D	C		C		E	C		E	B	
Approach Delay (s)		47.3			31.0			22.2			18.7	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	101.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

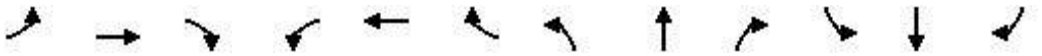
Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	20	1536	4	7	1218
Future Vol, veh/h	14	20	1536	4	7	1218
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	85	85	97	97
Heavy Vehicles, %	2	2	7	7	5	5
Mvmt Flow	16	22	1807	5	7	1256

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2452	906	0	0	1812	0
Stage 1	1810	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.2	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.25	-
Pot Cap-1 Maneuver	26	279	-	-	323	-
Stage 1	116	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	24	279	-	-	323	-
Mov Cap-2 Maneuver	91	-	-	-	-	-
Stage 1	116	-	-	-	-	-
Stage 2	451	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.6	0	0.7
HCM LOS	E		

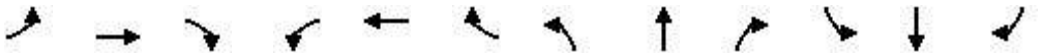
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	151	323	-
HCM Lane V/C Ratio	-	-	0.25	0.022	-
HCM Control Delay (s)	-	-	36.6	16.4	0.6
HCM Lane LOS	-	-	E	C	A
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	1	59	118	5	88	24	1351	37	161	1100	45
Future Volume (vph)	103	1	59	118	5	88	24	1351	37	161	1100	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	11	11	11
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.95			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3276			1795	1599	1711	3525		1711	3401	
Flt Permitted		0.69			0.58	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		2340			1097	1599	1711	3525		1711	3401	
Peak-hour factor, PHF	0.76	0.76	0.76	0.72	0.72	0.72	0.89	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	136	1	78	164	7	122	27	1518	42	189	1294	53
RTOR Reduction (vph)	0	63	0	0	0	98	0	2	0	0	3	0
Lane Group Flow (vph)	0	152	0	0	171	24	27	1558	0	189	1344	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Prot	Prot	NA		Prot	NA	
Protected Phases		4			4	4	1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		17.5			17.5	17.5	3.0	42.0		11.6	50.6	
Effective Green, g (s)		17.5			17.5	17.5	3.0	42.0		11.6	50.6	
Actuated g/C Ratio		0.20			0.20	0.20	0.03	0.47		0.13	0.57	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		459			215	314	57	1661		222	1931	
v/s Ratio Prot						0.01	0.02	c0.44		c0.11	0.40	
v/s Ratio Perm		0.07			c0.16							
v/c Ratio		0.33			0.80	0.08	0.47	0.94		0.85	0.70	
Uniform Delay, d1		30.8			34.1	29.2	42.3	22.3		37.9	13.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			18.1	0.1	6.1	10.6		25.5	1.1	
Delay (s)		31.2			52.2	29.3	48.4	32.9		63.4	14.9	
Level of Service		C			D	C	D	C		E	B	
Approach Delay (s)		31.2			42.7			33.1			20.8	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	89.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	1	47	7	5	12	59	1279	0	14	1100	134
Future Volume (vph)	208	1	47	7	5	12	59	1279	0	14	1100	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	12	12	11	11	11	11	12	12
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1715	1583		1746		1711	3421		1711	3482	
Flt Permitted		0.69	1.00		0.87		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1243	1583		1540		1711	3421		1711	3482	
Peak-hour factor, PHF	0.75	0.75	0.75	0.48	0.48	0.48	0.89	0.89	0.89	0.93	0.93	0.93
Adj. Flow (vph)	277	1	63	15	10	25	66	1437	0	15	1183	144
RTOR Reduction (vph)	0	0	37	0	19	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	278	26	0	31	0	66	1437	0	15	1318	0
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	pt+ov	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4	4 1		4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		22.9	34.9		22.9		6.0	54.4		2.5	50.9	
Effective Green, g (s)		22.9	34.9		22.9		6.0	54.4		2.5	50.9	
Actuated g/C Ratio		0.23	0.36		0.23		0.06	0.56		0.03	0.52	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		291	564		360		104	1902		43	1812	
v/s Ratio Prot			0.02				c0.04	c0.42		0.01	0.38	
v/s Ratio Perm		c0.22			0.02							
v/c Ratio		0.96	0.05		0.09		0.63	0.76		0.35	0.73	
Uniform Delay, d1		36.9	20.6		29.3		44.8	16.6		46.8	18.1	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		40.4	0.0		0.1		12.0	1.8		4.9	1.5	
Delay (s)		77.4	20.6		29.4		56.8	18.4		51.7	19.6	
Level of Service		E	C		C		E	B		D	B	
Approach Delay (s)		66.9			29.4			20.1			19.9	
Approach LOS		E			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	97.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	12	1510	13	19	1298
Future Vol, veh/h	8	12	1510	13	19	1298
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	88	88	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	13	1716	15	23	1545

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2543	866	0	0	1731	0
Stage 1	1724	-	-	-	-	-
Stage 2	819	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	22	297	-	-	360	-
Stage 1	129	-	-	-	-	-
Stage 2	394	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	12	297	-	-	360	-
Mov Cap-2 Maneuver	79	-	-	-	-	-
Stage 1	129	-	-	-	-	-
Stage 2	216	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35.3	0	3.6
HCM LOS	E		

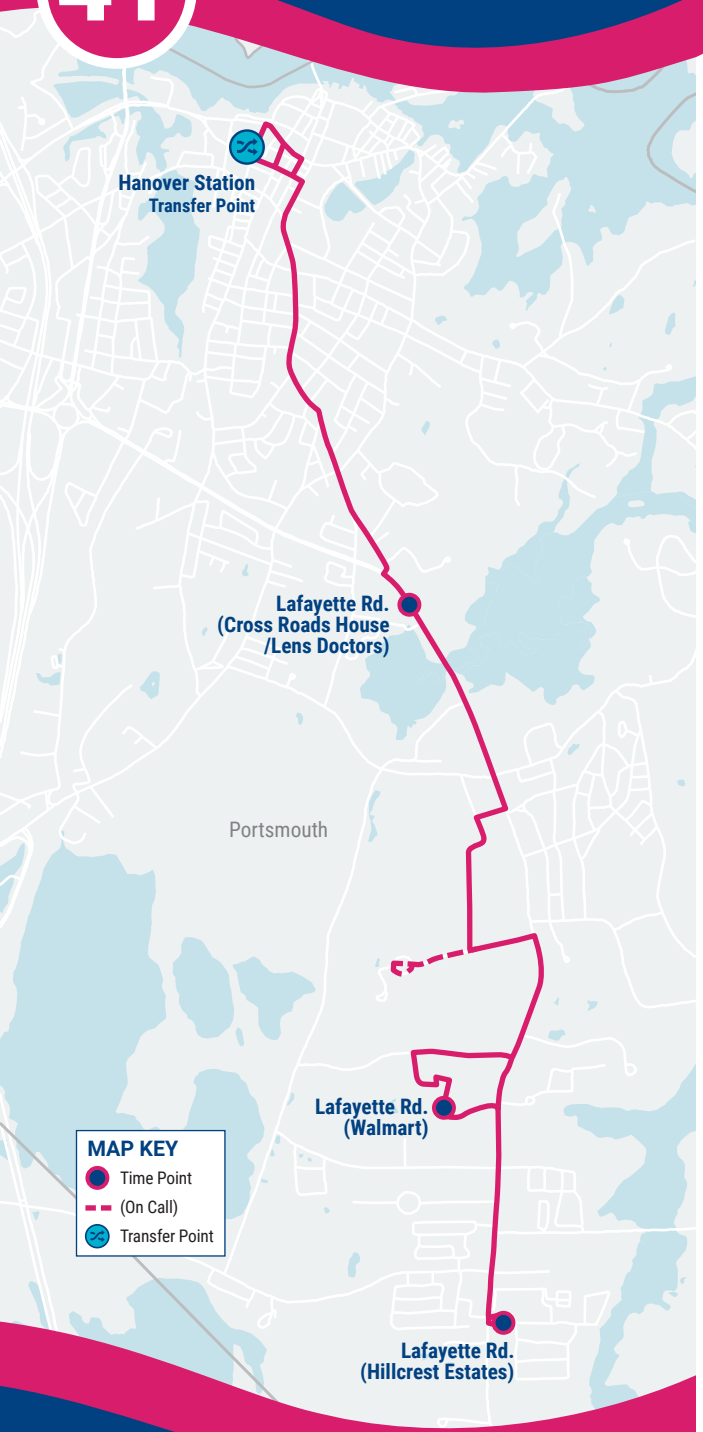
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	141	360	-
HCM Lane V/C Ratio	-	-	0.158	0.063	-
HCM Control Delay (s)	-	-	35.3	15.7	3.4
HCM Lane LOS	-	-	E	C	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-

APPENDIX F

COAST Bus Schedule & Map

Route 41 Map

Portsmouth • Lafayette Road



Ride Information

COAST BUS FARES

Base Cash Fare **$1.50**

All passengers ages 5 and up are required to pay this fare each time they board a COAST bus.

Half-Fare **$ 0.75**

Passengers 65 and older, or passengers with a disability are entitled to pay half the cash fare. Proof of eligibility is required by showing a Medicare card, photo ID with birth date, COAST ADA Paratransit Card, or COAST Half-Fare Card. Please contact COAST to apply for a Half-Fare Card.

Multi-Ride Tickets and Passes

*Available at **www.coastbus.org** or call 603-743-5777, TTY 711.*

Unlimited Monthly Pass **$ 52**

Unlimited rides on COAST Routes for the month.

YOUR RIGHTS

COAST adheres to all Federal regulations regarding Civil Rights. If you need to request an ADA Reasonable Modification/ Accommodation, or if you believe you have been discriminated against or would like to file a complaint under the ADA or Title VI, please contact COAST's Civil Rights Officer at 603-516-0788, TTY 711 or email CivilRights@coastbus.org.

NO SERVICE DAYS

COAST does not operate on the following holidays:

- New Year's Day
- Martin Luther King Jr./ Civil Rights Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Eve Day
- Christmas Day

42 Sumner Drive • Dover, NH 03820

603-743-5777 • TTY 711 • **www.coastbus.org**

This brochure is available in alternative formats upon request.

Bus Schedule & Map 41

COAST

Effective 09.17.22

ROUTE 41

Portsmouth • Lafayette Road

Find all of the full COAST schedules online at **coastbus.org**

MAP OUT YOUR GAME PLAN

Planning your trip has never been easier!

www.coastbus.org

COAST SYSTEM MAP

OUTBOUND • INBOUND

Route 41 Portsmouth • Lafayette Road

How to Read the Schedule

Printed bus schedules only show the timepoints (major bus stops where the bus will hold until the scheduled departure time). In between those timepoints are many other stops that you can use. For a full listing of bus stops, visit **www.coastbus.org**, or use the Passio GO! App.

The times shown represent the number of minutes after the hour that the bus will depart from that stop. Last stop times are arrivals. Any exceptions will be noted.

OUTBOUND (M-Sat)	Service On Every Hour		
Hanover Station - Lafayette Rd. (Hillcrest Estates)	First Bus	Minutes Past Hour	Last Bus
Hanover Station	6:00am	:00	8:00pm
Lafayette Rd. (Cross Roads House)	6:10am	:10	8:10pm
Lafayette Rd. (Walmart)	6:20am	:20	8:20pm
Lafayette Rd. (Hillcrest Estates)	6:29am	:29	8:29pm

INBOUND (M-Sat)	Service On Every Hour		
Lafayette Rd. (Hillcrest Estates) - Hanover Station	First Bus	Minutes Past Hour	Last Bus
Lafayette Rd. (Hillcrest Estates)	6:30am	:30	8:30pm
Lafayette Rd. (Lens Doctors)	6:38am	:38	8:38pm
Hanover Station	6:49am	:49	8:49pm

MAP IT!

For a full listing of bus stops, visit
www.coastbus.org
or use the Passio GO! App.

Passio GO! App
Download the Passio GO! App for real-time information at the Google Play or App store.

Making Connections

Please tell your driver if you are trying to make a connection to another Route.

TRANSFER POINTS

Hanover Station	13 14 40 41 42 43 44
Dover Transportation Center	1 12 13 33 M-F 33 SAT 34
Dover NHDOT Park & Ride (Exit 9)	1 14
Rochester City Hall	6 12 14

14 33 SAT Temporarily suspended part of route due to driver shortage.

Hanover Station, Portsmouth

APPENDIX G

Trip Distribution Analysis

Table 3. Residence MCD/County to Workplace MCD/County Commuting Flows for the United States and Puerto Ric

For more information on sampling and estimation methods, confidentiality protection, and sampling and nonsampling errors, see

Universe: Workers 16 years and over.

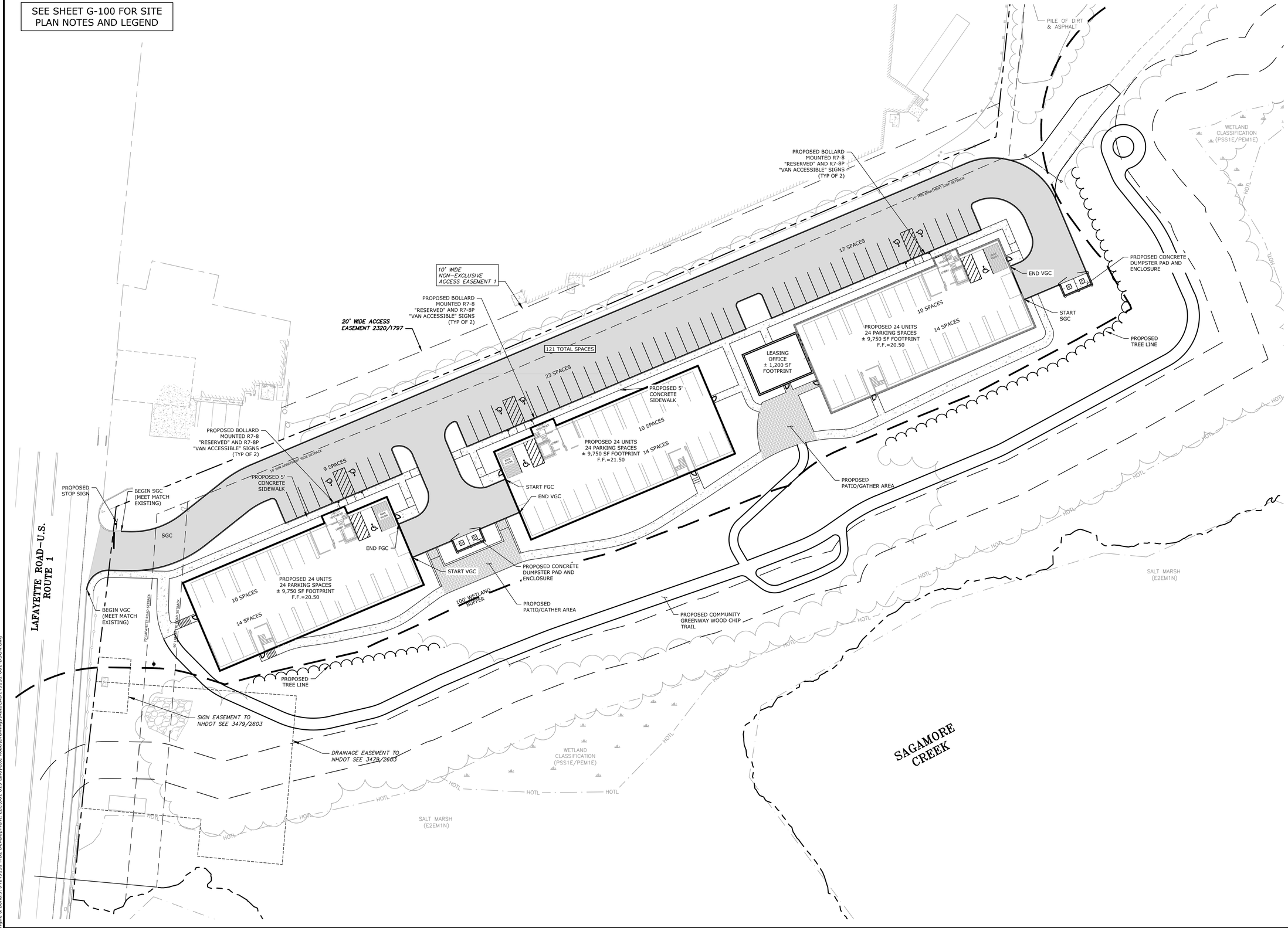
Commuting flows are sorted by residence state, residence county, and residence minor civil division.

Residence		Place of Work		Commuting Flow	TO / FROM						
State Name	Minor Civil Division Name	State Name	Minor Civil Division Name	Workers in Commuting Flow	I-95 NB via Route 1 Bypass	I-95 SB via NH 33	Spaulding Tpke via Route 1 Bypass	South via Route 1	Portsmouth Center via Lafayette Rd	West via Route 33	
New Hampshire	Portsmouth city	New Hampshire	Portsmouth city	6,310	315.5		315.5	1893	3470.5	315.5	
New Hampshire	Portsmouth city	New Hampshire	Dover city	643			643				
New Hampshire	Portsmouth city	New Hampshire	Durham town	470			376			117.5	
New Hampshire	Portsmouth city	New Hampshire	Exeter town	437		327.75				109.25	
New Hampshire	Portsmouth city	Maine	Kittery town	379	151.6				227.4		
New Hampshire	Portsmouth city	New Hampshire	Newington town	360			324			36	
New Hampshire	Portsmouth city	New Hampshire	Hampton town	354		106.2		247.8			
New Hampshire	Portsmouth city	Massachusetts	Boston city	164		82		82			
New Hampshire	Portsmouth city	New Hampshire	North Hampton town	162		48.6		113.4			
New Hampshire	Portsmouth city	New Hampshire	Salem town	159		159					
New Hampshire	Portsmouth city	Maine	York town	142	71				71		
New Hampshire	Portsmouth city	New Hampshire	New Castle town	134					134		
New Hampshire	Portsmouth city	New Hampshire	Manchester city	129		51.6	38.7			38.7	
New Hampshire	Portsmouth city	New Hampshire	Somersworth city	125			125				
New Hampshire	Portsmouth city	New Hampshire	Rye town	123				123			
New Hampshire	Portsmouth city	New Hampshire	Stratham town	123				92.25		30.75	
New Hampshire	Portsmouth city	New Hampshire	Greenland town	112				84		28	
New Hampshire	Portsmouth city	New Hampshire	Londonderry town	92		92					
New Hampshire	Portsmouth city	New Hampshire	Concord city	89			89				
New Hampshire	Portsmouth city	Massachusetts	Newburyport city	86		43		43			
New Hampshire	Portsmouth city	New Hampshire	Seabrook town	85		42.5		42.5			
New Hampshire	Portsmouth city	New Hampshire	Rochester city	80			80				
New Hampshire	Portsmouth city	Massachusetts	Peabody city	78		39		39			
New Hampshire	Portsmouth city	New Hampshire	Brentwood town	77		57.75				19.25	
New Hampshire	Portsmouth city	New Hampshire	Raymond town	75		37.5				37.5	
New Hampshire	Portsmouth city	Maine	North Berwick town	72	36		36				
New Hampshire	Portsmouth city	New Hampshire	Bedford town	69		69					
New Hampshire	Portsmouth city	New Hampshire	Barrington town	56			56				
New Hampshire	Portsmouth city	New Hampshire	Hampton Falls town	53		26.5		26.5			
New Hampshire	Portsmouth city	New Hampshire	Plymouth town	51		45.9	5.1				
New Hampshire	Portsmouth city	Massachusetts	North Andover town	49		36.75		12.25			
New Hampshire	Portsmouth city	New Hampshire	Wolfeboro town	49			49				
New Hampshire	Portsmouth city	Maine	Eliot town	48	24				24		
New Hampshire	Portsmouth city	Massachusetts	Amesbury Town city	48		24		24			
New Hampshire	Portsmouth city	Massachusetts	Quincy city	43		21.5		21.5			
New Hampshire	Portsmouth city	Massachusetts	Andover town	41		20.5		20.5			
New Hampshire	Portsmouth city	Massachusetts	Methuen Town city	40		20		20			
New Hampshire	Portsmouth city	Massachusetts	Stoneham town	39		19.5		19.5			
New Hampshire	Portsmouth city	New Hampshire	Plaistow town	39		39					
New Hampshire	Portsmouth city	New Hampshire	Nashua city	38		38					
New Hampshire	Portsmouth city	Massachusetts	Burlington town	37		18.5		18.5			
New Hampshire	Portsmouth city	New Hampshire	Hooksett town	37		33.3	3.7				
New Hampshire	Portsmouth city	New Hampshire	Rollinsford town	37			37				
New Hampshire	Portsmouth city	New Hampshire	Newmarket town	33						33	
New Hampshire	Portsmouth city	Massachusetts	Haverhill city	32		16		16			
New Hampshire	Portsmouth city	Maine	South Portland city	25	25						
New Hampshire	Portsmouth city	Massachusetts	Groveland town	25		12.5		12.5			
New Hampshire	Portsmouth city	Massachusetts	Cambridge city	25		12.5		12.5			
New Hampshire	Portsmouth city	Massachusetts	Chelmsford town	24		12		12			
New Hampshire	Portsmouth city	Maine	South Berwick town	23	17.25		5.75				
New Hampshire	Portsmouth city	New Hampshire	Hampstead town	22		22					
New Hampshire	Portsmouth city	Maine	Portland city	21	21						
New Hampshire	Portsmouth city	Massachusetts	Boxborough town	21		10.5		10.5			
New Hampshire	Portsmouth city	Massachusetts	Billerica town	20		10		10			
			TOTAL	12,105	661	1,595	2,184	2,996	3,927	765	0
					5%	15%	20%	25%	30%	5%	

APPENDIX H

Site Development Plan

SEE SHEET G-100 FOR SITE PLAN NOTES AND LEGEND



Tighe&Bond

N

0 30' 60'

GRAPHIC SCALE

PROGRESS PRINT

PROPOSED DEVELOPMENT

PROSPECT NORTH 815, LLC

815 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION

PROJECT NO:	M5131-001
DATE:	9/5/2023
FILE:	M5131-001-DSGN.dwg
DRAWN BY:	NHW/CJK
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

SITE PLAN

SCALE: AS SHOWN

C-102.1

Last Saved: 10/5/2023
Printed: 10/5/2023 - 10:30am By: CKcroulk
Tighe & Bond:J:\M\M5131 MB2 Development, LLC\001 815 Lafayette Road\Drawings\AutoCAD\M5131-001-DSGN.dwg

APPENDIX I

Off-Site Mitigation Analysis

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2035 Build Condition Weekday AM Peak Hour Volumes (4-lane roadway)

INPUT

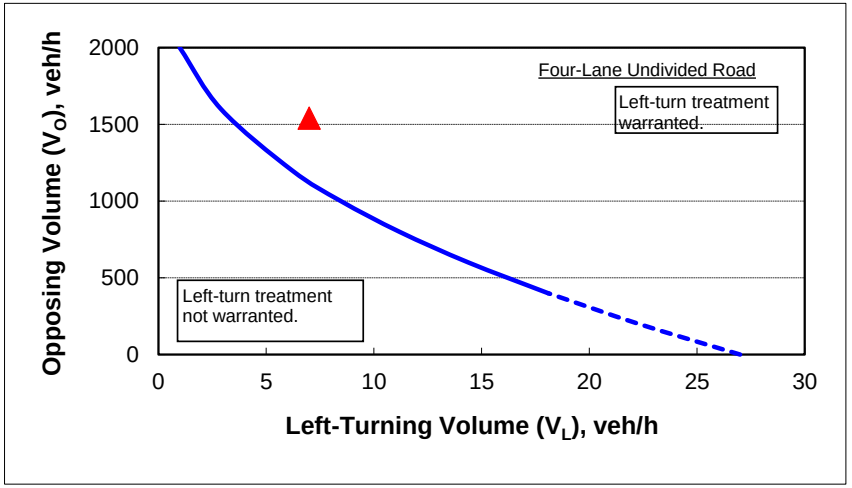
Variable	Value
Left-turning volume (V_L), veh/h:	7
Advancing volume (V_A), veh/h:	1225
Opposing volume (V_O), veh/h:	1540

OUTPUT

Variable	Message
Opposing volume (Vo) check:	O.K.
Combined volume (V_A and V_O) check:	O.K.
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	4.0
Critical headway, s:	6.0



Note: When V_O < 400 veh/h (dashed line), a left-turn lane is not normally warranted unless the advancing volume (V_A) in the same direction as the left-turning traffic exceeds 400 veh/h (V_A > 400 veh/h).

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2035 Build Condition Weekday PM Peak Hour Volumes (4-lane roadway)

INPUT

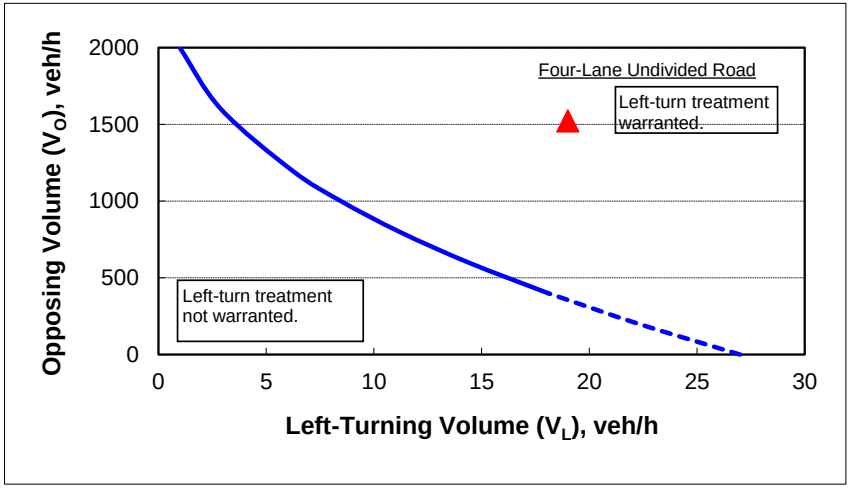
Variable	Value
Left-turning volume (V_L), veh/h:	19
Advancing volume (V_A), veh/h:	1317
Opposing volume (V_O), veh/h:	1523

OUTPUT

Variable	Message
Opposing volume (Vo) check:	O.K.
Combined volume (V_A and V_O) check:	O.K.
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	4.0
Critical headway, s:	6.0



Note: When V_O < 400 veh/h (dashed line), a left-turn lane is not normally warranted unless the advancing volume (V_A) in the same direction as the left-turning traffic exceeds 400 veh/h (V_A > 400 veh/h).

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

2035 Build Condition Weekday AM Peak Hour Volumes

INPUT

Roadway geometry:	4-lane roadway

Variable	Value
Major-road speed, mph:	44.7
Major-road volume (one direction), veh/h:	1540
Right-turn volume, veh/h:	4

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	14
Guidance for determining the need for a major-road right-turn bay for a 4-lane roadway:	
Do NOT add right-turn bay.	

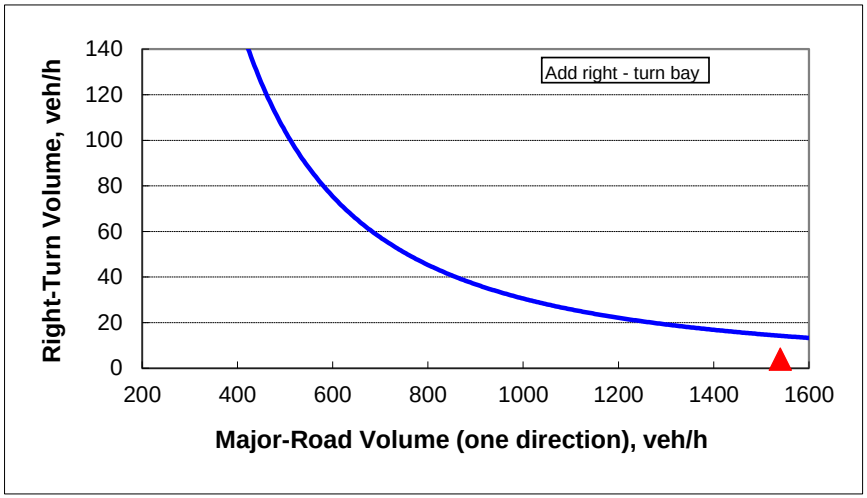


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

2035 Build Condition Weekday PM Peak Hour Volumes

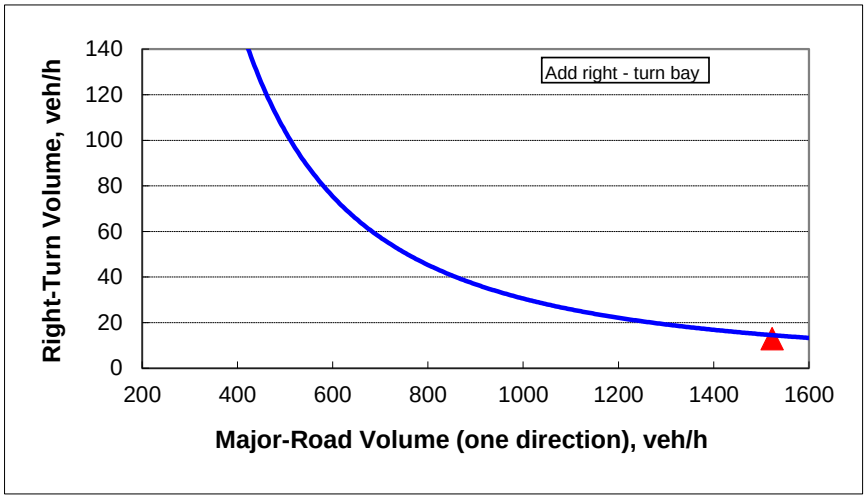
INPUT

Roadway geometry:	4-lane roadway

Variable	Value
Major-road speed, mph:	44.7
Major-road volume (one direction), veh/h:	1523
Right-turn volume, veh/h:	13

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	15
Guidance for determining the need for a major-road right-turn bay for a 4-lane roadway:	
Do NOT add right-turn bay.	



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October 19, 2023

Prospect North 815 LLC

RE: Natural Gas Availability to 815 Lafayette Rd Portsmouth NH

Dear Mike,

Unitil's natural gas division has reviewed the requested site for natural gas service.

Unitil hereby confirms natural gas service will be available to the 815 Lafayette Rd Portsmouth Project to serve three new residential 24 unit buildings.

Installation is pending an authorized installation agreement with Prospect North 815 LLC and street opening approval from the City of Portsmouth DPW.

Let me know if you have any questions. You can email me at oliver@unitil.com. My phone number is 603-294-5174.

Sincerely,

Janet Oliver
Senior Business Development Representative

CUSTOMER ENERGY SOLUTIONS
325 West Road
Portsmouth, NH 03801

T 888.486.4845 www.unitil.com

October 23, 2023

Green Energy Statement for

815 Lafayette Road, Portsmouth NH

Exterior Wall Systems: The exterior walls will meet or exceed the 2018 IECC standards for energy efficient design with any applicable State of New Hampshire and/or City of Portsmouth Amendments. The ground level walls are proposed to be constructed using Insulated Concrete Forms (ICF), All exterior walls enclosing conditioned spaces on the upper floors will be wood framed with insulation in the stud cavity and at all the rim joists. The exterior cladding materials will a combination of vinyl cladding over a continuous water and air infiltration resistive barrier system.

Window Systems: All windows systems in the project will meet or exceed the 2018 IECC standards with any applicable State of New Hampshire and/or City of Portsmouth Amendments. for u-value, shading coefficient and solar heat gain including high-performance, low-e glazing.

Roofing Systems: the roofing system in the project will consist of a roof membrane over continuous sloped insulation above the roof deck. Insulation value will meet or exceed the 2018 IECC standards with any applicable State of New Hampshire and/or City of Portsmouth Amendments. Slopes will direct water to interior roof drains to be managed in the site drainage.

HVAC Systems: The dwelling units will be provided with individualized heating and cooling units. Systems may include electric heat pumps and energy recovery ventilation units with EnergyStar electric domestic hot water heaters. The enclosed parking areas will be minimally heat using either gas fired unit heaters or a radiant heated slab with gas fired boiler. A heated slab will be continuously insulated to meet or exceed the 2018 IECC standards for energy efficient design with any applicable State of New Hampshire and/or City of Portsmouth Amendments.

Plumbing Systems: All plumbing fixtures in the project will be low-flow fixtures. Dwelling units will have individual EnergyStar rated hot water heaters.

Lighting Systems: All permanent interior light fixtures will use LED lamping.

Appliances: All appliances provided with the project will be EnergyStar rated.

City of Portsmouth, New Hampshire

Site Plan Application Checklist

This site plan application checklist is a tool designed to assist the applicant in the planning process and for preparing the application for Planning Board review. The checklist is required to be completed and uploaded to the Site Plan application in the City's online permitting system. A pre-application conference with a member of the planning department is strongly encouraged as additional project information may be required depending on the size and scope. The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all site plan review requirements. Please refer to the Site Plan review regulations for full details.

Applicant Responsibilities (Section 2.5.2): Applicable fees are due upon application submittal along with required attachments. The application shall be complete as submitted and provide adequate information for evaluation of the proposed site development. Waiver requests must be submitted in writing with appropriate justification.

Name of Applicant: Prospect North 815, LLC Date Submitted: October 23, 2023

Application # (in City's online permitting): LU 23-149

Site Address: 815 Lafayette Rd Map: 245 Lot: Lot 3

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☑	Complete application form submitted via the City's web-based permitting program (2.5.2.1**(2.5.2.3A)**	Enclosed	N/A
☑	All application documents, plans, supporting documentation and other materials uploaded to the application form in viewpoint in digital Portable Document Format (PDF). One hard copy of all plans and materials shall be submitted to the Planning Department by the published deadline. **(2.5.2.8)**	Enclosed	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	Statement that lists and describes "green" building components and systems. **(2.5.3.1B)**	Enclosed	Yes
☑	Existing and proposed gross floor area and dimensions of all buildings and statement of uses and floor area for each floor. **(2.5.3.1C)**	Site Plan Sheet C-102	N/A
☑	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	Site Plan Sheet C-102	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1E)**	Enclosed Cover Sheet	N/A
☑	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. **(2.5.3.1F)**	Existing Conditions Plan Sheets	N/A
☑	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Cover Sheet	N/A
☑	List of reference plans. **(2.5.3.1H)**	General Notes Sheet G-100 & Existing Conditions Plan Sheets	N/A
☑	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	General Notes Sheet G-100	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. **(2.5.4.1A)**	Required on all plan sheets	N/A
☑	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. **(2.5.4.1B)**	Required on all plan sheets	N/A
☑	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. **(2.5.4.1C)**	Existing Conditions Plan Sheets	N/A
☑	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. **(2.5.4.1D)**	Required on all plan sheets	N/A
☑	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. **(2.5.4.1E)**	Existing Conditions Plan Sheets	N/A
☑	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	Required on all plan sheets	N/A
☑	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	Required on all plan sheets	N/A
☑	Individual plan sheet title that clearly describes the information that is displayed. **(2.5.4.2C)**	Required on all plan sheets	N/A
☑	Source and date of data displayed on the plan. **(2.5.4.2D)**	Required on all plan sheets	N/A

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	**1. Existing Conditions: (2.5.4.3A)** • Surveyed plan of site showing existing natural and built features; • Existing building footprints and gross floor area; • Existing parking areas and number of parking spaces provided; • Zoning district boundaries; • Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre; • Existing impervious and disturbed areas; • Limits and type of existing vegetation; • Wetland delineation, wetland function and value assessment (including vernal pools); • SFHA, 100-year flood elevation line and BFE data, as required.	Existing Conditions Plan Sheets	
☑	**2. Buildings and Structures: (2.5.4.3B)** • Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation; • Elevations: Height, massing, placement, materials, lighting, façade treatments; • Total Floor Area; • Number of Usable Floors; • Gross floor area by floor and use.	Site Plan Sheets C-102 & C-102.1	
☑	**3. Access and Circulation: (2.5.4.3C)** • Location/width of access ways within site; • Location of curbing, right of ways, edge of pavement and sidewalks; • Location, type, size and design of traffic signing (pavement markings); • Names/layout of existing abutting streets; • Driveway curb cuts for abutting prop. and public roads; • If subdivision; Names of all roads, right of way lines and easements noted; • AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	Site Plan Sheets C-102 & C-102.1	
☑	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	Site Plan Sheets C-102 & C-102.1	
☑	**5. Water Infrastructure: (2.5.4.3E)** • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii).	Utilities Plan Sheet C-104	
☑	**6. Sewer Infrastructure: (2.5.4.3F)** • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period.	Utilities Plan Sheet C-104	

☑	**7. Utilities: (2.5.4.3G)** • The size, type and location of all above & below ground utilities; • Size type and location of generator pads, transformers and other fixtures.	Utilities Plan Sheet C-104	
☑	**8. Solid Waste Facilities: (2.5.4.3H)**		
	• The size, type and location of solid waste facilities.	Site Plan Sheet C-102.1	
☑	**9. Storm water Management: (2.5.4.3I)** • The location, elevation and layout of all storm-water drainage. • The location of onsite snow storage areas and/or proposed off-site snow removal provisions. • Location and containment measures for any salt storage facilities • Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.	Grading and Drainage Plan Sheet C-103	
☑	**10. Outdoor Lighting: (2.5.4.3J)** • Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.	Photometrics Plan	
☑	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**	Photometrics Plan	
☑	**12. Landscaping: (2.5.4.3K)** • Identify all undisturbed area, existing vegetation and that which is to be retained; • Location of any irrigation system and water source.	Landscape Plan Sheet C-105	
☑	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	Grading and Drainage Plan Sheet C-103	
☑	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	Site Plan Sheet C-102	
☑	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	Existing Conditions Plan Sheets	
☑	**16. Character/Civic District (All following information shall be included): (2.5.4.3P)** • Applicable Building Height (10.5A21.20 & 10.5A43.30); • Applicable Special Requirements (10.5A21.30); • Proposed building form/type (10.5A43); • Proposed community space (10.5A46).	Site Plan Sheet C-102	
☑	**17. Special Flood Hazard Areas (2.5.4.3Q)** • The proposed development is consistent with the need to minimize flood damage; • All public utilities and facilities are located and construction to minimize or eliminate flood damage; • Adequate drainage is provided so as to reduce exposure to flood hazards.	Existing Conditions Plan Sheets	

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	Traffic Impact Study or Trip Generation Report, as required. **(3.2.1-2)**	Enclosed	
☑	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	Grading and Drainage Plan Sheet C-103	
☑	Indicate whether the proposed development is located in a wellhead protection or aquifer protection area. Such determination shall be approved by the Director of the Dept. of Public Works. **(7.3.1)**	N/A	
☑	Stormwater Management and Erosion Control Plan. **(7.4)**	Enclosed	
☑	Inspection and Maintenance Plan **(7.6.5)**	Enclosed	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	All local approvals, permits, easements and licenses required, including but not limited to: • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. **(2.5.3.2A)**	Cover Sheet	
☑	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: • Calculations relating to stormwater runoff; • Information on composition and quantity of water demand and wastewater generated; • Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; • Estimates of traffic generation and counts pre- and post-construction; • Estimates of noise generation; • A Stormwater Management and Erosion Control Plan; • Endangered species and archaeological / historical studies; • Wetland and water body (coastal and inland) delineations; • Environmental impact studies. **(2.5.3.2B)**	Enclosed	
☑	A document from each of the required private utility service providers indicating approval of the proposed site plan and indicating an ability to provide all required private utilities to the site. **(2.5.3.2D)**	Unitil Will Serve Letter has been included. The applicant is currently working with Eversource to get a will serve letter.	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**	Cover Sheet	
☑	A note shall be provided on the Site Plan stating: "All conditions on this Plan shall remain in effect in perpetuity pursuant to the requirements of the Site Plan Review Regulations." **(2.5.4.2E)**	Site Plan Sheet C-102	N/A
☑	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. **(2.5.4.2F)**	N/A	
☑	Plan sheets submitted for recording shall include the following notes: a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "All improvements shown on this Site Plan shall be constructed and maintained in accordance with the Plan by the property owner and all future property owners. No changes shall be made to this Site Plan without the express approval of the Portsmouth Planning Director." **(2.13.3)**	Site Plan Sheet C-102	N/A

Applicant's Signature: Neil Hansen (Applicant's Agent) **Date:** 10/23/2023

City of Portsmouth Planning Department

Site Plan Review Application Fee

Project: 815 Lafayette Rd **Map/Lot:** Map 245 Lot 3

Applicant: Prospect North 815, LLC

All development

Base fee $600			$600.00
Plus $5.00 per $1,000 of site costs			
Site costs	$450,000	+	$2,250.00
Plus $10.00 per 1,000 S.F. of site development area			
Site development area	174,192 S.F.	+	$1,741.92
		Fee	**$4,591.92**

Maximum fee: $20,000.00

Fee received by: _____ Date: _____

Note: Initial application fee may be based on the applicant's estimates of site costs and site development area. Following site plan approval, the application fee will be recalculated based on the approved site plan and site engineer's corresponding site cost estimate as approved by the Department of Public Works, and any additional fee shall be paid prior to the issuance of a building permit.

Owner/Agent Letter of Authorization

This letter is to authorize Tighe & Bond, Inc. (Civil Engineer), to represent and submit on behalf of Prospect North 815, LLC (Owner/Applicant), applications and materials in all site design and permitting matters for the proposed development project located at 815 Lafayette Road in Portsmouth, New Hampshire on parcel of land identified as Map 245 Lot 3. This project includes the construction of multifamily buildings, an office building, and associated on-site improvements. This authorization shall relate to those activities that are required for local, state and federal permitting for the above project and include any required signatures for those applications.

Signature	Michael Brown Print Name	6-1-23 Date
Witness	Jeffrey A. Philbrick Print Name	6/1/23 Date

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

20 November, 2023

Peter Stith, TAC Committee Chair
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

RE: Request for Site Plan Approval at 581 Lafayette Road; Mixed Use Development
Tax Map 229 Lot 8B

Dear Mr. Stith and TAC Members:

On behalf of Atlas Common, LLC (Owner) we are pleased to submit the attached plan set for **Site Plan Approval** for the above-mentioned project and request that we be placed on the agenda for your **December 5, 2023,** Technical Advisory Committee Meeting. The project consists of the addition of residential units (including 20% Workforce) at 581 Lafayette Road with two new building additions with the associated and required site improvements. The site is currently developed with two restaurants. The re-development will include creating additional parking below first floor building level.

The project is located at 581 Lafayette Road and are two proposed additions to an existing building. The building was renovated when the site was changed from a Cinema to the Tuscan Restaurant – Tuscan Marketplace in 2016. The site is at the corner of Lafayette Road and Ledgewood Drive, and is known as Tax Map 229, Lot 8B. The lot is a 98,124 square foot parcel with frontage on both streets. The existing conditions plan shows the current site features. The Tuscan Market moved to downtown Portsmouth, and that portion of the site was re-purposed to a restaurant with golf simulators, known as Tour. The Tuscan Marketplace closed, but recently the Tuscan Marketplace was converted to another restaurant with some outside seating.

The property is located in the Gateway Neighborhood Mixed-Use District - G1. The purpose of the district is to support the goals of the cities Master Plan and Housing Policy. The aim of the policy is to encourage walkable, mixed-use development, and continued economic vitality in the cities primary gateway areas. The district seeks to ensure that new developments complement and enhance the surroundings and provide housing stock that is suitable for changing demographics and accommodate the housing needs of the city's current and future workforce. This plan works towards that standard by adding to the existing structure and creating 72 new dwelling units. The proposed uses; being restaurant use and dwelling units (multi-family residential) are both allowed uses in the district.

The project proposes additions that are set back 33 feet from Ledgewood Drive, 47 feet from Lafayette Road, 24 feet from the southerly abutting property line, and 39 feet from the easterly abutting property line. The proposed building additions maintain the ability for the free flow of traffic around the proposed additions, as required by deed restrictions and easements on the property. First floor parking spaces are accessed from driveways to the parking areas at first floor level, as shown on the site plan. Underground parking is accessed from a driveway ramp on the north side of the proposed structure off Ledgewood Drive. The property has deeded agreements with the abutting properties along Lafayette Road, wherein shared parking is a deeded right among the properties.

The submitted site plan shows the impervious surface calculations for the proposed development. When the site was redeveloped to the Tuscan Marketplace, the impervious surface coverage (increase) was allowed under a Variance, up to coverage which maintained 16.5% open space. The building height is intended to comply with section 10.5 B 22.10 as allowed under the section. Regarding the special setback requirements on Lafayette Road, the project is in a location where there is a significant open space in front of the subject parcel. This open space was created when the Lafayette Road, Route 1 Bypass intersection was restructured around 2011. That relocation of the intersection created this large open space area in front of the lot, which in effect meets this special set back requirements inherent in the section regarding properties on Lafayette Road.

The presence of the parking in front of the building is as it has been for many years, when this property was used as a cinema, and additionally when it was repurposed to Tuscan Marketplace. A variance for front of building parking was granted. The proposal has gone to the Portsmouth Planning Board for Conceptual Review. During the review it was noted that some of the parking spaces in front of the building are partially located off the lot in the state highway right of way. Those spaces existed when the work was done to relocate the intersection, and they existed when the property was redeveloped into the Tuscan Marketplace and allowed to stay.

The existing drainage consists of some roof drain connections as well as some parking lot connections to the drainage network, which flow off-site. The property drainage is divided into two watersheds, one that flows to the south along the front of the adjacent mall and the other flows to the south along the back of the adjacent mall. The intent of this design is to maintain those flow directions and re-purpose the drainage in accordance with the proposed site addition roof drains that will replace some catch basins to direct the water in this manner. Additional treatment of the runoff is provided with the introduction of a Jellyfish filter.

It is our understanding that this development would most likely fall under Section 10.05 B 42.20, Mixed-Use Development, and the development standards of that section. The process for development in the Gateway Neighborhood Mixed-Use District requires application to the Planning Board for a Conditional Use Permit where development deviates from the strict standards, and proof that the development proposed meets, and is consistent with, the Portsmouth Master Plan. In the density section of the ordinance this development would be allowed up to 24 units per structure. This project proposes a Conditional Use Permit for a density bonus as allowed in section 10.5 B 72 for two buildings with 36 units in each building. This increased housing density is allowed with an incentive. In order to be eligible for the bonus incentive the development shall include workforce housing. The intent of this

development is to provide 20% of the dwelling units, or 15 units, as workforce units, as defined by the Portsmouth Ordinance. We believe that under section 10.5 B 74.30 the Planning Board is authorized to grant modifications to the standards of the section since, and as a result of, the developer providing workforce housing. We believe that the modifications to the strict ordinance interpretations are consistent with the purpose and intent set forth in the Gateway Neighborhood Mixed-Use District section. We therefore request that review of this project at the Technical Advisory Committee level proceed not only to look at the technical aspects of the proposal, but to review our proposed development and provide feedback regarding compliance with the intent of the ordinance.

The development plan is summarized as follows and as shown on the Proposed Site Plans:

- Sheet C1 – Existing Conditions Plan: The plan shows current site conditions.
- Sheet C2 – Demolition Plan: The plan shows required site demolition.
- Sheet C3 –Site Plan: This sheet shows the location of the proposed building additions, outdoor seating area, and associated site improvements.
- Sheet L1 and L2 – this plan shows the added site landscaping.
- Sheet C4 – Parking Plan: The plan shows the underground parking.
- Sheet C5 – Utility Plan: The plan shows proposed utility connections.
- Sheet C6 – Grading, Drainage, Erosion Control Plan: The plan shows the proposed drainage connections for the site.
- Sheets D1 to D5 – These sheets show the site construction details.
- Floor Plans - Elevations - Renderings - These are the Architectural site designs.

We look forward to an in-person presentation at the December 5, 2023, meeting.

Sincerely,

John Chagnon, PE; Ambit Engineering – Haley Ward
Submitted Online

P:\NH\5010156-McNabb_Properties\1397.03-Lafayette Rd., Portsmouth-JRC\2023 Site Plan 1397.03\Applications\Portsmouth Site Plan\581 Lafayette TAC Application 11-20-23.doc

Construction Cost Estimate

Ambit Engineering-A Division of Haley Ward

Date: November 20 2023

Project: Atlas Commons, LLC Job No: 1397.04

Location: 581 Lafayette Road, Portsmouth, NH

Scope: **Site Cost Estimate**

ITEM NO	DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
1	Site Demolition	LS	1	$55,000.00	$55,000.00
2	Remove Pavement	TON	500	$65.00	$32,500.00
3	Granite Curbing	LF	90	$60.00	$5,400.00
4	Concrete Retaining Wall	SFF	912	$120.00	$109,440.00
5	Parking Striping	LS	1	$1,500.00	$1,500.00
6	Concrete Sidewalk	SF	365	$25.00	$9,125.00
7	Landscape Plantings	LS	1	$45,000.00	$45,000.00
8	Underground Electric / Conduit	LF	650	$55.00	$35,750.00
9	Sewer Service	LF	660	$80.00	$52,800.00
10	Transformer and Pad	EA	1	$10,000.00	$10,000.00
11	Water & Sprinkler Services	LF	70	$80.00	$5,600.00
12	Grease Trap	LS	1	$6,000.00	$6,000.00
13	JellyFish Filter	LS	1	$65,000.00	$65,000.00
14	Catch Basin	LS	4	$5,000.00	$20,000.00
15	Drain Manhole	LS	1	$6,500.00	$6,500.00
16	Drainage Pipe	LF	604	$90.00	$54,360.00
17	Erosion Control	LS	1	$6,000.00	$6,000.00
18	Site Excavation	CY	12255	$15.00	$183,825.00
19	Proposed Pavement	TON	260	$150.00	$39,000.00
	TOTAL				**$742,800**

Note: This is an estimate of construction costs based upon various sources

E # 23008674 03/30/2023 02:09:28 PM
Book 6474 Page 1538 Page 1 of 4
Register of Deeds, Rockingham County
Cathy Ann Stacey

LCHIP	ROA646155	25.00
RECORDING		22.00
SURCHARGE		2.00

WARRANTY DEED

JOHN GALT, LLC, a New Hampshire limited liability company with a mailing address of 3 Pleasant Street, Suite 400, Portsmouth, New Hampshire 03801 ("Grantor") for consideration paid grants to **ATLAS COMMONS, LLC,** a New Hampshire limited liability company with a mailing address of 3 Pleasant Street, Suite 400, Portsmouth, New Hampshire 03801 ("Grantee") **WITH WARRANTY COVENANTS**

THE FOLLOWING DESCRIBED PREMISES:

1. A certain tract or parcel of land, together with any buildings or improvements thereon, situate in Portsmouth, County of Rockingham and State of New Hampshire, bounded and described as follows:

   Beginning at a point in the Easterly sideline of Lafayette Road at the Northwesterly corner of the parcel herein described and at land of the City of Portsmouth; thence running North 81°43 East by City of Portsmouth land, two hundred eighty-one and seven tenths (281.7) feet to a corner at land of Ledgewood Manor Associates; thence turning and running South 5°56' West two hundred forty-six and thirty-one hundredths (246.31) feet, South 15°05'30" West fourteen and twenty-one hundredths (14.21) feet, South 07°12' West seventy-two and no hundredths (72.00) feet, South 48°45' East thirty-three and thirty-two hundredths (33.32) feet and South 39°04' East seventy-five and seven hundredths (75.07) feet, all by land of Ledgewood Manor Associates to a corner of land now or formerly of William N. Genimatas; thence turning and running North 84°04' West three hundred thirty and forty hundredths (330.40) feet by land of said Genimatas to Lafayette Road; thence turning and running North 05°56' East two hundred thirty-nine and thirty-nine hundredths (239.39) feet and North 05°31' West ninety-six and two tenths (96.2) feet by said Lafayette Road to the point of beginning. Containing 2.25 acres, more or less.

2. Together with the perpetual right to use in common with DLR, Inc., and William N. Genimatas, their heirs, devisees, successors and assigns, the Lafayette Road entrance-exit way as developed by DLR, Inc., (formerly MDL, Inc.) near the southwest corner of the land retained by Genimatas, together with the perpetual right hereby granted to grantees,

their heirs, devisees and assigns, to use in common with said DLR, Inc., and Genimatas, their heirs, devisees, successors and assigns, the other Lafayette Road entrance-exit ways on the DLR, Inc. and the Bowl-O-Rama lots adjoining the premises hereby conveyed.

3. Subject to, and with the benefit of mutual parking rights in common with said DLR, Inc., and said Genimatas respecting this lot and the adjoining Bowl-O-Rama and DLR, Inc., lots, namely and respectively, that said DLR, Inc., Genimatas and Robbins shall have free parking as may be necessarily available on any of these three parcels of land, and such parking rights for each of them in each other's adjacent land shall be mutually interchangeable, for said Genimatas, DLR, Inc., and said Robbins, their respective heirs, devisees, successors and assigns, such mutual parking rights and benefits to extend to any other persons or corporations and any other lands and premises, which said Genimatas, said Robbins, MGR Realty and/or MGR Realty, Inc., may have heretofore conveyed and reserved such rights, benefits or privileges. The foregoing parking rights shall not limit or restricts the rights of the owners of the said lots to construct buildings or additions to same, upon the said lots, provided no unreasonable imposition of owner's parking is caused the abutters by such buildings or additions thereto.

4. Also being conveyed with the benefit of, a certain right of way in common with others, including Petzold, et al, and Ledgewood Manor Associates on the Southerly part of the DLR, Inc., Lot #3, second lot south of this lot, said right of way being also subject to a restriction against the erection of a barrier, fence or other obstruction on either side of said right of way as it runs to Lafayette Road, all as per agreement acknowledged on July 23, 1973, recorded in Rockingham Registry of Deeds, Book 2209, Page 1400.

5. The foregoing premises are further conveyed subject to, and with the benefit of, a perpetual easement for a roadway thirty (30) feet in width extending from Lafayette Road on the South, adjacent to land of Petzold, running thence along the southerly and easterly boundary of the DLR (former Tower Restaurant) Lot of 1.92 acres, the easterly boundary of the Genimatas (Bowl-O-Rama) Lot of 2.82 acres, and the easterly boundary of the Robbins (Jerry Lewis Cinema) Lot of2.25 acres, as shown on plan of "Subdivision of Land, Portsmouth, N.H., for Genimatas and Robbins" dated November 1978, Revised June 7, 1979 which roadway easement is reserved for use in common of, and the benefit in common of, William N. Genimatas, Henry J. Robbins, Joan M. Robbins, and DLR, Inc., and their respective heirs, devisees, successors and assigns. Owners of Lots #1, 2, and 3 in said Subdivision agree that they will equally contribute to development and maintenance of such thirty (30) foot right-of-right as a passable gravel way, excluding winter maintenance such as snow plowing and clearing way of snow, ice, slush or water.

6. The premises hereby conveyed (the "Premises").shall be SUBJECT TO the restriction (this "Use Restriction") that the business of a movie theater shall not be conducted or maintained upon the Premises or any portion thereof for a period of twenty (20) years from October 10, 2007, the date of the recording of the deed from Canavan Properties, LLC, to MANI Properties, LLC recorded in the Rockingham County Registry of Deeds at Book 4851, Page 526 (the "Restriction Term"). By the acceptance of this Deed, the within grantee agrees to be bound by this Use Restriction. This Use Restriction shall run with the land and be binding upon the within grantee, the within grantee's successor and

assigns, and the Premises and every part thereof for the duration of the Restriction Term; and in each and every Deed to the Premises or any portion thereof given during the Restriction Term, the then grantor shall undertake to insert a clause referring to this Use Restriction. This Use Restriction is for the benefit of Hoyts Cinemas Corporation, a Delaware Corporation, and its subsidiaries, and their respective successors and assigns (collectively, "Hoyts"), and Hoyts, as a former tenant of the Premises and for consideration paid to the within grantor, shall have the right to enforce this Use Restriction.

7. A portion of the above premises, more particularly bounded and described as set forth below, is subject to a perpetual easement for the installation and maintenance of utility lines:

> A certain tract or parcel of land situate on the Easterly side of Lafayette Road, Portsmouth, Rockingham County, New Hampshire, described as follows:
>
> Beginning at a point in the Easterly sideline of Lafayette Road at the Northwest comer of the parcel herein described and the Southwest comer of land of the City of Portsmouth; thence running North 81°43' East two hundred eighty-one and seven tenths (281.7) feet to an iron pipe at land now or formerly of Ledgewood Manor Associates; thence turning and running South 05°56' West by said Ledgewood Manor Associates land ten and thirty-two hundredths (10.32) feet to a comer at other land now or formerly of MGR Realty; thence turning and running South 81°43' West sixty-seven and fifty-six hundredths (67.56) feet; South 59°00' West ten and eighty-eight hundredths (10.88) feet and South 66°12' West one hundred seventy-eight and ten hundredths (178.10) feet to a point; thence continuing on the arc of a curve to the left having a radius of 50 feet an arc distance of fifty-two and fifty-nine hundredths (52.59) feet to a point in the easterly sideline of Lafayette Road, said previous four courses being along land now or formerly of MGR Realty; thence turning and running North 05°56' East one and sixty-nine hundredths (1.69) feet and North 05°31' West ninety-six and two tenths (96.2) feet by the Easterly sideline of Lafayette Road to the point of beginning.
>
> The said easement rights are preserved and more fully described in a certain Partial Termination of Easement granted by RPL Properties, LLC to DiLorenzo Lafayette Ledgewood Real Estate, LLC, dated November 3, 2015 and recorded in the Rockingham County Registry of Deeds as of the date hereof, and as set forth therein consist of the rights of RPL Properties, LLC, its successors and assigns ("RPL") to install, lay, maintain, replace and repair and use utility lines of all types including, without limitation, water mains, gas mains, electric wires (above and below grade) and telephone lines (above and below grade), storm and sanitary sewer drains and catch basins, together with all facilities related to the use, operations and maintenance of such utility lines, and the right to pass and re-pass over said premises for the foregoing purposes. Any such work performed by RPL shall be undertaken so as to minimize disruption, disturbance or damage to the premises herein conveyed, and once commenced, such work shall be diligently

pursued to completion. Any damage or disturbance to the premises herein conveyed shall be repaired or restored in a prompt and workmanlike manner as nearly as practicable to the condition that existed immediately prior to such damage or destruction.

Meaning and intending to convey Lot #1, as shown on plan entitled "Subdivision of Land, Portsmouth, N.H., for Genimatas and Robbins" dated November 1978, Revised June 7, 1979, being Durgin Plan #5558, File #689, drawn by John W. Durgin Civil Engineers, which Plan is recorded in the Rockingham County Registry of Deeds as Plan D-8806. See also Warranty Deed of DiLorenzo Lafayette Ledgewood Real Estate, LLC to Grantor dated November 9, 2015 and recorded in the Rockingham County Registry of Deeds at Book 5669, Page 667.

Meaning and intending to describe and convey the same premises conveyed to the Grantor by deed of OMJ Realty dated October 20, 2022 and recorded in the Rockingham County Registry of Deeds at Book 6448, Page 1309 on October 25, 2022.

Transfer Tax: This transfer is exempt from transfer tax pursuant to RSA 78-B:2, XXII.

Homestead: This is not homestead property.

March 30, 2023

John Galt, LLC

By: _____
Mark A. McNabb, Manager

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

The foregoing instrument was acknowledged before me this 30 day of March, 2023 by Mark A. McNabb, Manager of John Galt, LLC a New Hampshire limited liability company, on behalf of the company.

_____
Notary Public/Justice of the Peace
My Commission expires:

JOHN K. BOSEN
JUSTICE
MY COMMISSION EXPIRES DEC. 2, 2025
OF THE PEACE
NEW HAMPSHIRE

A5109-001
November 10, 2023

Mr. Roger Appleton, P.E.
Assistant District 6 Engineer
New Hampshire Department of Transportation
271 Main Street, P.O. Box 740
Durham, New Hampshire 03824

Re: **Trip Generation Memorandum**
581 Lafayette Road Development
Portsmouth, New Hampshire

Dear Roger:

Tighe & Bond has prepared a trip generation memorandum to outline the anticipated study area of the Traffic Impact Assessment (TIA) for the proposed Lafayette Road residential development located at 581 Lafayette Road (US Route 1) in Portsmouth, NH. The project proposes to add 72 residential units to the to the existing restaurant and restaurant/ indoor golf uses at 581 Lafayette Road. The site is bounded by Ledgewood Drive to the north, residential land use to the east, a shopping plaza to the south, and Lafayette Road (US Route 1) to the west. The project consists of the construction of 72 residential units in two new buildings adjacent to the existing building, which is to remain. Structured parking will be provided below the apartments on the ground level and basement levels of the building. The existing parking area will be reconfigured to accommodate the building addition. Access to the development will be provided via three driveways. The existing western entrance-only driveway located on Ledgewood Drive will be maintained. The existing eastern driveway on Ledgewood Drive will be replaced by two separate full-access driveways, one providing access to the structured parking and the other providing access to the surface parking spaces. The trip generation estimate for the proposed development will serve as the basis for the traffic impact assessment.

Study Area

Based on a preliminary review of expected trip generation and distribution for the surrounding area, the following intersections have been identified to be included in the study area:

- US Route 1 Bypass at Greenleaf Avenue (signalized)
- US Route 1 Bypass at Lafayette Road (US Route 1) (signalized)
- US Route 1 at North Shopping Plaza Driveway (Bowl-O-Rama/ Urgent Care)
- Lafayette Road (US Route 1) at Ledgewood Drive (signalized)
- Ledgewood Drive at East Site Driveway
- Ledgewood Drive at West Site Driveway

Turning movement count (TMC) data was collected at the study area intersections on Wednesday November 1, 2023 and Saturday November 4, 2023. Automatic traffic recorder (ATR) counts were collected along Ledgewood Drive in the vicinity of the site driveways. The ATR was installed for a 48-hour period from October 31 to November 1, 2023, collecting directional traffic volume flows and vehicular travel speeds.

The anticipated study area intersections are shown in Figure 1.

Traffic Volume Adjustments

The NHDOT continuous count station located along Route 16 (Spaulding Turnpike) between Exit 6 and Exit 7 (ID 02125090) will be used to compare 2023 traffic volumes to 2019 traffic volumes to determine if any adjustments to the turning movement counts are necessary per current NHDOT guidelines.

Trip Generation

Trips expected to be generated by the proposed development were estimated using the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition, 2021. Multifamily Housing (Mid-Rise) (LUC-221) was used to estimate vehicle trips generated by the development based on the current development program, which proposes 5-story buildings with structured parking on the ground level and residential units on floors 2 through 5.

Based on the ITE data, the proposed development is estimated to generate 27 trips (6 entering, 21 exiting) during the weekday morning peak hour, 28 trips (17 entering, 11 exiting) during the weekday afternoon peak hour, and 29 trips (15 entering, 14 exiting) during the Saturday midday peak hour. There will be no changes to the existing uses on site; trips generated by these uses will be captured through existing turning movement counts. Table 1 provides a detailed summary of the trip generation.

TABLE 1
Site-Generated Traffic Summary

Proposed - 72 Apartments **Peak Hour Period**	**Enter**	**Exit**	**LUC** **Total**
Weekday Morning	6	21	27
Weekday Afternoon	17	11	28
Saturday Midday	15	14	29
Weekday	164	163	327
Saturday	175	176	351

Source: Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021
Land Use - 221 [Multifamily Housing (Mid-Rise)]

Trip Distribution

The distribution of the proposed traffic entering and exiting the site expected to be generated by the proposed residential use was reviewed based on U.S. Census journey-to-work data for people residing in Portsmouth. The following arrival/departure distributions are anticipated:

- 30% to/ from the North to Portsmouth Center via US Route 1
- 25% to/ from the South via US Route 1 (Lafayette Road)
- 20% to/ from the West to US Route 4 (Spaulding Turnpike) via US Route 1 Bypass
- 15% to/ from the South to I-95 South via Route 33
- 5% to/ from the West via Route 33

- 5% to/ from the North to I-95 North via US Route 1 Bypass

Based on the regional distribution, it is estimated that 45% of site traffic will access the site via US Route 1 Bypass to the northwest, 30% will access the site to/ from the northeast via US Route 1 and 25% will access the site to/ from the south via US Route 1.

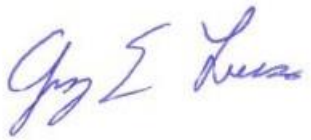
Figure 1 presents the anticipated regional site traffic distributions of the traffic through the study area roadways.

Conclusion

The proposed development program includes 72 residential units. Based on the estimated trip generation and trip distribution, the TIA will analyze traffic operations at three intersections during the weekday morning, weekday afternoon, and Saturday midday peak periods.

Sincerely,

TIGHE & BOND, INC.

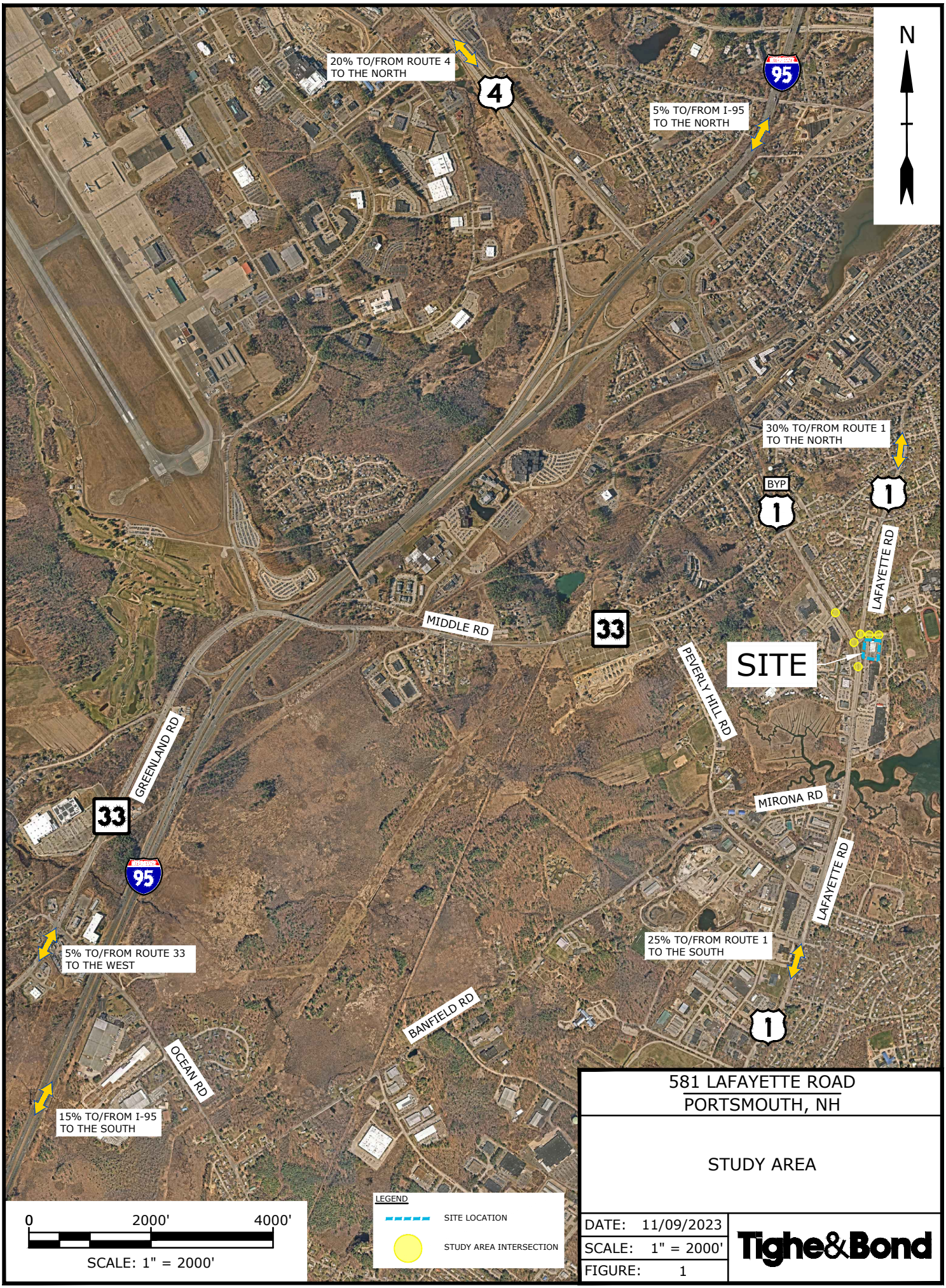


Greg Lucas, PE, PTOE, RSP1
Senior Project Manager

Copy: Marie Bodi, Atlas Commons, LLC
John Chagnon, Ambit Engineering, Inc.

Enclosures: Study Area Map (Figure 1)

\\tighebond.com\data\Data\Projects\A\A5109 Atlas Commons, LLC\001 - 581 Lafayette Road Traffic Study\Reports\2023-11-09 Trip Generation Memo\A5109-001 581 Lafayette Rd Trip Gen Memo.docx



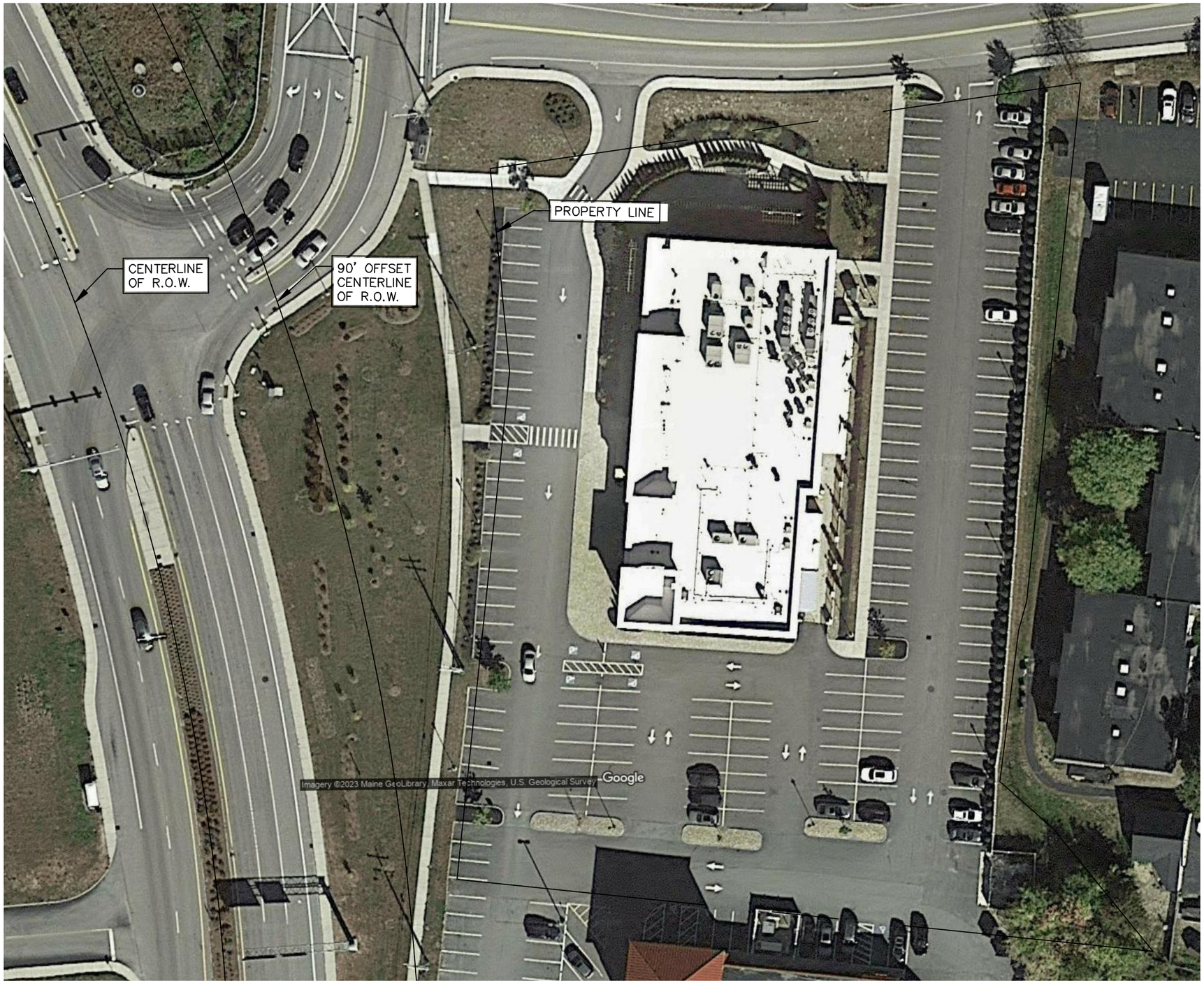
581 LAFAYETTE ROAD
PORTSMOUTH, NH

STUDY AREA

DATE:	11/09/2023
SCALE:	1" = 2000'
FIGURE:	1

Tighe&Bond

OWNER: JOHN GALT, LLC
581 LAFAYETTE ROAD
CITY OF PORTSMOUTH
COUNTY OF ROCKINGHAM
STATE OF NEW HAMPSHIRE



NEW HAMPSHIRE STATE PLANE NAD 83

STATE OF NEW HAMPSHIRE
No. 738
JOHN R. CHAGNON
LICENSED LAND SURVEYOR

DEED REFERENCE: *6448/1309*
PLAN REFERENCE: *RCRD PLAN D-39349*

1" = 50'

15 MARCH 2023

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

FB 259, PG 10 1397.04

MIXED USE DEVELOPMENT

581 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE
SITE PERMIT PLANS

OWNER:

ATLAS COMMONS, LLC
3 PLEASANT STREET
SUITE #400
PORTSMOUTH, NH 03801

LAND SURVEYOR & CIVIL ENGINEER:

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, N.H. 03801
Tel. (603) 430-9282
Fax (603) 436-2315

ARCHITECT:

ARCOVE ARCHITECTS
3 CONGRESS STREET, SUITE 1
PORTSMOUTH, NH 03801
TEL. (603) 988-0042

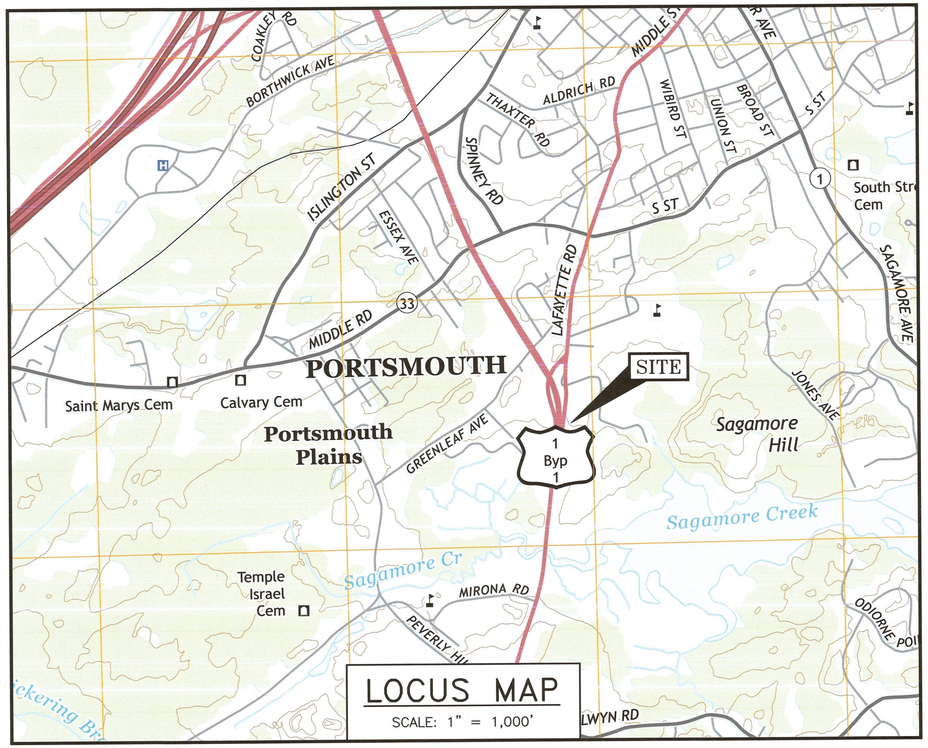
LANDSCAPE ARCHITECT:

TERRA FIRMA LANDSCAPE ARCHITECTURE
163A COURT STREET
PORTSMOUTH, NH 03801
TEL. (603) 430-8388

PERMIT LIST:
NHDES SEWER DISCHARGE PERMIT: TO BE SUMBITTED
PORTSMOUTH SITE PLAN APPROVAL: PENDING

Mixed Residential Districts

MRO	Mixed Residential Office
MRB	Mixed Residential Business
G1	Gateway Cooridor
G2	Gateway Center



LOCUS MAP
SCALE: 1" = 1,000'

LEGEND:

EXISTING	PROPOSED	
		PROPERTY LINE
		SETBACK
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	G	GAS LINE
D	D	STORM DRAIN
W	W	WATER LINE
WS	WS	WATER SERVICE
UGE	UGE	UNDERGROUND ELECTRIC
OHW	OHW	OVERHEAD ELECTRIC/WIRES
	UD	FOUNDATION DRAIN
		EDGE OF PAVEMENT (EP)
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		UTILITY POLE
		WALL MOUNTED EXTERIOR LIGHTS
		TRANSFORMER ON CONCRETE PAD
		ELECTRIC HANDHOLD
		SHUT OFFS (WATER/GAS)
	GV	GATE VALVE
	HYD	HYDRANT
CB	CB	CATCH BASIN
S	SMH	SEWER MANHOLE
D	DMH	DRAIN MANHOLE
T	TMH	TELEPHONE MANHOLE
14	14	PARKING SPACE COUNT
PM		PARKING METER
LSA		LANDSCAPED AREA
TBD	TBD	TO BE DETERMINED
CI	CI	CAST IRON PIPE
COP	COP	COPPER PIPE
DI	DI	DUCTILE IRON PIPE
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
AC	—	ASBESTOS CEMENT PIPE
VC	VC	VITRIFIED CLAY PIPE
EP	EP	EDGE OF PAVEMENT
EL.	EL.	ELEVATION
FF	FF	FINISHED FLOOR
INV	INV	INVERT
S =	S =	SLOPE FT/FT
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL

DIG SAFE
- ME - NH - RI - VT
1-888-344-7233
CALL TOLL FREE

INDEX OF SHEETS

PORTSMOUTH APPROVAL CONDITIONS NOTE:
ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

UTILITY CONTACTS

ELECTRIC:
EVERSOURCE
1700 LAFAYETTE ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 436-7708, Ext. 555.5678
ATTN: MICHAEL BUSBY, P.E. (MANAGER)

NATURAL GAS:
UNITIL
325 WEST ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 294-5144
ATTN: DAVE BEAULIEU

CABLE:
COMCAST
155 COMMERCE WAY
PORTSMOUTH, N.H. 03801
Tel. (603) 679-5695 (X1037)
ATTN: MIKE COLLINS

SEWER & WATER:
PORTSMOUTH DEPARTMENT OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 427-1530
ATTN: JIM TOW

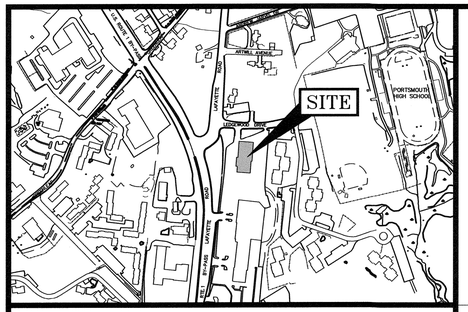
COMMUNICATIONS:
FAIRPOINT COMMUNICATIONS
JOE CONSIDINE
1575 GREENLAND ROAD
GREENLAND, N.H. 03840
Tel. (603) 427-5525

SITE PLANS
MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

PLAN SET SUBMITTAL DATE: 20 NOVEMBER 2023

5010156 1397.04



LOCATION MAP SCALE: 1" = 400'±

LEGEND

EXISTING	DESCRIPTION
(124/21)	MAP 124 / LOT 21
N/F	NOW OR FORMERLY
RP	RECORD OF PROBATE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
	BOUNDARY LINE
	SETBACK LINE
RR SPK FND	RAILROAD SPIKE FOUND
IR FND	IRON ROD FOUND
IP FND	IRON PIPE FOUND
DH FND	DRILL HOLE FOUND
BND w/ DH	BOUND w/ DRILL HOLE
FM	FORCE MAIN
S	SEWER LINE
G	GAS LINE
D	STORM DRAIN
W	POTABLE WATER LINE
	UNDERGROUND ELECTRIC
	OVERHEAD WIRES
100	CONTOUR LINE
97x3	SPOT ELEVATION
	EDGE OF PAVEMENT
	WOODS / TREE LINE
	UTILITY POLE (w/ GUY) (w/ LIGHT)
	LIGHT POLE
	SHUTOFF/CURB STOP (WATER, GAS, SEWER)
GV	GATE VALVE
HYD.	HYDRANT
CB	CATCH BASIN
T	TELEPHONE MANHOLE
S	SEWER MANHOLE
D	DRAIN MANHOLE
FF	FINISHED FLOOR
INV.	INVERT
TBM	TEMPORARY BENCHMARK
TYP.	TYPICAL

LENGTH TABLE

LINE	BEARING	DISTANCE
L1	S15°17'27"W	14.20'
L2	S48°43'16"E	33.26'

NEW HAMPSHIRE STATE PLANE NAD 83

LAFAYETTE ROAD
U.S. ROUTE 1

229/8B

EXISTING BUILDING FF=24.93

LEDGEWOOD DRIVE

IRRIGATION PIT
PSNH 146/27 w/CONDUIT
PSNH 146/26
PSNH 146/25
TEMP. POLE
ADA SIGN
BUS STOP
IRRIGATION PIT
IR SET
BIKE RACK
6"X6" NHBND
NAIL SET
STOP SIGNS
241.20'
N05°54'49"E
30' FRONT SETBACK
SEE NOTE 10
N05°32'11"W
96.20'
TREE BOX FILTER OVERFLOW
FF 24.86
BUILDING OVERHANG (TYP)
PATIO
4' ORNAMENTAL BLACK FENCE ENCLOSURE
N81°42'43"E
281.77'
1" PVC WATER LINE (TYP 3)
FREEZER CONTROLLER
IRRIGATION PITS
ROOF DRAINS (TYP)
STANDPIPE CONNECTION
LAWN
LSA
FRONT SETBACK
15' SIDE SETBACK
N81°06'58"W
330.45'
SMH 1
GREASE TRAP 1
DUMPSTER ENCLOSURE
72.02'
S07°08'19"W
L1
246.26'
S05°56'03"W
IR/CAP FND
TBM
X CUT ON HYDRANT FLANGE BOLT
ELEV. 26.54

GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

AMBIT ENGINEERING, INC.
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WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270F, EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY (GW) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:	43,560 S.F.
FRONTAGE:	200 FT.
DEPTH:	100 FT.
SETBACKS :	
FRONT:	30 FT.
SIDE:	30 FT.
REAR:	50 FT.
MAXIMUM STRUCTURE HEIGHT:	40 FT.
MAXIMUM ROOF APPURTENANCE HEIGHT:	10 FT.
MAXIMUM BUILDING COVERAGE:	30%
MINIMUM OPEN SPACE:	20%

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON TAX MAP 229 LOT 8B.

8) EASEMENTS & RESTRICTIONS:
A) ROAD/UTILITY EASEMENT AREA: SEE C-3316 AND RCRD 2110/428 AND 2184/184. THIS EASEMENT WAS PARTIALLY TERMINATED ON 11/9/15: SEE RCRD 5669/0645.

B) 30' RIGHT OF WAY: SEE D-8806 AND 5446/2589.

C) MUTUAL PARKING AND ACCESS RIGHTS FOR LOTS 1-3 ON PLAN D-8806 ARE OF RECORD. RCRD 2343/128 AND 5446/2588.

9) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

10) THE 2011 NHDOT LAFAYETTE ROAD PROJECT IDENTIFIED THIS ENCROACHMENT.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	9/5/23
0	ISSUED FOR COMMENT	7/5/23

REVISIONS

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN R. CHAGNON

SCALE: 1"=20' JULY 2023

EXISTING CONDITIONS PLAN C1

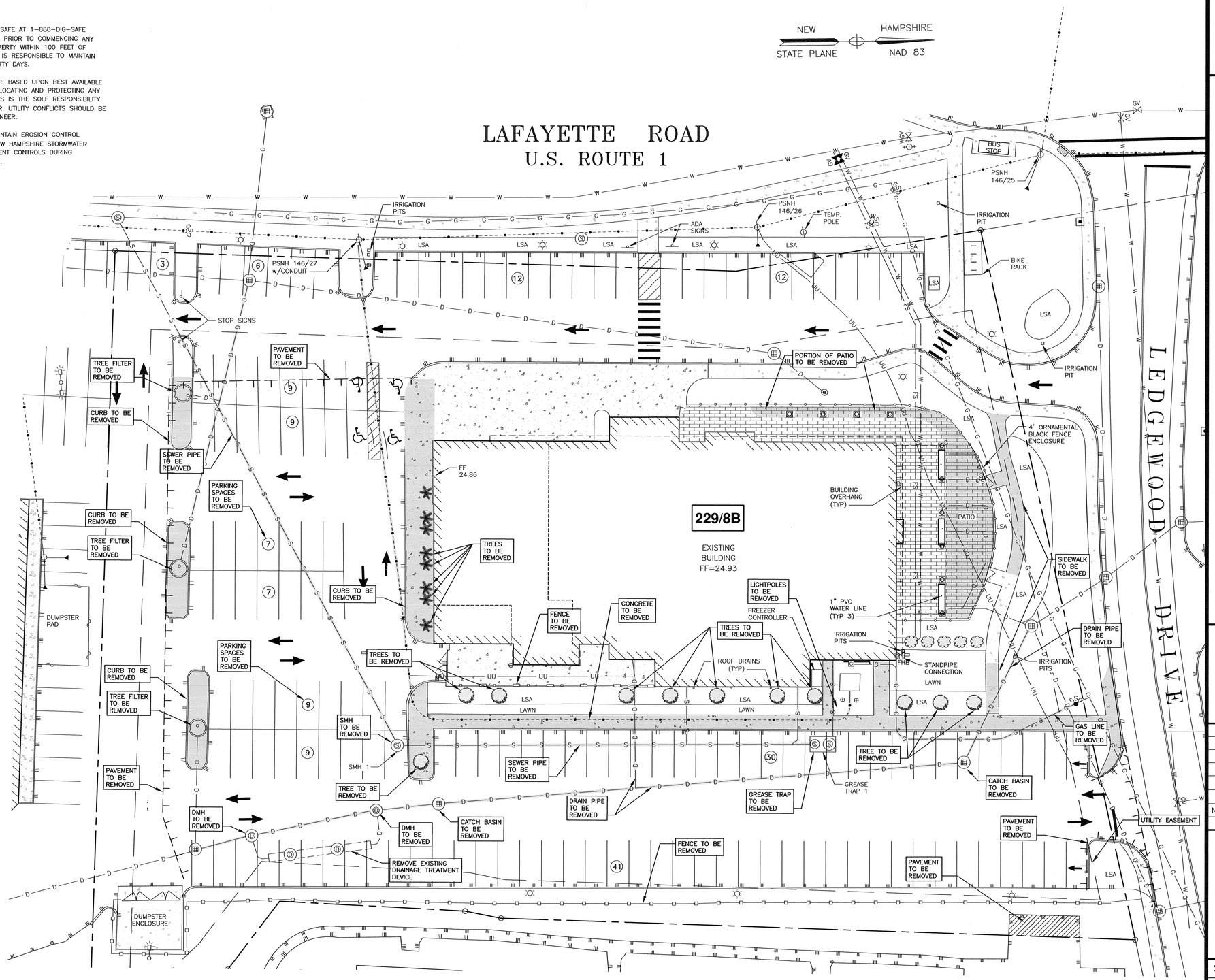
FB 259 PG 10 1397.04

GENERAL NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).



AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

DEMOLITION NOTES

A) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE DESIGNER. IT IS THE CONTRACTORS' RESPONSIBILITY TO LOCATE UTILITIES AND ANTICIPATE CONFLICTS. CONTRACTOR SHALL REPAIR EXISTING UTILITIES DAMAGED BY THEIR WORK AND RELOCATE EXISTING UTILITIES THAT ARE REQUIRED TO BE RELOCATED PRIOR TO COMMENCING ANY WORK IN THE IMPACTED AREA OF THE PROJECT.

B) ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTORS UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES. THE CONTRACTOR SHALL COORDINATE REMOVAL, RELOCATION, DISPOSAL, OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.

C) ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO THE ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

D) THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.

E) SAWCUT AND REMOVE PAVEMENT ONE FOOT OFF PROPOSED EDGE OF PAVEMENT TRENCH IN AREAS WHERE PAVEMENT IS TO BE REMOVED.

F) IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL THE PERMIT APPROVALS.

G) THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL CONSTRUCTION PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR ANY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK.

H) THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE, UTILITIES, VEGETATION, PAVEMENT, AND CONTAMINATED SOIL WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ANY EXISTING DOMESTIC / IRRIGATION SERVICE WELLS IN THE PROJECT AREA IDENTIFIED DURING THE CONSTRUCTION AND NOT CALLED OUT ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER FOR PROPER CAPPING / RE-USE.

I) PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS WITHIN CONSTRUCTION LIMITS AND MAINTAIN FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE HIGH FLOW SILT SACK BY ACF ENVIRONMENTAL OR APPROVED EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF WARRANTED OR FABRIC BECOMES CLOGGED. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.

J) THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFELY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.

K) ANY CONTAMINATED MATERIAL REMOVED DURING THE COURSE OF THE WORK WILL REQUIRE HANDLING IN ACCORDANCE WITH NHDES REGULATIONS. CONTRACTOR SHALL HAVE A HEALTH AND SAFETY PLAN IN PLACE, AND COMPLY WITH ALL APPLICABLE PERMITS, APPROVALS, AUTHORIZATIONS, AND REGULATIONS

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	9/5/23
0	ISSUED FOR COMMENT	7/5/23

REVISIONS

STATE OF NEW HAMPSHIRE · JOHN R. CHAGNON No. 7651 · LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=20' JULY 2023

DEMOLITION PLAN

C2

FB 259 PG 10

1397.04

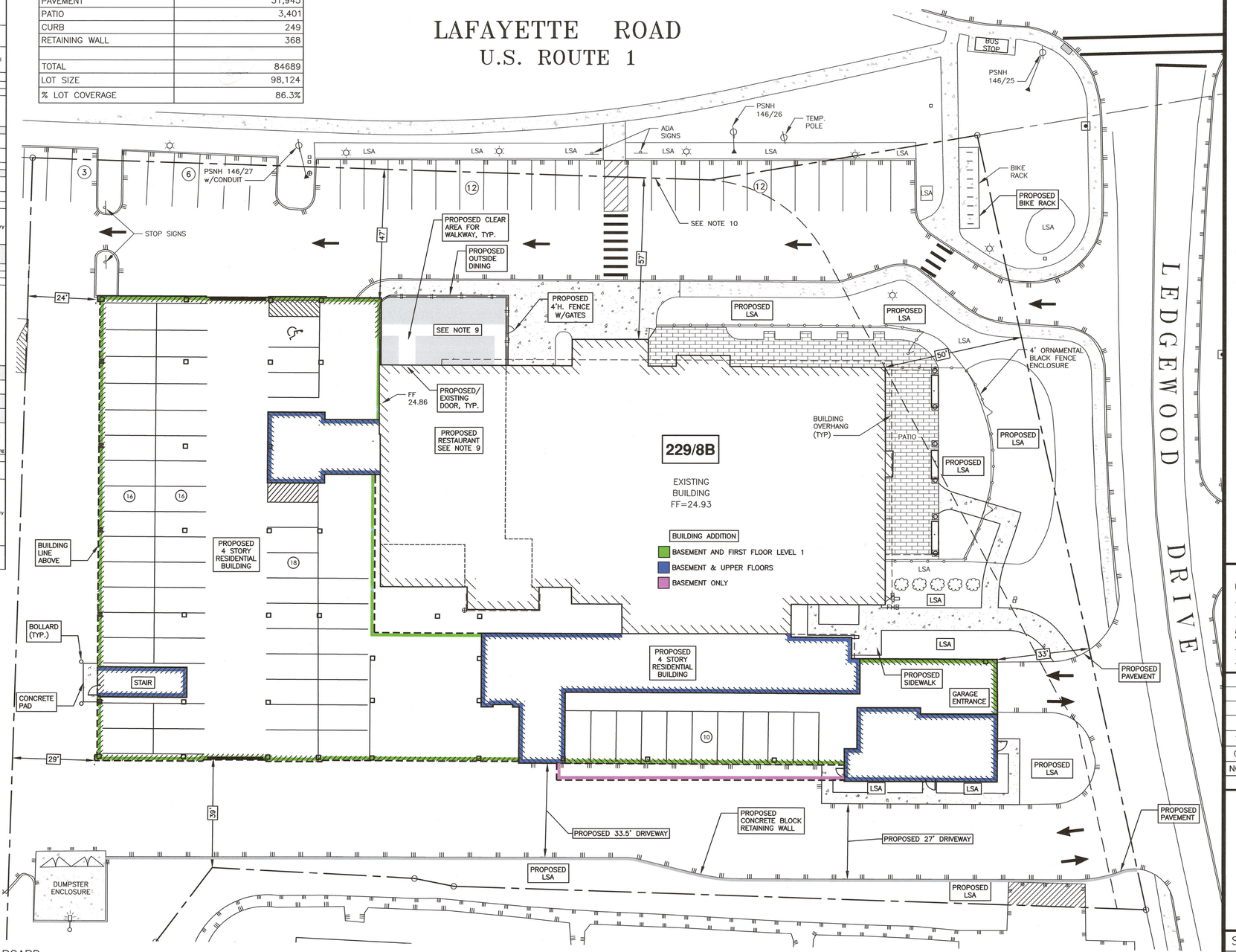
ZONING TABLE

	Additions	proposed
Zone	G1 allowed	
Height	G1 apartments: 5 stories or 60 ft per Density Bonus 10.5B72.30: 4 stories or 50 ft (+ density bonus 1 story or 10') 10.5B.22.20, at streets <60' row: 35' max <25' setback 45' max <50' setback. 60' max >50' setback.	<35'/3 stories at street fronts <45'/4 stories beyond <60'/5 stories at center
Penthouses	10' above allowed building height	<10'
Roof appurtenance	Roof decks, roof gardens, and related structures and appurtenances shall not be counted in the building height limits.	<10'
Façade Types	forecourt, recessed entry, dooryard, step, porch	recessed entry
Building Types	Dwelling units	Workforce Housing: 4 stories Podium parking at street level and one level below grade
Setbacks (ft) *		
Front (principle)	70'-90' from cl of Lafayette Rd	setback is within public way
Front (secondary)	min 10' & max 30' from Lot Line at Ledgewood	19'
Side	Minimum side setback: 15 ft. Where a development site includes a more than one building type, the minimum building setback to interior lot lines shall be 0 feet	40'
Rear	N/A Minimum rear setback 20 ft (& 25 ROW easement)	24'
Front lot line buildout residential	50%	85%
Front lot line buildout commercial/mixed-use	75%	85%
Frontage, Lafayette	100 ft min	337.4'
Lot area (sf)	NR	
area per dwelling	Workforce Housing units for rent: min 10% or 2 units, min. 800 sf or average unit size (larger of two)	1,363'
Coverage, maximum	50%	83.5%
Footprint, max	NR for apartment buildings	
Offstreet parking	For developments located on public transit with year-round, 5-days-per-week, fixed-route service and where at least 50% of the building(s) are within ¼ mile of a transit stop, the minimum offstreet parking shall be reduced by 20%.	See attached parking summary
ground floor area per use, max	NR	parking
Open space, minimum	20%	15%
permitted uses (G1)	multifamily, restaurant	multifamily
building length, max (ft)	200	<200
façade modulation length, max (ft)	A) Symmetrical and vertically articulated bays >6' & <50' wide, minimum 3. B) Buildings greater than one hundred (100) feet in width shall read as a series of smaller buildings with varied architectural design and façade glazing patterns; or include a change in vertical plane of the façade of at least four (4) feet (in depth or projection) for at least one (1) bay in width for every one hundred (100) feet of total façade width. This change in plane applies to the entire height of the façade.	modulations < 100 ft
entrance spacing, max (ft)		both entries are facing street fronts
floor height above sidewalk, max	36"	8"
ground floor height, min		12'
second floor height, min		11'
glazing, shopfront, min	20%	Streetfront Glazing at lobby entrances 100%. Sides & rear: podium parking at first floor, some open and some screening
glazing, other	NR	
roof types(pitch)	ALL (flat roofs must have "parapet wall that acts as a structural expression of the building façade and its materials)	Flat & Sloped
Parking, off-street;	1 bicycle space for each 5 dwellings units or portion thereof. Off-site parking : Less than 500 sq. ft. 0.5 spaces per unit 500-700 sq. ft. 1.0 space per unit Over 750 sq. ft. 1.3 space per unit 10.1112.312 In addition to the off-street parking spaces provided in accordance with Sec. 10.1112.311, any dwelling or group of dwelling on a lot containing more than 4 dwelling units shall provide one visitor parking space for every 5 dwelling units or portion thereof.	See attached parking summary
Units density	24 units per building. **36 units exception for workforce** housing Conditional Use Permit under the provisions for Density Bonuses in Section 10.5B72&10.5B72	36 units per building * 2 buildings = 72 units

IMPERVIOUS SURFACE AREAS
(TO PROPERTY LINE)

STRUCTURE	POST-CONSTRUCTION IMPERVIOUS (S.F.)
MAIN STRUCTURE	43567
CONCRETE/SIDEWALK	5,159
PAVEMENT	31,945
PATIO	3,401
CURB	249
RETAINING WALL	368
TOTAL	84689
LOT SIZE	98,124
% LOT COVERAGE	86.3%

NEW HAMPSHIRE STATE PLANE NAD 83



GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

PORTSMOUTH APPROVAL CONDITIONS

NOTES:

1) ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

2) THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

3) ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270E, EFFECTIVE MAY 17, 2005

4) EXISTING LOT AREA:
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY NEIGHBORHOOD CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW A PROPOSED BUILDING ADDITION ON TAX MAP 229 LOT 8B.

8) DESIGN BASED ON ARCHITECTURAL PLAN BY ARCOVE ARCHITECTS DATED 8/22/23.

9) CONVERSION OF TUSCAN MARKETPLACE TO RESTAURANT (NORTHEASTERN THAI, LLC) APPROVED UNDER PERMIT: LU-22-254

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	11/20/23
0	ISSUED FOR COMMENT	8/31/23

REVISIONS

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN CHAGNON SIGNATURE

JOHN CHAGNON No. 7981 STATE OF NEW HAMPSHIRE LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=20' JULY 2023

SITE PLAN

C3

FB 259 PG 10

1397.04

P:\NH\501\196-McHale_Properties\1397.03-Lafayette Rd, Portsmouth-JRC\2023 Site Plan 1397.03\Plans & Specs\Site\Final Set\1397.04 SITE 2023.dwg, Mon Nov 20 15:42:07 2023, Portsmouth Plotter, Arcvert 7X30bit.pc3

Plant List - Perennials

ID	Qty	Botanical Name	Common Name	Scheduled Size
ACT	15	Actaea racemosa	Bugbane	1 Gal.
AMH	7	Amsonia hubrichtii	Arkansas Blue Star	1 Gal.
AMT	7	Amsonia tabernaemontana	Eastern Blue Star	1 Gal.
AOS	21	Aster oblongifolius 'October Skies'	Aromatic Aster	2 QT
BAP	5	Baptisia australis 'Screaming Yellow'	False Indigo	2 QT
CARY	9	Caryopteris clandonensis 'First Choice'	First Choice Bluebeard	2 QT
CV	50	Coreopsis verticillata 'Moonbeam'	Threadleaf Coreopsis	2 QT
CWB	20	Chrysanthemum weyrichii 'White Bomb'	Dwarf Chrysanthemum	2 QT
EP	23	Epimedium x rubrum 'Sweetheart'	Barrenwort	1 QT
EUP	9	Eupatorium maculatum 'Gateway'	Joe Pye Weed	Plug
GMB	20	Geranium macrorrhizum 'Bevan's'	Cranesbill	2 QT
HEL	5	Helianthus salicifolius	Willowleaf Sunflower	2 QT
HEU	9	Heuchera villosa 'Autumn Bride'	Autumn Bride Coral Bells	2 QT
HSE	11	Helenium 'Sahin's Early Flowerer'	Sahin's Early Flowerer Sneezeweed	2 QT
PVS	17	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	2 Gal.
PX	50	Polystichum acrostichoides	Christmas Fern	2 QT
RF	7	Rudbeckia fulgida 'Goldstrum'	Goldstrum Black-Eyed Susan	2 QT
SH	10	Sporobolus heterolepsis	Prairie Dropseed	1 Gal.
SO	7	Stachys officinalis	Bishop's Wort	2 QT
SPA	14	Spiraea japonica 'Alpina'	Alpine Spirea	2 QT
TC	12	Thermopsis caroliniana	Carolina Lupine	2 QT
VER	37	Vernonia lettermannii 'Iron Butterfly'	Iron Butterfly Ironweed	2 QT
WAL	49	Waldsteinia ternata	Siberian Barren Strawberry	2 QT

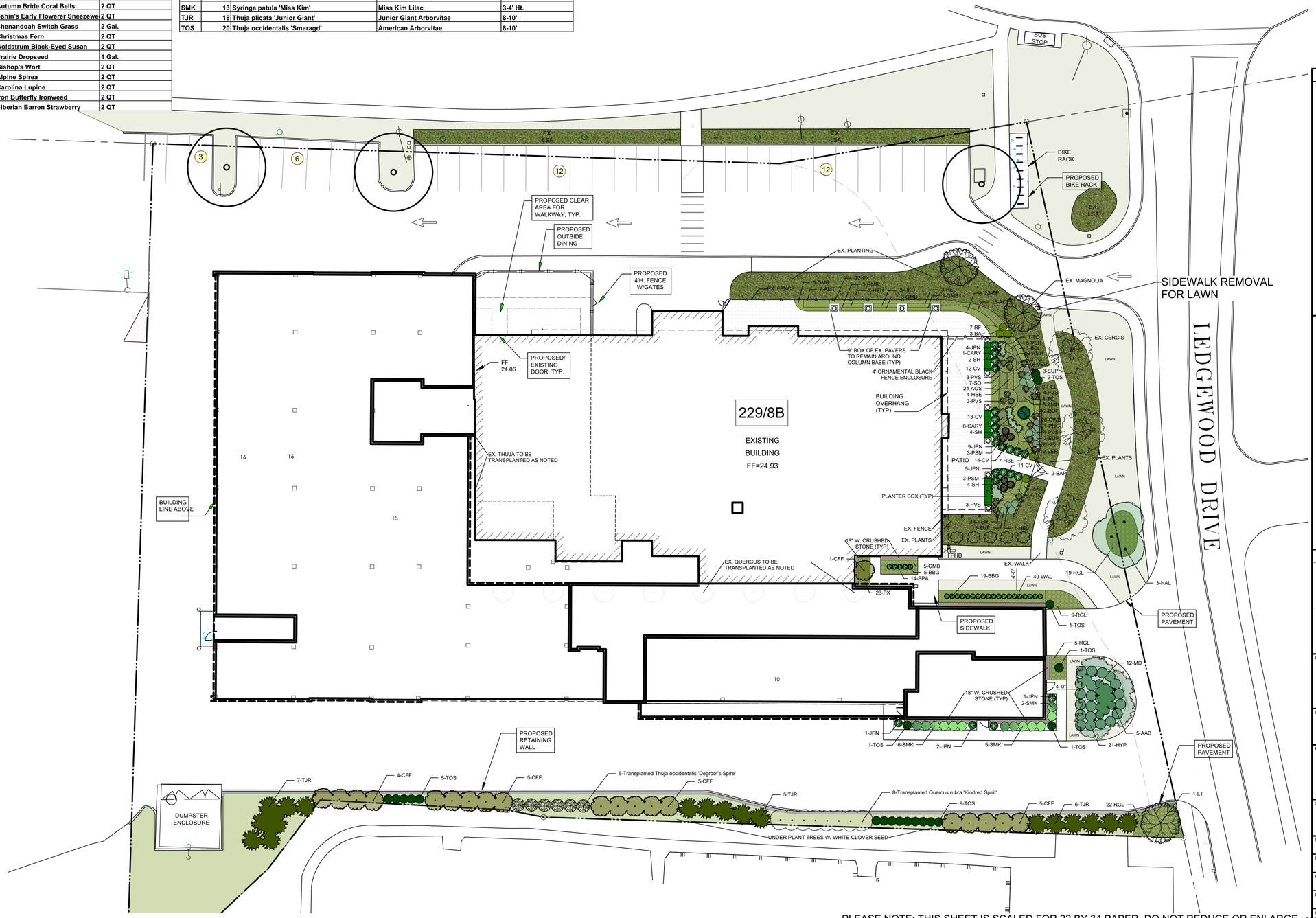
Plant List - Trees and Shrubs

ID	Qty	Botanical Name	Common Name	Scheduled Size
AAB	5	Amelanchier grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	2 1/1" Cal.
BBG	24	Buxus microphylla 'Baby Gem'	Baby Gem Boxwood	4-4 1/2'
BDI	7	Buddlea 'Davidii'	Butterfly Bush	4-5'
CFF	20	Carpinus betulus 'Frans Fontaine'	Frans Fontaine Hornbeam	1 1/2-2" Cal.
HAL	3	Halesia carolina 'Jersey Belle'	Jersey Belle Carolina Silverbelle	1 1/2" Cal.
HYP	21	Hypercum 'Hidcote'	St. Johnswort	5 Gal.
JPN	22	Juniperus procumbens 'Nana'	Dwarf Japanese Garden Juniper	3 Gal.
LT	1	Liriodendron tulipifera	Tulip Tree	2 1/2" Cal.
MD	12	Microbiota decussata	Russian Arborvitae	2 G
PHC	1	Pinus sylvestris 'Hillside Creeper'	Hillside Creeper Scotch Pine	3 Gal.
PSM	6	Pinus strobus 'Minuta'	Minuta White Pine	3'
RGL	55	Rhus aromatica 'Grow Low'	Grow Low Sumac	18"+ Ht.
SMK	13	Syringa patula 'Miss Kim'	Miss Kim Lilac	3-4' Ht.
TJR	18	Thuja plicata 'Junior Giant'	Junior Giant Arborvitae	8-10'
TOS	20	Thuja occidentalis 'Smaragd'	American Arborvitae	8-10'

LAFAYETTE ROAD

U.S. ROUTE 1

0 10 20 30 40 FT



PLEASE NOTE: THIS SHEET IS SCALED FOR 22 BY 34 PAPER, DO NOT REDUCE OR ENLARGE.

terra firma
landscape architecture
163.a court street · portsmouth, nh 03801
office 603.430.8388 | terrence@terrafirmalandarch.com

LICENSED LANDSCAPE ARCHITECT · STATE OF NEW HAMPSHIRE
TERRENCE P. PARKER
041

No.	Date	By	Revision Notes

No.	Date	Issue Notes

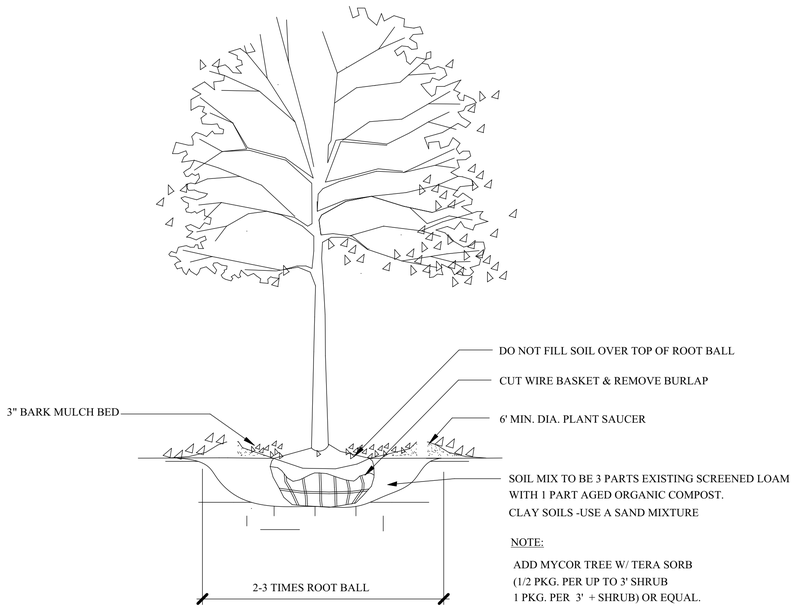
Design Firm
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

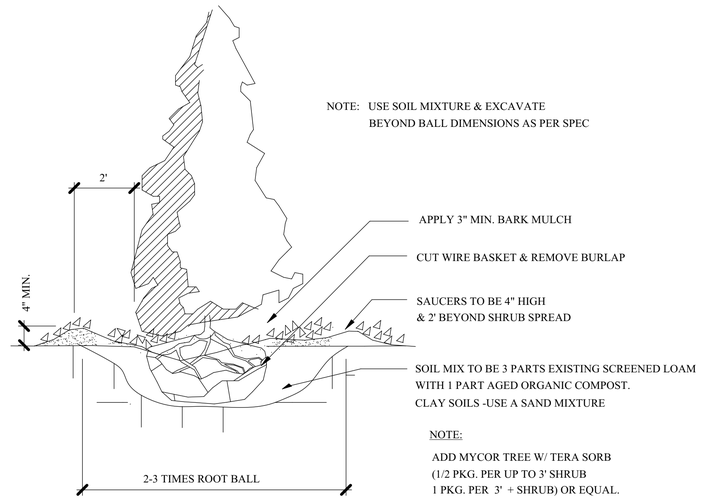
Project Title
581 LAFAYETTE

Sheet Title
Landscape Plan

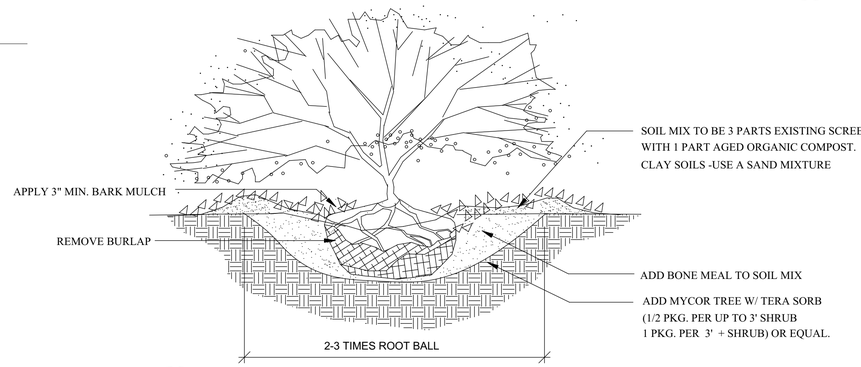
Project Manager	Project ID: 581 LAFAYETTE
Drawn By: TC	Scale: 1:240
Reviewed By: TP	Sheet No.: L-1 of 2
Date: 11/20/2023	
CAD File Name: 581LAFAYETTE_v2024.vwx	



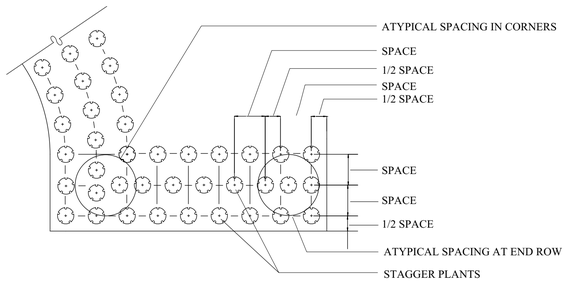
1 L-2 TREE PLANTING - 2"+ CAL.
SCALE: NTS



2 L-2 PYRAMIDAL EVERGREEN TREE PLANTING
SCALE: NTS



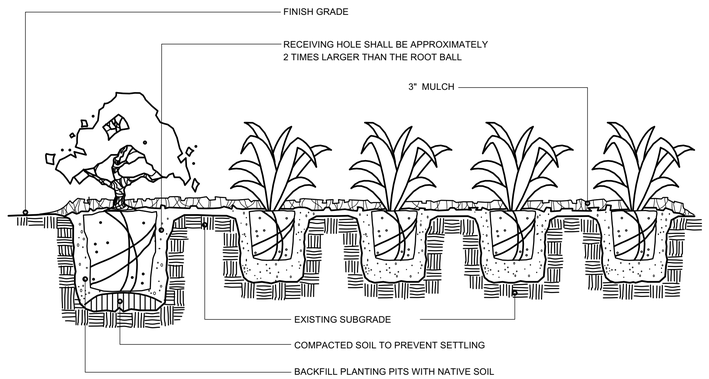
3 L-2 B&B SHRUB PLANTING
SCALE: NTS



NOTES:

1. PLACE PLANTS IN BED AS SHOWN, SPACING AS SPECIFIED IN PLANT SCHEDULE.
2. GROUNDCOVER SHALL BE TRIANGULAR SPACED IN ROWS PARALLEL TO STRAIGHT EDGES AND SHALL BE EVENLY SPACED IN ROWS PARALLEL TO CURVE EDGES.

4 L-2 GROUND COVER SPACING DETAIL
SCALE: NTS



NOTE: SHRUBS SHALL BE PLANTED A MINIMUM OF 1" & NO MORE THAN 2" ABOVE FINISH GRADE, DEPENDING UPON SITE CONDITIONS.

5 L-2 SHRUB/GROUND COVER PLANTING DETAIL
SCALE: NTS

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LICENSED LANDSCAPE ARCHITECT
TERRENCE P. PARKER
041
STATE OF NEW HAMPSHIRE

No.	Date	By	Revision Notes

No.	Date	Issue Notes

Design Firm
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

Project Title
581 LAFAYETTE

Sheet Title
Landscape Plan

Project Manager	Project ID: 581 LAFAYETTE
Drawn By: TC	Scale: AS NOTED
Reviewed By: TP	Sheet No.: L-2 of 2
Date: 11/20/2023	
CAD File Name: 581LAFAYETTE_v2024.vwx	

REQUIRED PARKING:

ARCOVE

581 Lafayette Road
Unit/Parking Analysis
November 8, 2023

1 bedroom units 500-900 sf

Level	Room No.	Area (sf)	spaces/unit
LEVEL 2	A201	2,412	1.30
LEVEL 2	A202	1,788	1.30
LEVEL 2	A203	458	0.50
LEVEL 2	A204	458	0.50
LEVEL 2	A205	458	0.50
LEVEL 2	A206	456	0.50
LEVEL 2	A207	385	0.50
LEVEL 2	A208	1,916	1.30
LEVEL 2	A209	633	1.00
LEVEL 2	A210	729	1.00
LEVEL 2	A211	730	1.00
LEVEL 2	B201	1,051	1.30
LEVEL 2	B202	740	1.00
LEVEL 2	B203	1,197	1.30
LEVEL 2	B204	1,345	1.30
LEVEL 2	B205	1,547	1.30
LEVEL 2	B206	632	1.00
LEVEL 2	B207	571	1.00
LEVEL 3	A301	1,679	1.30
LEVEL 3	A302	1,786	1.30
LEVEL 3	A303	698	1.00
LEVEL 3	A304	1,913	1.30
LEVEL 3	A305	1,783	1.30
LEVEL 3	A306	633	1.00
LEVEL 3	A307	618	1.00
LEVEL 3	A308	729	1.00
LEVEL 3	A309	750	1.00
LEVEL 3	B301	713	1.00
LEVEL 3	B302	845	1.30
LEVEL 3	B303	629	1.00
LEVEL 3	B304	440	0.50
LEVEL 3	B305	703	1.00
LEVEL 3	B306	414	0.50
LEVEL 3	B307	416	0.50
LEVEL 3	B308	660	1.00
LEVEL 3	B309	472	0.50
LEVEL 3	B310	652	1.00
LEVEL 3	B311	551	1.00
LEVEL 4	A401	1,451	1.30
LEVEL 4	A402	1,558	1.30
LEVEL 4	A403	708	1.00
LEVEL 4	A404	2,550	1.30
LEVEL 4	A405	1,942	1.30
LEVEL 4	A406	655	1.00
LEVEL 4	A407	750	1.00
LEVEL 4	A408	742	1.00
LEVEL 4	B401	715	1.00
LEVEL 4	B402	846	1.30
LEVEL 4	B403	627	1.00
LEVEL 4	B404	407	1.00
LEVEL 4	B405	703	1.00
LEVEL 4	B406	433	0.50
LEVEL 4	B407	437	0.50
LEVEL 4	B408	544	1.00
LEVEL 4	B409	546	1.00
LEVEL 4	B410	579	1.00
LEVEL 4	B411	496	0.50
LEVEL 5	A502	760	1.30
LEVEL 5	A503	485	0.50
LEVEL 5	A504	644	1.00
LEVEL 5	A505	641	1.00
LEVEL 5	A506	1,352	1.30
LEVEL 5	A507	736	1.00
LEVEL 5	A508	1,938	1.30
LEVEL 5	A509	522	1.00
LEVEL 5	B501	1,096	1.30
LEVEL 5	B502	627	1.00
LEVEL 5	B503	423	0.50
LEVEL 5	B504	703	1.00
LEVEL 5	B505	467	0.50
LEVEL 5	B506	469	0.50
LEVEL 5	B507	475	0.50
	Total Units		**Parking Req.**
Total Units:		**72**	**69.80**
Visitor Parking - 1 space per every 5 dwellings			13.96
Bicycle parking deduction - 1 space for 6 bikes max 5% =		3.49	(3.49)
TOTAL residential automobile parking			**80.27**

Car Parking Spaces Required per Unit Size				
0-500	0.5			
500-750	1			
750-1900	1.3			

Bicycle Parking Required		
use	spaces required per use	total required
multifamily	1 bicycle for every 5 dwelling units	15
restaurant/rec	1 bicycle for each 10 car parking spaces	12
TOTAL		**27**

Apartments Parking Required	with gateway deduct -20%
subtotal parking spaces required	80.3
Gateway deduct -20%	-16.1
Apartment Parking Required	**64.2**

Restaurant/Recreation Parking Required	spaces/gfa	gfa or occ	spaces	subtotal w/20% gateway deduct
restaurant	1/100	13,982.00	139.82	111.9
mezzanine office	1/350	1,060.00	3.0	2.4
recreation (golf)	1per 4 occ.	20.00	5.0	4.0
subtotal			147.8	
Gateway deduct -20%			-29.6	
Total restaurant/recreation parking required			**118.3**	

total parking required all uses	**182.5**

Shared Parking 10.1112.60

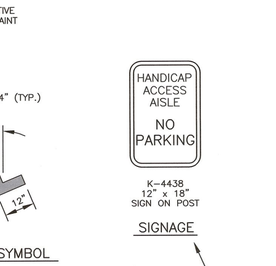
Total Parking Required	Weekday				Weekend				Nighttime		Maximum TOTAL
Land Use	daytime (8am-5pm)	spaces required	evening (6-12pm)	spaces required	daytime (8am-5pm)	spaces required	evening (6-midnight)	spaces required	(midnight-6am)	spaces required	Required
Apartments	60%	38.5	100%	64.2	80%	51.4	100%	64.2	100%	64.2	
restaurant	70%	78.3	100%	111.9	80%	89.5	100%	111.9	10%	11.2	
Office	100%	2.4	20%	0.5	10%	0.2	5%	0.1	5%	0.1	
entertainment (golf)	40%	1.6	100%	4.0	80%	3.2	100%	4.0	10%	0.4	
Total Required		120.9		180.56		144.3		180.2		75.9	**181**

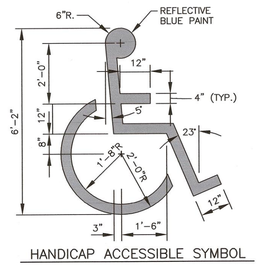
Total Parking Proposed	
In-building, level 1 + basement	136
Open air, on site	33
Off-site parking per deeded easement	12
Total parking proposed	**181**
Excess (Defecit)	**0**
Existing total available-today	154
Proposed Net Increase (reduction) in parking	27

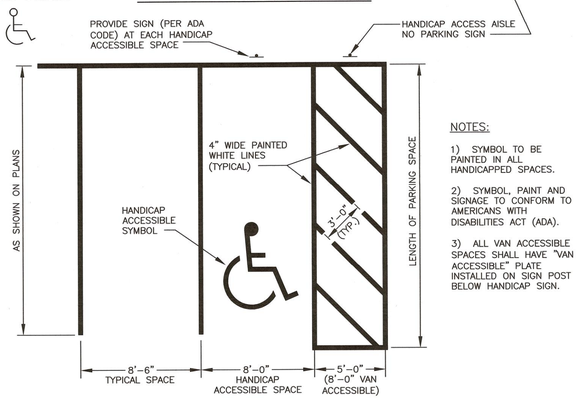
9. Eating and Drinking Places:		
9.10-9.50	All eating and drinking places	1 per 100 sf GFA

4. Recreational Uses		
4.10	Religious, sectarian or private non-profit recreational use	Parking demand analysis
4.20	Cinema or similar indoor amusement use with no live performance	0.4 per seat, or Parking demand analysis
4.30	Indoor recreation use, such as bowling alley or similar	1 per 4 person maximum occupancy
4.40	Health club, yoga studio, martial arts school, or similar use	1 per 250 sf GFA
4.50	Outdoor recreation use	Parking demand analysis
4.60	Amusement park, water park or theme park	NA – Prohibited Use

NEW HAMPSHIRE STATE PLANE NAD 83







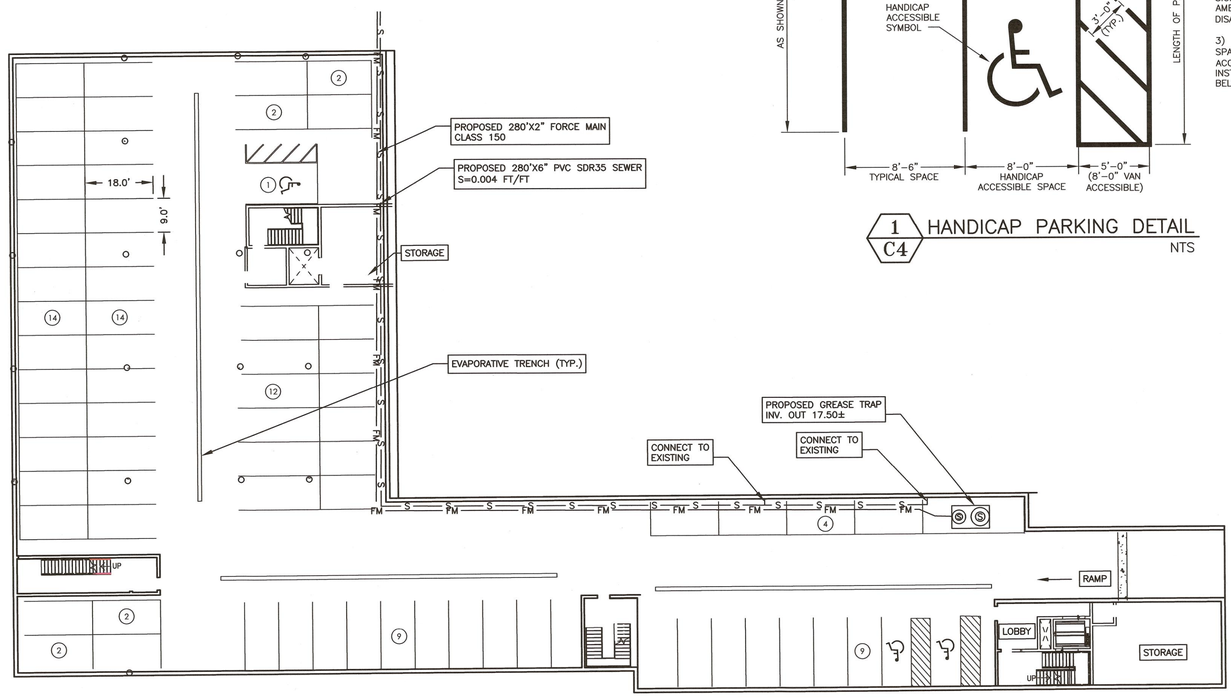
NOTES:

1) SYMBOL TO BE PAINTED IN ALL HANDICAPPED SPACES.

2) SYMBOL, PAINT AND SIGNAGE TO CONFORM TO AMERICANS WITH DISABILITIES ACT (ADA).

3) ALL VAN ACCESSIBLE SPACES SHALL HAVE "VAN ACCESSIBLE" PLATE INSTALLED ON SIGN POST BELOW HANDICAP SIGN.

1/C4 HANDICAP PARKING DETAIL
NTS



GRAPHIC SCALE

10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

WWW.HALEYWARD.COM

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PURPOSE OF THIS PLAN IS TO SHOW THE SUBSURFACE PARKING FOR THE PROPOSED SITE DEVELOPMENT ON ASSESSOR'S MAP 229 LOT 8B IN THE CITY OF PORTSMOUTH.

4) REQUIRED PARKING: (SEE TABLE)

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	11/20/23
0	ISSUED FOR COMMENT	7/5/23

REVISIONS

SCALE: 1"=20' JULY 2023

LOWER LEVEL PARKING PLAN

C4

FB 259 PG 10

1397.04

EXISITNG SEWER STRUCTURE SCHEDULE					
STRUCTURE	PROP/EX	RIM	PIPE SIZE	INVERT	DIRECTION
SMH 1	EX	22.56	8" CI	13.26	IN
			8" CI	13.21	OUT
GREASE TRAP 1	EX	23.63		17.58	OUT
GREASE TRAP 1	EX	23.63		17.23	OUT

NEW HAMPSHIRE STATE PLANE NAD 83

LAFAYETTE ROAD
U.S. ROUTE 1

SMH 1
PROPOSED INV. 13.77
IRRIGATION PITS
PROPOSED SPRINKLER CONNECTION
PSNH 146/27 w/CONDUIT
PROPOSED TRANSFORMER
PSNH 146/26
TEMP. POLE
ADA SIGNS
BUS STOP
PSNH 146/25
PROPOSED UTILITY POLE W/ GUY
IRRIGATION PIT
BIKE RACK
PROPOSED UNDERGROUND ELECTRICAL SERVICE
45' X 0.004FT/FT 8" PVC SDR35
PROPOSED SEWER MANHOLE (A)
INV. IN=14.05
INV. IN=13.95
100' X 0.004FT/FT 8" PVC SDR35
PROPOSED SEWER MANHOLE (B)
RIM (MATCH GRADE)
INV. IN=14.55
INV. OUT=14.45
PROPOSED UNDERGROUND ELECTRICAL SERVICE SPLICE INTO CONDUIT
IRRIGATION PIT
4' ORNAMENTAL BLACK FENCE ENCLOSURE
FF 24.86
229/8B
EXISTING BUILDING FF=24.93
BUILDING OVERHANG (TYP)
PROPOSED 280'X2" FORCE MAIN CLASS 150
PROPOSED 280'X6" PVC SDR35 SEWER S=0.004 FT/FT
DOMESTIC WATER SERVICE -EXTEND INTERIOR
1" PVC WATER LINE (TYP 3)
FREEZER CONTROLLER
IRRIGATION PITS
STANDPIPE CONNECTION
CB 4
IRRIGATION PITS
PROPOSED ELECTRICAL SERVICE IN CONDUIT
CONNECT TO EXISTING
PROPOSED GREASE TRAP INV. OUT 17.50±
CONNECT TO EXISTING
ROOF DRAINS (TYP)
PROPOSED GAS SERVICE
DUMPSTER PAD
DUMPSTER ENCLOSURE
CB 5
LEDGEWOOD DRIVE

GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	11/20/23
0	ISSUED FOR COMMENT	5/8/23

REVISIONS

STATE OF NEW HAMPSHIRE · JOHN R. CHAGNON 14751 · LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=20' FEBRUARY 2023

UTILITY PLAN

C5

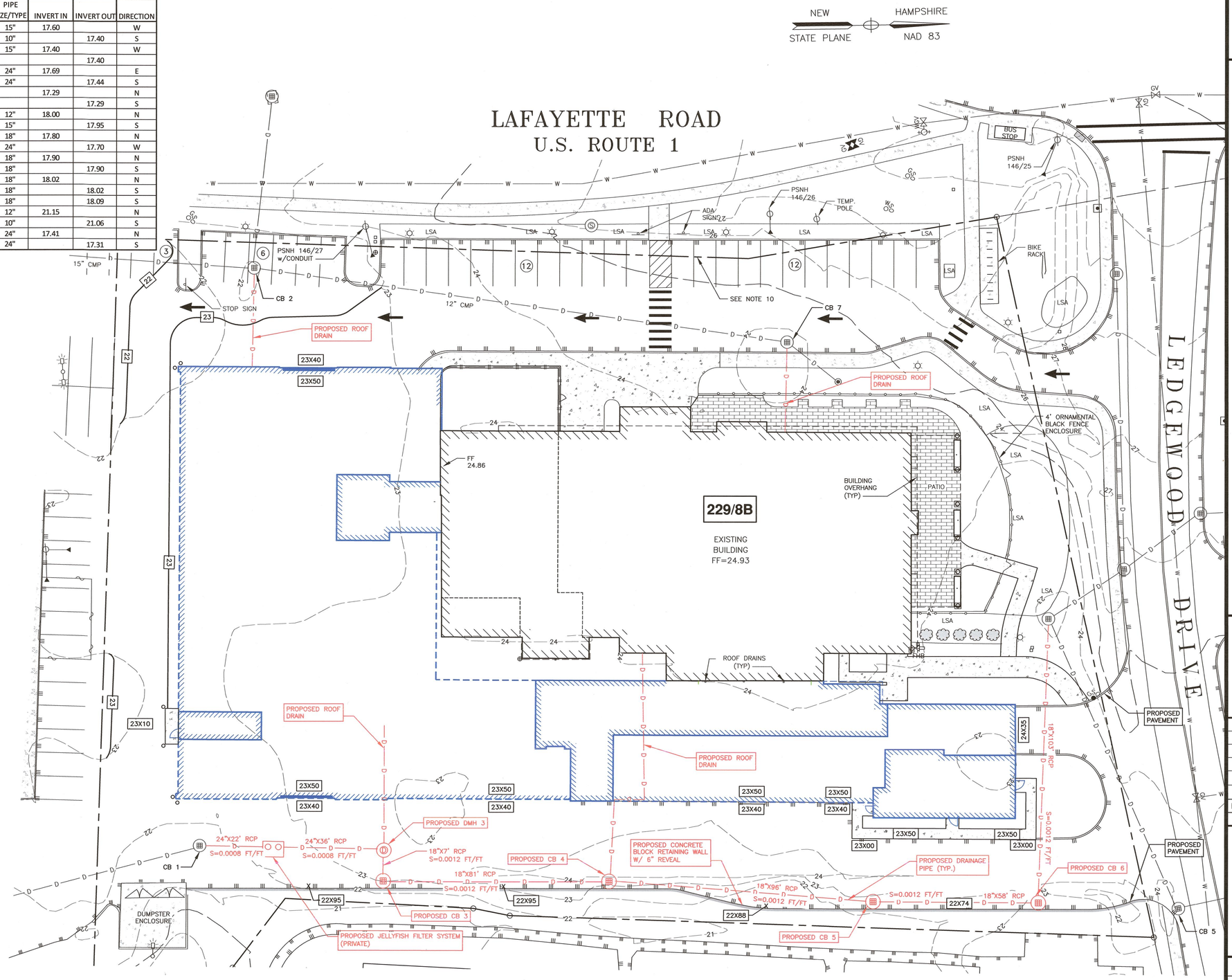
FB 259 PG 10

1397.04

P:\NH\50\156-McNabb_Properties\1397.03-Lafayette Rd., Portsmouth-JRC\2023 Site Plan 1397.03\Plans & Specs\Site\Final Set\1397.04 UTILITY 2023.dwg, Mon Nov 20 15:04:59 2023, Portsmouth Plotter Canon TX3000.pc3

DRAINAGE STRUCTURE SCHEDULE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
DMH 1	EX	22.3	15"	17.60		W
			10"		17.40	S
DMH 2	EX	22.3	15"	17.40		W
					17.40	
DMH 3	PROP		24"	17.69		E
			24"		17.44	S
CB 1	EX	21.46		17.29		N
					17.29	S
CB 2	EX	22.00	12"	18.00		N
			15"		17.95	S
CB 3	PROP	22.80	18"	17.80		N
			24"		17.70	W
CB 4	PROP	22.45	18"	17.90		N
			18"		17.90	S
CB 5	PROP	22.60	18"	18.02		N
			18"		18.02	S
CB 6	PROP	22.65	18"		18.09	S
CB 7	EX	24.16	12"	21.15		N
			10"		21.06	S
JELLYFISH FILTER	PROP	23.05	24"	17.41		N
			24"		17.31	S



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603.430.9282
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COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	11/20/23
0	ISSUED FOR COMMENT	2/7/23

REVISIONS

JOHN R. CHAGNON No. 9857 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

SCALE: 1"=20' JULY 2023

GRADING DRAINAGE EROSION CONTROL PLAN

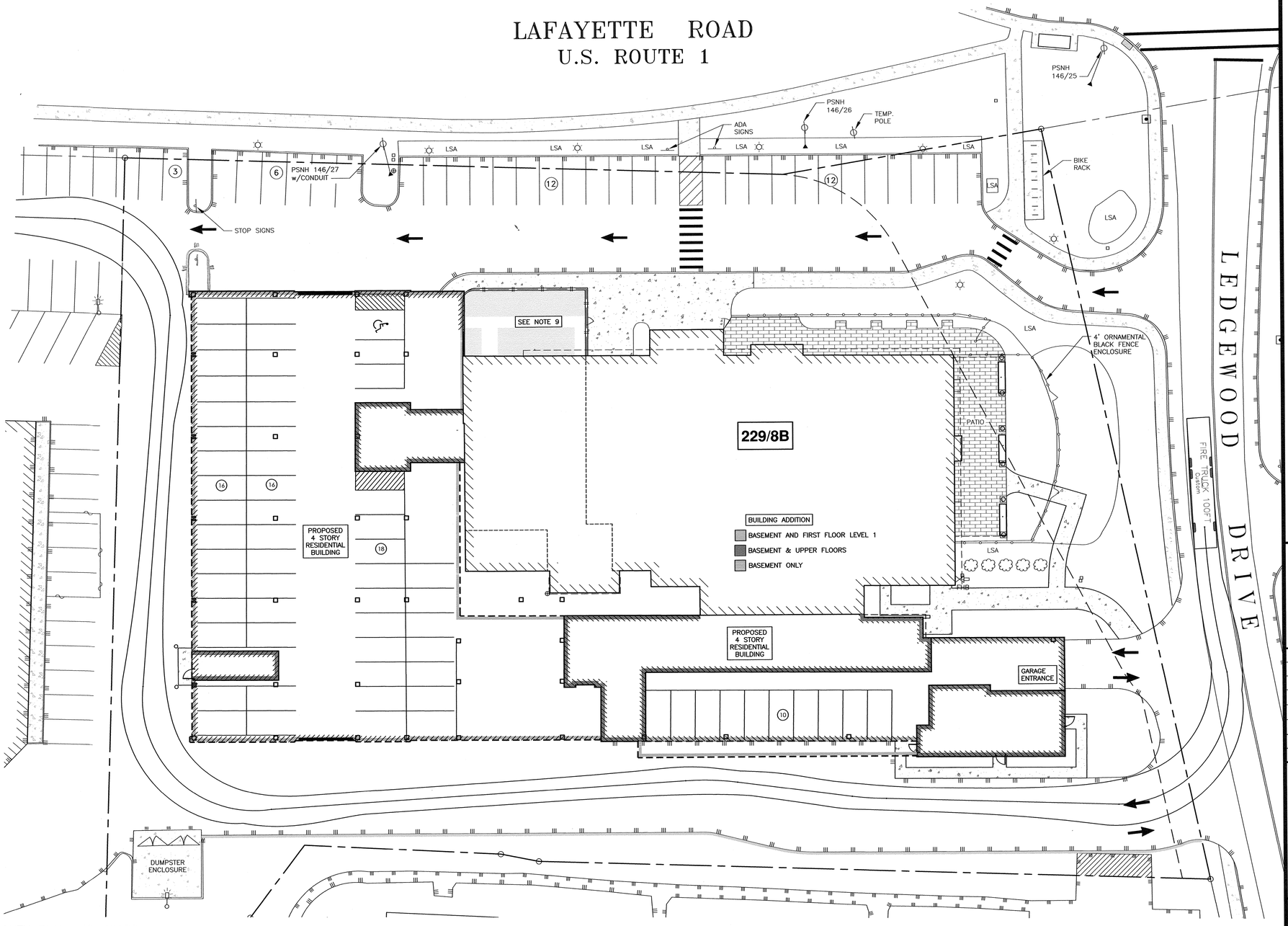
C6

FB 259 PG 10

1397.04

NEW HAMPSHIRE
STATE PLANE NAD 83

LAFAYETTE ROAD
U.S. ROUTE 1



LEDGEWOOD DRIVE

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

AMBIT ENGINEERING, INC.
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Portsmouth, NH 03801
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NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270E, EFFECTIVE MAY 17, 2005

4) EXISTING LOT AREA:
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW GENERAL TURNING MOVEMENTS ON TAX MAP 229 LOT 8B.

8) DESIGN BASED ON ARCHITECTURAL PLAN BY ARCOVE ARCHITECTS DATED 8/22/23.

9) CONVERSION OF TUSCAN MARKETPLACE TO RESTAURANT (NORTHEASTERN THAI, LLC) APPROVED UNDER PERMIT: LU-22-254

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	11/20/23
0	ISSUED FOR COMMENT	8/31/23

REVISIONS

STATE OF NEW HAMPSHIRE — NO. 738 JOHN R. CHAGNON — LICENSED LAND SURVEYOR — SIGNATURE

SCALE: 1"=20' JULY 2023

FIRE TRUCK TURNING PLAN

T1

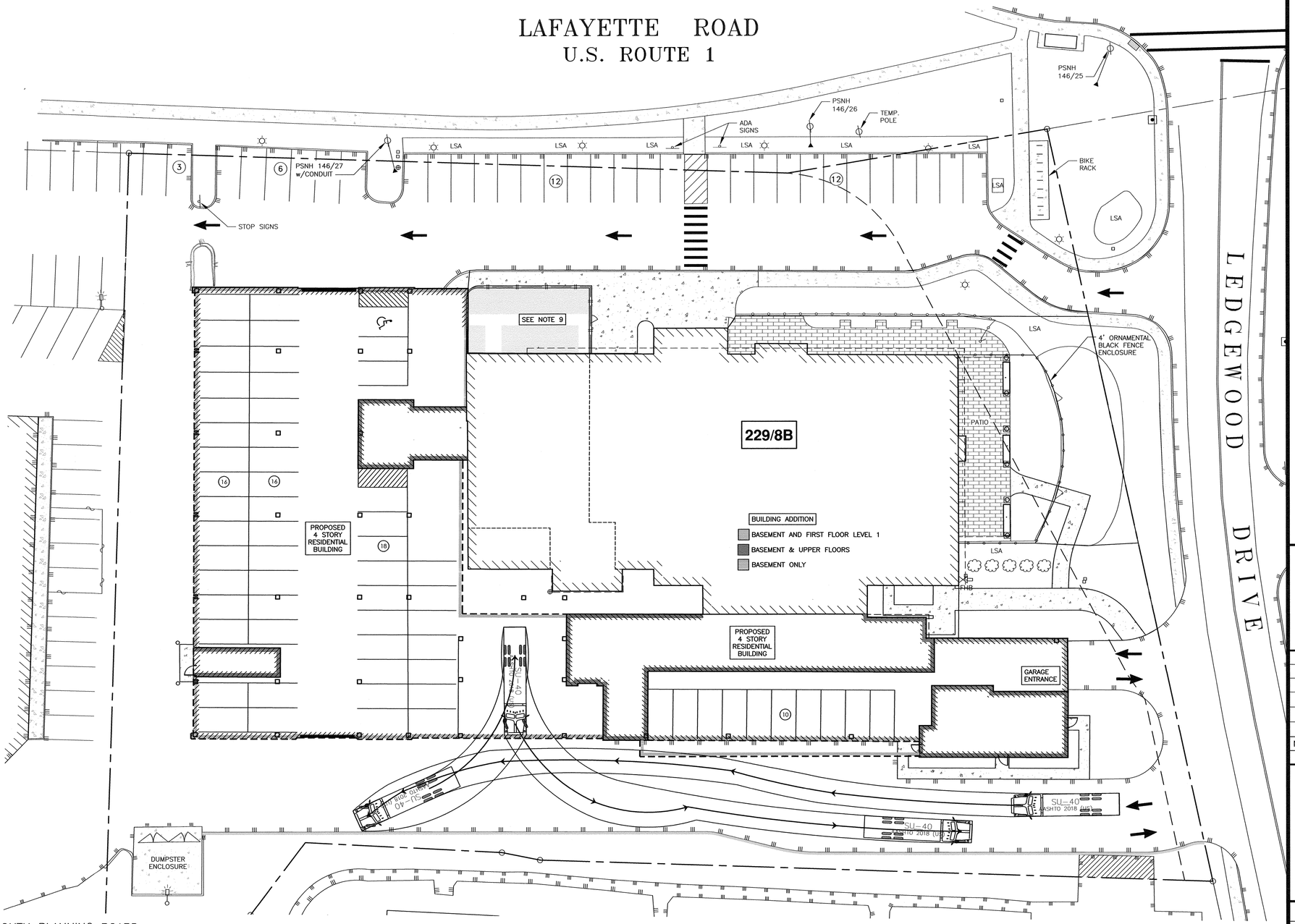
FB 259 PG 10

1397.04

P:\NH\1397.05-Hotels, Properties\1397.03-Lafayette Rd., Portsmouth-JRC\2023 Site Plan 1397.03\Plans & Specs\Site\1397.04 EXISTING 2023.dwg, Mon Nov 20 13:56:27 2023, Plotted by: Jason Cormier

NEW HAMPSHIRE
STATE PLANE NAD 83

LAFAYETTE ROAD
U.S. ROUTE 1



APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

GRAPHIC SCALE

10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270E, EFFECTIVE MAY 17, 2005

4) EXISTING LOT AREA:
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW GENERAL TURNING MOVEMENTS ON TAX MAP 229 LOT 8B.

8) DESIGN BASED ON ARCHITECTURAL PLAN BY ARCOVE ARCHITECTS DATED 8/22/23.

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COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	11/20/23
0	ISSUED FOR COMMENT	8/31/23

REVISIONS

STATE OF NEW HAMPSHIRE — No. 738 JOHN R. CHRISTON — LICENSED LAND SURVEYOR — SIGNATURE

SCALE: 1"=20' JULY 2023

DELIVERY TRUCK TURNING PLAN

T2

FB 259 PG 10

1397.04

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE

1. DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
2. THE CONTRACTOR SHALL OBTAIN AN **NPDES** PHASE II STORMWATER PERMIT BEFORE BEGINNING CONSTRUCTION AND SHALL HAVE ON SITE A STORMWATER POLLUTION PREVENTION PLAN (**S.W.P.P.P.**) AVAILABLE FOR INSPECTION BY THE PERMITTING AUTHORITY DURING THE CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THE **S.W.P.P.P.** AND INSPECTING AND MAINTAINING ALL BMP'S CALLED FOR BY THE PLAN. THE CONTRACTOR SHALL SUBMIT A NOTICE OF TERMINATION (**N.O.T.**) FORM TO THE REGIONAL EPA OFFICE WITHIN 30 DAYS OF FINAL STABILIZATION OF THE ENTIRE SITE OR TURNING OVER CONTROL OF THE SITE TO ANOTHER OPERATOR.
3. INSTALL PERIMETER CONTROLS, i.e., SILTSOXX AROUND THE LIMITS OF DISTURBANCE AND CATCH BASIN BASKETS AS NEEDED BEFORE ANY EARTH MOVING OPERATIONS.
4. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.
5. CUT AND GRUB ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND REMOVE OTHER DEBRIS AND RUBBISH AS REQUIRED.
6. DEMOLISH EXISTING WALKWAYS, PAVEMENT, AND UTILITIES AS INDICATED ON THE PLANS.
7. REPLANT TREES OR MOVE TO STABLE LOCATION.
8. BEGIN CONSTRUCTION OF ADDITIONS.
9. LAYOUT AND INSTALL ALL BURIED UTILITIES AND SERVICES UP TO 10' OF THE PROPOSED BUILDING FOUNDATIONS. CAP AND MARK TERMINATIONS OR LOG SWING TIES.
10. FINISH GRADE SITE, BACKFILL ROAD SUBBASE GRAVEL IN TWO, COMPACTED LIFTS. PROVIDE TEMPORARY EROSION PROTECTION IN THE FORM OF MULCHING, JUTE MESH OR DITCH DAMS.
11. INSTALL RETAINING WALL.
12. INSTALL DRAINAGE SYSTEM.
13. PLACE BINDER LAYER OF PAVEMENT, THEN RAISE CATCH BASIN FRAMES TO FINAL GRADE. REINSTALL BASIN INLET PROTECTION.
14. PLANT LANDSCAPING IN AREAS OUT OF WAY OF BUILDING CONSTRUCTION. PREPARE AND STABILIZE FINAL SITE GRADING BY ADDING TOPSOIL, SEED, MULCH AND FERTILIZER.
15. AFTER BUILDINGS ARE COMPLETED, FINISH ALL REMAINING LANDSCAPED WORK.
16. CONSTRUCT ASPHALT WEARING COURSE.
17. REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF FINAL STABILIZATION OF THE SITE.

GENERAL CONSTRUCTION NOTES

1. THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
2. DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.
3. ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.
4. DUST CONTROL: IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
5. SILT FENCES AND SILTSOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILT FENCES AND SILTSOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.
6. AVOID THE USE OF FUTURE OPEN SPACES (LOAM AND SEED AREAS) WHEREVER POSSIBLE DURING CONSTRUCTION. CONSTRUCTION TRAFFIC SHALL USE THE ROADBEDS OF FUTURE ACCESS DRIVES AND PARKING AREAS.
7. ADDITIONAL TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNTS NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS--CONSTRUCT SILT FENCE OR SILTSOXX AROUND TOPSOIL STOCKPILE.
8. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL. STUMPS SHALL BE DISPOSED OF IN AN APPROVED FACILITY.
9. ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.
10. ALL NON-STRUCTURAL, SITE-FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.
11. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.
12. FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.
13. DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.
14. THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.
15. ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
16. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    - BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED
    - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
    - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
    - EROSION CONTROL BLANKETS HAVE BEEN INSTALLED

VEGETATIVE PRACTICE

FOR PERMANENT MEASURES AND PLANTINGS:

LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF 2 TONS PER ACRE.

FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 500 POUNDS PER ACRE OF 10-20-20 FERTILIZER.

SEED SHALL BE SOWN AT THE RATES SHOWN IN THE TABLE BELOW. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AT A RATE OF 1.5 TO 2 TONS PER ACRE, AND SHALL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE EROSION AND SEDIMENT CONTROL HANDBOOK.

THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED.

A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE:

GENERAL COVER	PROPORTION	SEEDING RATE
CREEPING RED FESCUE	50%	100 LBS/ACRE
KENTUCKY BLUEGRASS	50%	

SLOPE SEED (USED ON ALL SLOPES GREATER THAN OR EQUAL TO 3:1)

CREEPING RED FESCUE	42%	
TALL FESCUE	42%	48 LBS/ACRE
BIRDSFOOT TREFOIL	16%	

IN NO CASE SHALL THE WEED CONTENT EXCEED ONE PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH APPLICABLE STATE AND FEDERAL SEED LAWS.

FOR TEMPORARY PROTECTION OF DISTURBED AREAS:
MULCHING AND SEEDING SHALL BE APPLIED AT THE FOLLOWING RATES:
PERENNIAL RYE: 0.7 LBS/1,000 S.F.
MULCH: 1.5 TONS/ACRE

MAINTENANCE AND PROTECTION

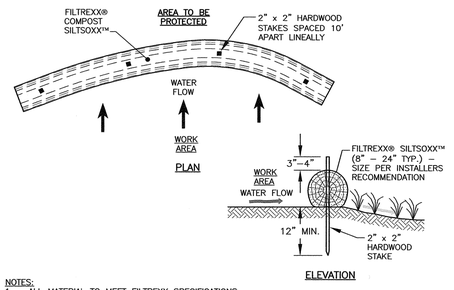
1. THE CONTRACTOR SHALL MAINTAIN ALL LOAM & SEED AREAS UNTIL FINAL ACCEPTANCE AT THE COMPLETION OF THE CONTRACT. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, REMOVAL OF STONES AND OTHER FOREIGN OBJECTS OVER 1/2 INCHES IN DIAMETER WHICH MAY APPEAR AND THE FIRST TWO (2) CUTTINGS OF GRASS NO CLOSER THEN TEN (10) DAYS APART. THE FIRST CUTTING SHALL BE ACCOMPLISHED WHEN THE GRASS IS FROM 2 1/2 TO 3 INCHES HIGH. ALL BARE AND DEAD SPOTS WHICH BECOME APPARENT SHALL BE PROPERLY PREPARED, LIMED AND FERTILIZED, AND RESEEDED BY THE CONTRACTOR AT HIS EXPENSE AS MANY TIMES AS NECESSARY TO SECURE GOOD GROWTH. THE ENTIRE AREA SHALL BE MAINTAINED, WATERED AND CUT UNTIL ACCEPTANCE OF THE LAWN BY THE OWNER'S REPRESENTATIVE.
2. THE CONTRACTOR SHALL TAKE WHATEVER MEASURES ARE NECESSARY TO PROTECT THE GRASS WHILE IT IS DEVELOPING.
3. TO BE ACCEPTABLE, SEEDED AREAS SHALL CONSIST OF A UNIFORM STAND OF AT LEAST 90 PERCENT ESTABLISHED PERMANENT GRASS SPECIES, WITH UNIFORM COUNT OF AT LEAST 100 PLANTS PER SQUARE FOOT.
4. SEEDED AREAS WILL BE FERTILIZED AND RESEEDED AS NECESSARY TO INSURE VEGETATIVE ESTABLISHMENT.
5. THE SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATION IS ESTABLISHED.
6. THE SILT FENCE OR SILTSOXX BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
7. SILT FENCING AND SILTSOXX SHALL BE REMOVED ONCE VEGETATION IS ESTABLISHED, AND DISTURBED AREAS RESULTING FROM SILT FENCE AND SILTSOXX REMOVAL SHALL BE PERMANENTLY SEEDED.

WINTER NOTES

1. ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.

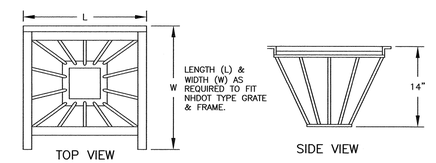
APPROVED BY THE PORTSMOUTH PLANNING BOARD

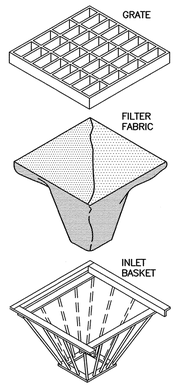
CHAIRMAN _____ DATE _____



NOTES:
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILTREXX SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTREXX INSTALLER.
3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
4. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
5. THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

A / C6 FILTREXX® SILTSOXX™ FILTRATION SYSTEM
NTS





1) INLET BASKETS SHALL BE INSTALLED IMMEDIATELY AFTER CATCH BASIN CONSTRUCTION IS COMPLETE AND SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL PAVEMENT BINDER COURSE IS COMPLETE.

2) FILTER FABRIC SHALL BE PUSHED DOWN AND FORMED TO THE SHAPE OF THE BASKET. THE SHEET OF FABRIC SHALL BE LARGE ENOUGH TO BE SUPPORTED BY THE BASKET FRAME WHEN HOLDING SEDIMENT AND, SHALL EXTEND AT LEAST 6" PAST THE FRAME. THE INLET GRATE SHALL BE PLACED OVER THE BASKET/FRAME AND WILL SERVE AS THE FABRIC ANCHOR.

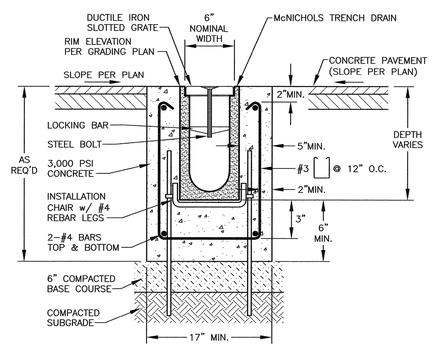
3) THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC; POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE, OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:
- –RAB STRENGTH: 45 LB. MIN. IN ANY PRINCIPAL DIRECTION (ASTM D1682)
- –MULLEN BURST STRENGTH: MIN. 60 psi (ASTM D774)

4) THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND A MINIMUM PERMEABILITY OF 120 gpm/s.f. (MULTIPLY THE PERMITTIVITY IN SEC.-1 FROM ASTM 54491-85 CONSTANT HEAD TEST USING THE CONVERSION FACTOR OF 74.)

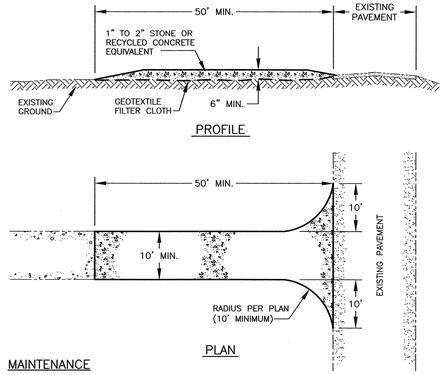
5) THE INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.

6) SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

B / C6 CATCH BASIN INLET BASKET
NTS



D / C4 EVAPORATIVE TRENCH DRAIN DETAIL — SECTION
IN GARAGE
NTS



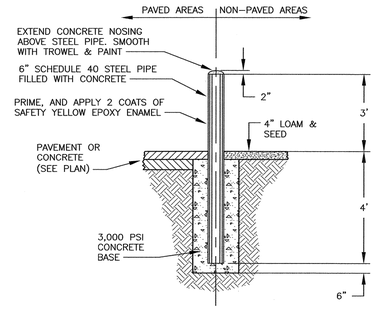
MAINTENANCE

1) MUD AND SOIL PARTICLES WILL EVENTUALLY CLOG THE VOIDS IN THE GRAVEL AND THE EFFECTIVENESS OF THE GRAVEL PAD WILL NOT BE SATISFACTORY. WHEN THIS OCCURS, THE PAD SHOULD BE TOP DRESSED WITH NEW STONE. COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY CLOGGED.
2) IF WASHING FACILITIES ARE USED, THE SEDIMENT TRAPS SHOULD BE CLEANED OUT AS OFTEN AS NECESSARY TO ASSURE THAT ADEQUATE TRAPPING EFFICIENCY AND STORAGE VOLUME IS AVAILABLE. VEGETATIVE FILTER STRIPS SHOULD BE MAINTAINED TO INSURE A VIGOROUS STAND OF VEGETATION AT ALL TIMES.

CONSTRUCTION SPECIFICATIONS

1) STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2) THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3) THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4) THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICHEVER IS GREATER.
5) GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
6) ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7) THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
8) WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY, WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

C / C6 STABILIZED CONSTRUCTION ENTRANCE
NTS



E / C3 PIPE BOLLARD DETAIL
NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/20/23

REVISIONS

STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON NO. 7651 – LICENSED PROFESSIONAL ENGINEER

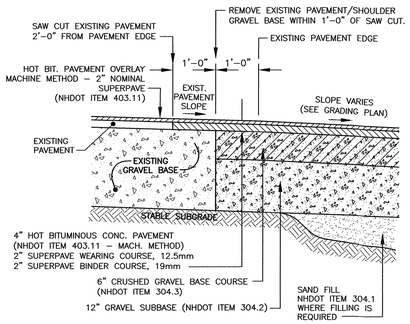
SCALE: AS NOTED — NOVEMBER 2023

EROSION CONTROL NOTES & DETAILS

D1

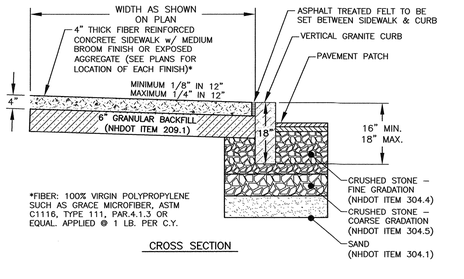
FB 259 PG 10

5010156 1397.04

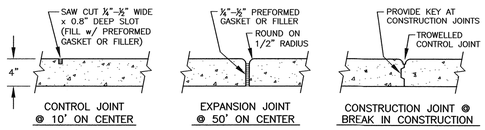


F C3 FULL DEPTH PAVEMENT SECTION AND PAVEMENT JOINT DETAIL

NTS

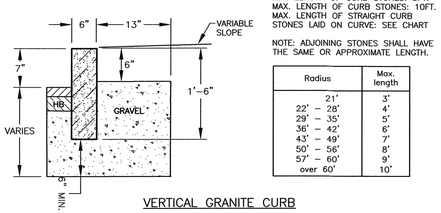


CROSS SECTION



G C3 PORTLAND CEMENT CONCRETE SIDEWALK

NTS



VERTICAL GRANITE CURB

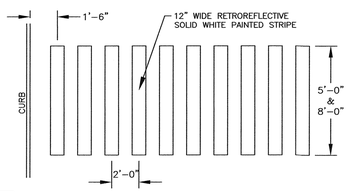
MIN. LENGTH OF CURB STONES: 3FT.
MAX. LENGTH OF CURB STONES: 10FT.
MAX. LENGTH OF STRAIGHT CURB STONES LAID ON CURVE: SEE CHART

NOTE: ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATE LENGTH.

Radius	Max. length
21'	3'
22' – 28'	4'
29' – 35'	5'
36' – 42'	6'
43' – 49'	7'
50' – 56'	8'
57' – 60'	9'
over 60'	10'

H C3 GRANITE CURBING DETAILS (CITY OF PORTSMOUTH)

NTS

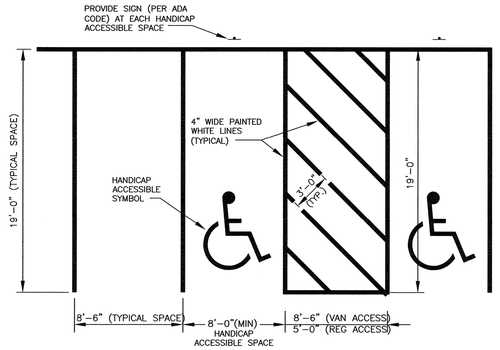


I C3 PAINTED CROSSWALK DETAIL

NTS

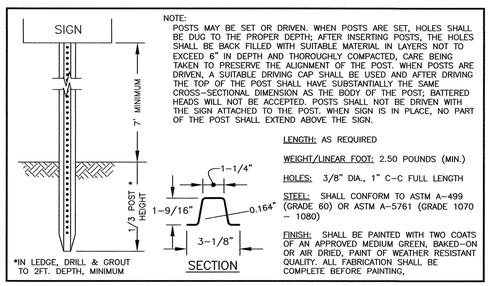
APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____



J C3 PARKING STALL DETAIL

NTS



NOTE:
POSTS MAY BE SET OR DRIVEN. WHEN POSTS ARE SET, HOLES SHALL BE DUG TO THE PROPER DEPTH; AFTER INSERTING POSTS, THE HOLES SHALL BE BACK FILLED WITH SUITABLE MATERIAL IN LAYERS NOT TO EXCEED 6" IN DEPTH AND THOROUGHLY COMPACTED, CARE BEING TAKEN TO PRESERVE THE ALIGNMENT OF THE POST. WHEN POSTS ARE DRIVEN, A SUITABLE DRIVING CAP SHALL BE USED AND AFTER DRIVING THE TOP OF THE POST SHALL HAVE SUBSTANTIALLY THE SAME CROSS-SECTIONAL DIMENSION AS THE BODY OF THE POST; BATTERED HEADS WILL NOT BE ACCEPTED. POSTS SHALL NOT BE DRIVEN WITH THE SIGN ATTACHED TO THE POST. WHEN SIGN IS IN PLACE, NO PART OF THE POST SHALL EXTEND ABOVE THE SIGN.

LENGTH: AS REQUIRED

WEIGHT/LINEAR FOOT: 2.50 POUNDS (MIN.)

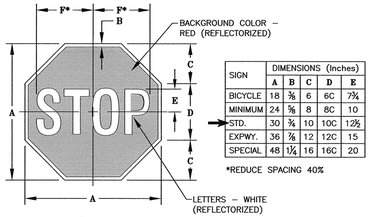
HOLES: 3/8" DIA., 1" C-C FULL LENGTH

STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-5761 (GRADE 1070 – 1080)

FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN, BAKED-ON OR AIR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING,

K C3 SIGN POST DETAIL

NTS



SIGN	DIMENSIONS (Inches)				
	A	B	C	D	E
BICYCLE	18	⅜	6	6C	7¾
MINIMUM	24	⅜	8	8C	10
STD.	30	¾	10	10C	12½
EXPWY.	36	⅞	12	12C	15
SPECIAL	48	1½	16	16C	20

*REDUCE SPACING 40%

R1-1
A" x A"

R7-8a
12" x 18"
SIGN ON POST

EACH SPACE SHALL HAVE THIS SIGN DISPLAYED PER ADA CODE

"VAN ACCESSIBLE" SHALL ALSO BE DISPLAYED WHERE INDICATED

12"x18"

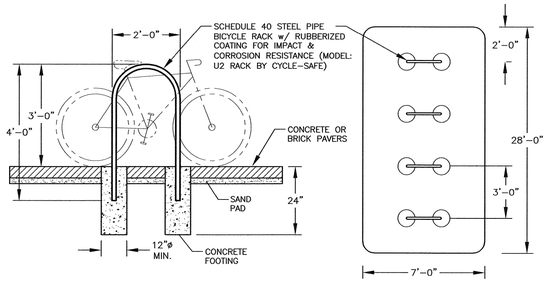
R10-7
24" x 30"
SIGN ON POST

SEE DETAIL NN/D7 FOR SIGN LOCATION AT INTERSECTION OF LEDGEWOOD DRIVE AND LAFAYETTE ROAD

R5-1
30" x 30"

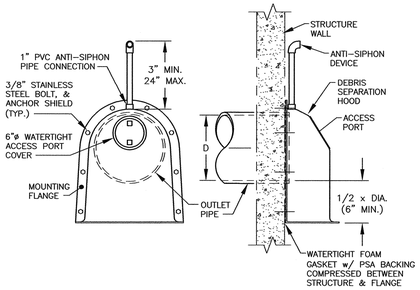
M C3 SIGN DETAILS

NTS



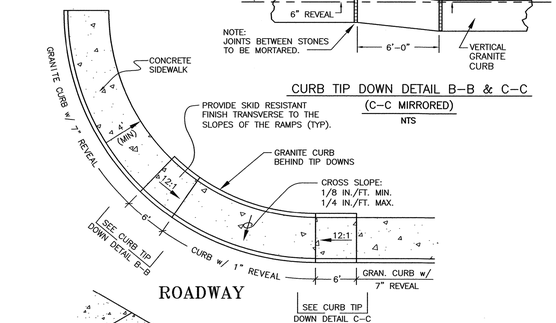
N C3 UPTURNED "U" BICYCLE RACK

NTS



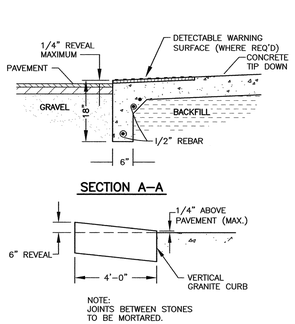
O C6 CATCH BASIN OUTLET HOOD DETAIL

NTS

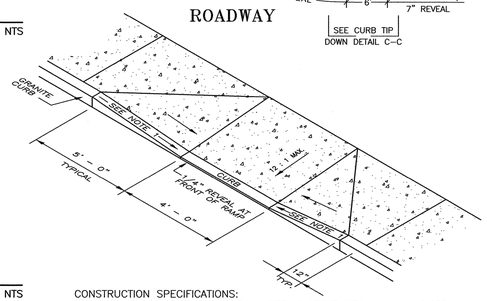


CURB TIP DOWN DETAIL B-B & C-C (C-C MIRRORED)

NTS

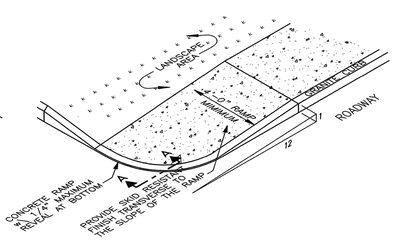


GRANITE CURB END FOR VERTICAL GRANITE CURB



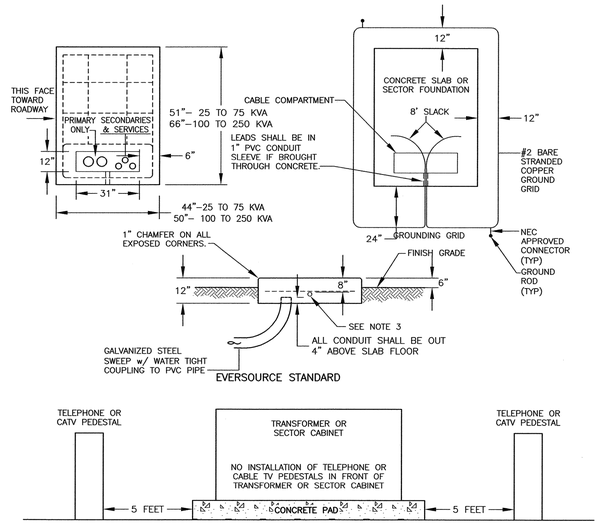
CONSTRUCTION SPECIFICATIONS:
1) SLOPE OF RAMP VARIES WITH SIDEWALK WIDTH & HEIGHT, WITH A MAXIMUM SLOPE OF 12 : 1 AND A MINIMUM SLOPE OF 16 : 1.

2) A SKID RESISTANT FINISH TRANSVERSE TO THE SLOPE OF THE RAMP AND WARPED SIDEWALK, SHALL BE USED ON PORTLAND CEMENT CONCRETE RAMPS.



L C3 TIP DOWNS FOR CONCRETE SIDEWALK

NTS



NOTES
1. ALL REINFORCING TO BE #6 BARS.
2. 1" PVC CONDUIT SLEEVE FOR GROUND GRID LEADS.
3. THE GROUND GRID SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AND IS TO BE BURIED AT LEAST 12" BELOW GRADE. EIGHT FEET OF EXTRA WIRE FOR EACH GROUND GRID LEG SHALL BE LEFT EXPOSED IN THE CABLE COMPARTMENT TO ALLOW FOR THE CONNECTION TO THE TRANSFORMER. THE TWO 8' GROUND RODS MAY BE EITHER GALVANIZED STEEL OR COPPERWELD AND THEY SHALL BE CONNECTED TO THE GRID WITH NEC APPROVED CONNECTORS.
4. NO SHRUBS, FENCES, OR PERMANENT STRUCTURES CAN BE PLACED WITHIN 10 FEET OF THE FRONT AND 5 FEET OF THE SIDES AND BACK OF PAD-MOUNTED EQUIPMENT. THE COMPANY HAS THE RIGHT TO REMOVE THESE OBJECTS WITHOUT NOTICE TO THE OWNER.

P C5 TRANSFORMER PAD

COORDINATE WITH EVERSOURCE

NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/20/23

REVISIONS

JOHN R. CHAGNON No. 7681 STATE OF NEW HAMPSHIRE LICENSED PROFESSIONAL ENGINEER

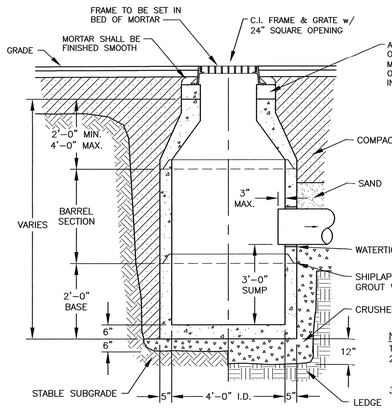
SCALE: AS NOTED NOVEMBER 2023

DETAILS

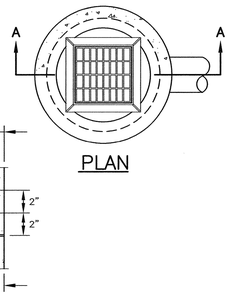
D2

FB 259 PG 10

5010156 1397.04

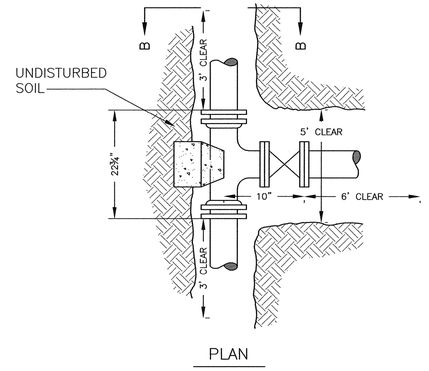


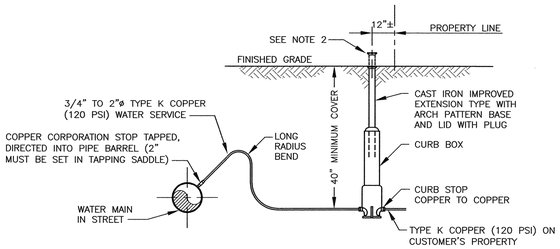
SECTION A – A



NOTES:
1. CONCRETE SHALL BE 4,000 P.S.I. AFTER 28 DAYS.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FT. IN ALL SECTIONS & SHALL BE PLACED IN THE CENTER THIRD OF WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. EACH CASTING TO HAVE LIFTING HOLES CAST IN.

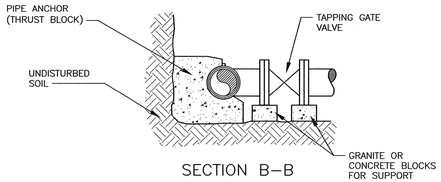
Q C5 CATCH BASIN DETAIL NTS





NOTE:
1) INSTALLATION OF WATER MAIN TAP & CURB STOP & BOX SHALL ONLY BE PERFORMED BY THOSE AUTHORIZED BY THE PUBLIC WORKS DEPARTMENT.
2) IN AREAS OF HEAVY GROWTH THE CURB BOX COVER SHALL BE SET 6" ABOVE FINISH GRADE AND A WITNESS STAKE SET.
3) CURB BOX SHALL BE SET APPROXIMATELY 12" OUTSIDE PROPERTY LINE AS SHOWN.
4) PRIOR TO ACCEPTANCE, A PLAN INDICATING THE LOCATION OF THE CURB BOX SHALL BE SUBMITTED TO THE CITY OF PORTSMOUTH WATER DIVISION.

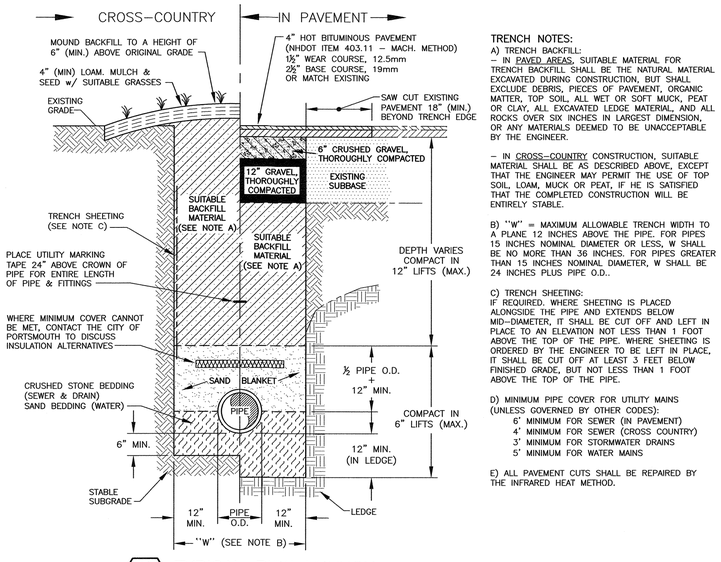
V C4 WATER SERVICE CONNECTION
INSTALL PER PORTSMOUTH REQUIREMENTS NTS



SECTION B–B

NOTES:
1) ALL MATERIALS SHALL BE APPROVED BY THE PORTSMOUTH WATER DEPARTMENT PRIOR TO INSTALLATION AND USE.
2) ALL JOINTS SHALL BE MECHANICAL.
3) "CLEAR" DIMENSIONS SHOWN ATE REQUIRED FOR WORKSPACE. NO JOINTS ON PIPE BEING TAPPED WITHIN "CLEAR" AREA.
4) FORD TYPE STAINLESS STEEL TAPPING SADDLES OR APPROVED EQUAL ARE ALSO ACCEPTABLE.

T C4 TAPPING SLEEVE AND GATE
INSTALL PER PORTSMOUTH REQUIREMENTS NTS



TRENCH NOTES:
A) TRENCH BACKFILL:
– IN PAVED AREAS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIALS DEEMED TO BE UNACCEPTABLE BY THE ENGINEER.

– IN CROSS–COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE.

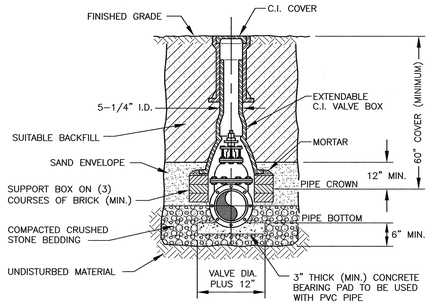
B) "W" = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D..

C) TRENCH SHEETING:
IF REQUIRED. WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID–DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.

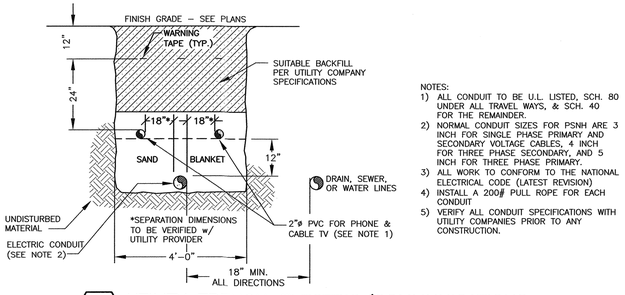
D) MINIMUM PIPE COVER FOR UTILITY MAINS (UNLESS GOVERNED BY OTHER CODES):
6' MINIMUM FOR SEWER (IN PAVEMENT)
4' MINIMUM FOR SEWER (CROSS COUNTRY)
3' MINIMUM FOR STORMWATER DRAINS
5' MINIMUM FOR WATER MAINS

E) ALL PAVEMENT CUTS SHALL BE REPAIRED BY THE INFRARED HEAT METHOD.

R C4 TYPICAL PIPE TRENCH NTS

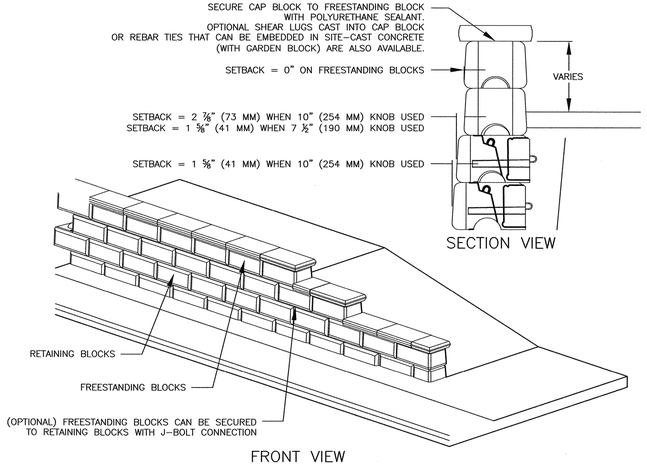


U C4 TYPICAL VALVE BOX INSTALLATION
INSTALL PER PORTSMOUTH REQUIREMENTS NTS



NOTES:
1) ALL CONDUIT TO BE U.L. LISTED, SCH. 80 UNDER ALL TRAVEL WAYS, & SCH. 40 FOR THE REMAINDER.
2) NORMAL CONDUIT SIZES FOR PSNH ARE 3 INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4 INCH FOR THREE PHASE SECONDARY, AND 5 INCH FOR THREE PHASE PRIMARY.
3) ALL WORK TO CONFORM TO THE NATIONAL ELECTRICAL CODE (LATEST REVISION)
4) INSTALL A 200# PULL ROPE FOR EACH CONDUIT
5) VERIFY ALL CONDUIT SPECIFICATIONS WITH UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION.

S C4 UTILITY TRENCH ELECTRIC/COMMUNICATIONS NTS



W C3 SMALL BLOCK RETAINING WALL NTS
GENEST – BRUSSELS – UNILOCK WALL
COORDINATE COLOR WITH OWNER

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

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APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/20/23

REVISIONS

JOHN R. CHAGNON NO. 7651 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

SCALE: AS NOTED NOVEMBER 2023

DETAILS

D3

FB 259 PG 10

5010156 1397.04

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

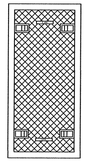
CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.96	1.47	0.98	0.54
DECK TO INSIDE TOP (MIN) (B)	5.00	4.00	4.00	4.00

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-858, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

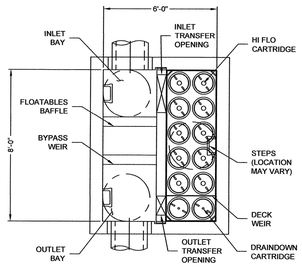
FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



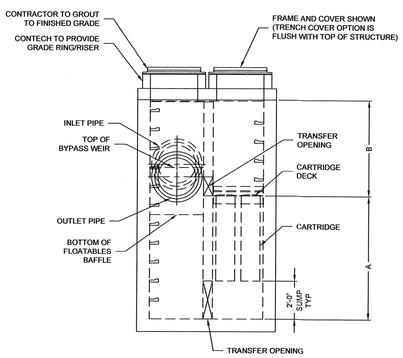
24" TRENCH COVER
(LENGTH VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID					ID
WATER QUALITY FLOW RATE (cfs)					WQFLOW
PEAK FLOW RATE (cfs)					PEAK
RETURN PERIOD OF PEAK FLOW (yrs)					RETURN
# OF CARTRIDGES REQUIRED (HF / DD)					CART
CARTRIDGE LENGTH					SIZE
PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	ELEV	MAT'L	DIA	SLOPE	HGL
INLET #2	ELEV	MAT'L	DIA	SLOPE	HGL
OUTLET	ELEV	MAT'L	DIA	SLOPE	HGL
SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.					
RIM ELEVATION					RIMELEV
ANTI-FLOTATION BALLAST		WIDTH			HEIGHT
		WIDTH			HEIGHT
NOTES/SPECIAL REQUIREMENTS:					
* PER ENGINEER OF RECORD					



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW

JELLYFISH FILTER DETAIL
NTS

1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

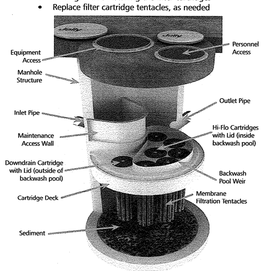
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



Note: Separator Skirt not shown

2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

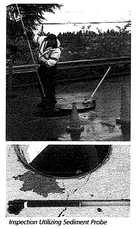
3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

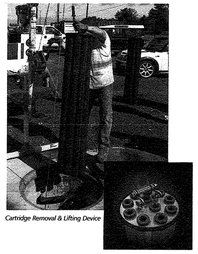
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. ***Caution: Dropping objects onto the cartridge deck may cause damage.***
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. ***Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs.***
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



Cartridge Removal & Lifting Device

2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. ***Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane.***

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

5.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.

Vacuuming Sump Through MAW

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.

Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

5.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. ***Caution: Do not force the cartridge downward; damage may occur.***
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

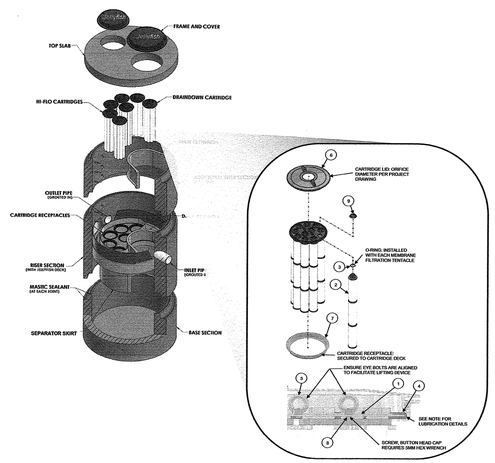


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X1.0X6M SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40951	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSILUB30L1G	PROSELECT	PIPE JOINT LUBRICANT

NOTES:
Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lide (ITem 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE EROSION AND SEDIMENT CONTROL BMP's" PUBLISHED BY THE NEW HAMPSHIRE D.E.S. IN 2008.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/20/23

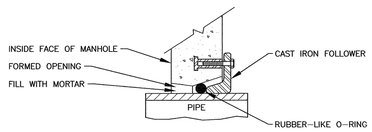
REVISIONS

SCALE: AS NOTED NOVEMBER 2023

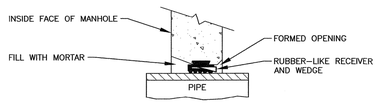
JELLYFISH DETAILS **D4**

FB 259 PG 10

5010156 1397.04



RES-SEAL
(OR ACCEPTABLE SUBSTITUTE)



PRESS-WEDGE II
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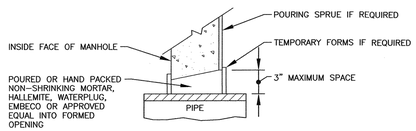
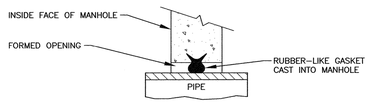
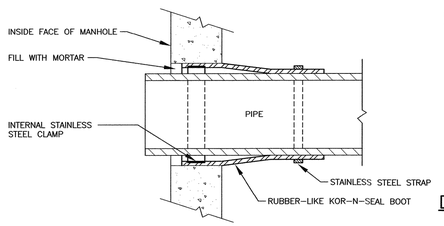


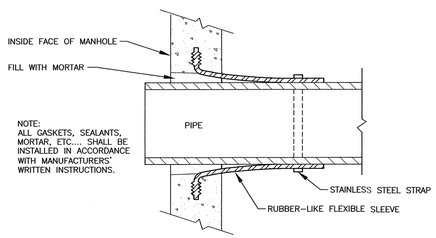
NON-SHRINKING MORTAR
(OR ACCEPTABLE SUBSTITUTE)



A-LOK
(OR ACCEPTABLE SUBSTITUTE)

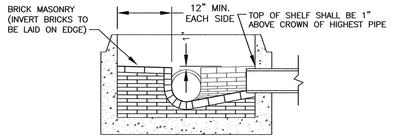


KOR-N-SEAL JOINT SLEEVE
(OR ACCEPTABLE SUBSTITUTE)

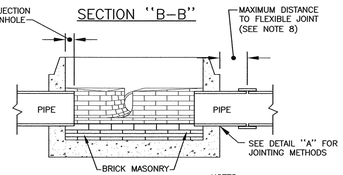


LOCK-JOINT FLEXIBLE MANHOLE SLEEVE
(OR ACCEPTABLE SUBSTITUTE)

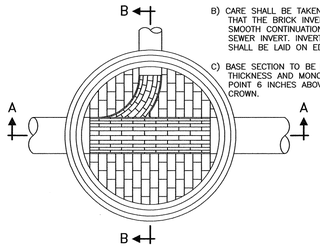
DETAIL "A" – PIPE TO MANHOLE JOINTS



SECTION "B-B"



SECTION "A-A"



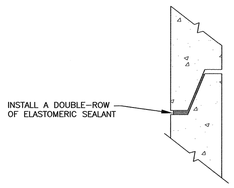
NOTES:

A) INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST.

B) CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.

C) BASE SECTION TO BE FULL WALL THICKNESS AND MONOLITHIC TO A POINT 6 INCHES ABOVE THE PIPE CROWN.

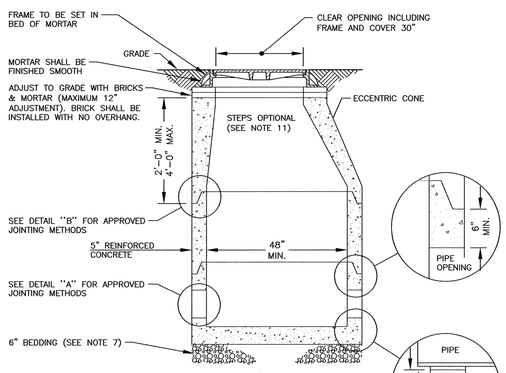
TYPICAL MANHOLE – PLAN VIEW



ELASTOMERIC SEALANT

NOTE:
ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

DETAIL "B" – HORIZONTAL JOINTS



TYPICAL SECTION

SEWER MANHOLE DETAILS

INSTALL PER PORTSMOUTH REQUIREMENTS NTS

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

MANHOLE NOTES

1) IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAK PROOF QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE WITH REINFORCEMENT. IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H-20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.

2) BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE, OR POURED IN PLACE REINFORCED CONCRETE IF POURED AS A COMPLETE MANHOLE.

3) PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.

4) LEAKAGE TEST MAY NOT BE FEASIBLE, BUT SHALL CONFORM TO ENV-WQ 704.10(X) THROUGH ENV-WQ 704.10(Z).

5) INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF THE PIPE AND FLOW. AT CHANGES IN DIRECTIONS, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE AND TANGENT TO THE CENTERLINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPED TO DRAIN TOWARD FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.

6) FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A THREE INCH (MINIMUM HEIGHT) WORD "SEWER" FOR SEWERS AND "DRAIN" FOR DRAINS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER. CASTINGS SHALL CONFORM TO CLASS 30, ASTM A48.

7) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE, FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33 STONE SIZE NO. 67.

100% PASSING	1 INCH SCREEN
90%-100% PASSING	3/4 INCH SCREEN
20%- 55% PASSING	3/8 INCH SCREEN
0%- 10% PASSING	#4 SIEVE
0%- 5% PASSING	#8 SIEVE

WHEN ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1-1/2 INCH SHALL BE USED.

8) FLEXIBLE JOINT: A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:

RCP & CI PIPE – ALL SIZES – 48"

9) SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H-20 LOADS.

10) HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE ENGINEER, WHICH TYPE SHALL, IN GENERAL, DEPEND FOR WATER TIGHTNESS UPON AN ELASTOMERIC OR MASTIC-LIKE GASKET, IN 2 ROWS. APPROVED ELASTOMERIC SEALANTS ARE:

RAM-NEK
KENT SEAL NO. 2
EZ

11) PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE ENGINEER AND IN GENERAL, WILL DEPEND FOR WATERTIGHTNESS UPON EITHER AN APPROVED NON-SHRINKING MORTAR OR ELASTOMERIC SEALANT.

12) THE PURPOSE OF THIS PLAN IS TO SHOW STANDARDS FOR SEWER CONSTRUCTION.

13) ALL WORK SHALL BE IN COMPLIANCE WITH NHDES CODE OF ADMINISTRATIVE RULES PART ENV-WQ 704 DESIGN OF SEWERS.

14) BASE SECTIONS SHALL BE OF MONOLITHIC CONSTRUCTION TO A POINT AT LEAST 6 INCHES ABOVE THE CROWN OF THE LARGEST INCOMING PIPE.

GENERAL NOTES

1) MINIMUM PIPE SIZE FOR HOUSE SERVICE SHALL BE FOUR INCHES.

2) PIPE AND JOINT MATERIALS:

A. PLASTIC SEWER PIPE

1. PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	*PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F789	PVC (SOLID WALL)	4" THROUGH 18" (T-1 To T-3)
F794	PVC (RIBBED WALL)	8" THROUGH 36"
AWWA C900	PVC (SOLID WALL)	8" THROUGH 18"

*PVC: POLYVINYL CHLORIDE

2. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212 AND SHALL BE PUSH-ON BELL AND SPIGOT TYPE.

3) DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.

4) JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.

5) HOUSE SEWER INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND REFILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.

6) THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE FOUNDATION AT A GRADE OF NOT LESS THAN 1/4 INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.

7) TESTING: WHEN REQUIRED BY THE GOVERNING AUTHORITY, TESTING SHALL CONFORM TO ENV-WQ 704.07.

8) ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM HOUSE TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.

9) HOUSE WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE, UNLESS IT IS ON A SHELF 12" HIGHER, AND 18" APART.

10) BEDDING: PROCESSED GRAVEL OR CRUSHED STONE, FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING THE FOLLOWING GRADATION (ALL STONE MUST HAVE AT LEAST 2 FRACTURED FACES):

100% PASSING	1 INCH SCREEN
90%-100% PASSING	3/4 INCH SCREEN
0%- 75% PASSING	3/8 INCH SCREEN
0%- 25% PASSING	#4 SIEVE
0%- 5% PASSING	#10 SIEVE

WHERE ORDERED BY THE ENGINEER, OVEREXCAVATE UNSTABLE TRENCH BOTTOM AND BACKFILL WITH CRUSHED STONE.

11) LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE TEE OR WYE AS DESCRIBED IN THE TYPICAL "CHIMNEY" DETAIL, TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPE FINDER.

12) CAST-IN-PLACE CONCRETE: SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 PSI) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AS FOLLOWS:

CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG OF CEMENT
MAXIMUM AGGREGATE SIZE: 3/4 INCH

13) BACKFILL UP TO SUBBASE GRAVEL SHALL BE WITH EXCAVATED SOIL FROM TRENCHING OPERATIONS. COMPACT IN 8" LIFTS WITH VIBRATORY PLATE COMPACTORS TO 90% OF MODIFIED PROCTOR DENSITY. IF FINE-GRAINED, COMPACT WITH POGO STICKS OR SHEEPSFOOT ROLLERS. PLACE NO LARGE ROCKS WITHIN 24" OF PIPE. TRENCHES THAT ARE NOT ADEQUATELY COMPACTED SHALL BE RE-EXCAVATED AND BACKFILLED UNDER THE SUPERVISION OF THE DESIGN ENGINEER OR GOVERNING BODY. UNSUITABLE BACKFILL MATERIAL INCLUDES CHUNKS OF PAVEMENT, TOPSOIL, ROCKS OVER 6" IN SIZE, MUCK, PEAT OR PIECES OF PAVEMENT.

14) THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB-SITE SAFETY AND COMPLIANCE WITH GOVERNING REGULATIONS.

15) ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL. FOR TRENCH WIDTH SEE TRENCH DETAIL.

16) SAND BLANKET: CLEAN SAND, FREE FROM ORGANIC MATTER, SO GRADED THAT 90% – 100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE. BLANKET MAY BE OMITTED FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2 INCHES IS IN CONTACT WITH THE PIPE.

17) BASE COURSE GRAVEL, IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE:

STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION.

18) IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN.) BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.

19) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION.

20) THE PURPOSE OF THIS PLAN IS TO SHOW STANDARDS FOR SEWER CONSTRUCTION.

21) ALL WORK SHALL BE IN COMPLIANCE WITH NHDES CODE OF ADMINISTRATIVE RULES PART ENV-WQ 704 DESIGN OF SEWERS.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/20/23

REVISIONS

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
NO. 7851
LICENSED
PROFESSIONAL ENGINEER

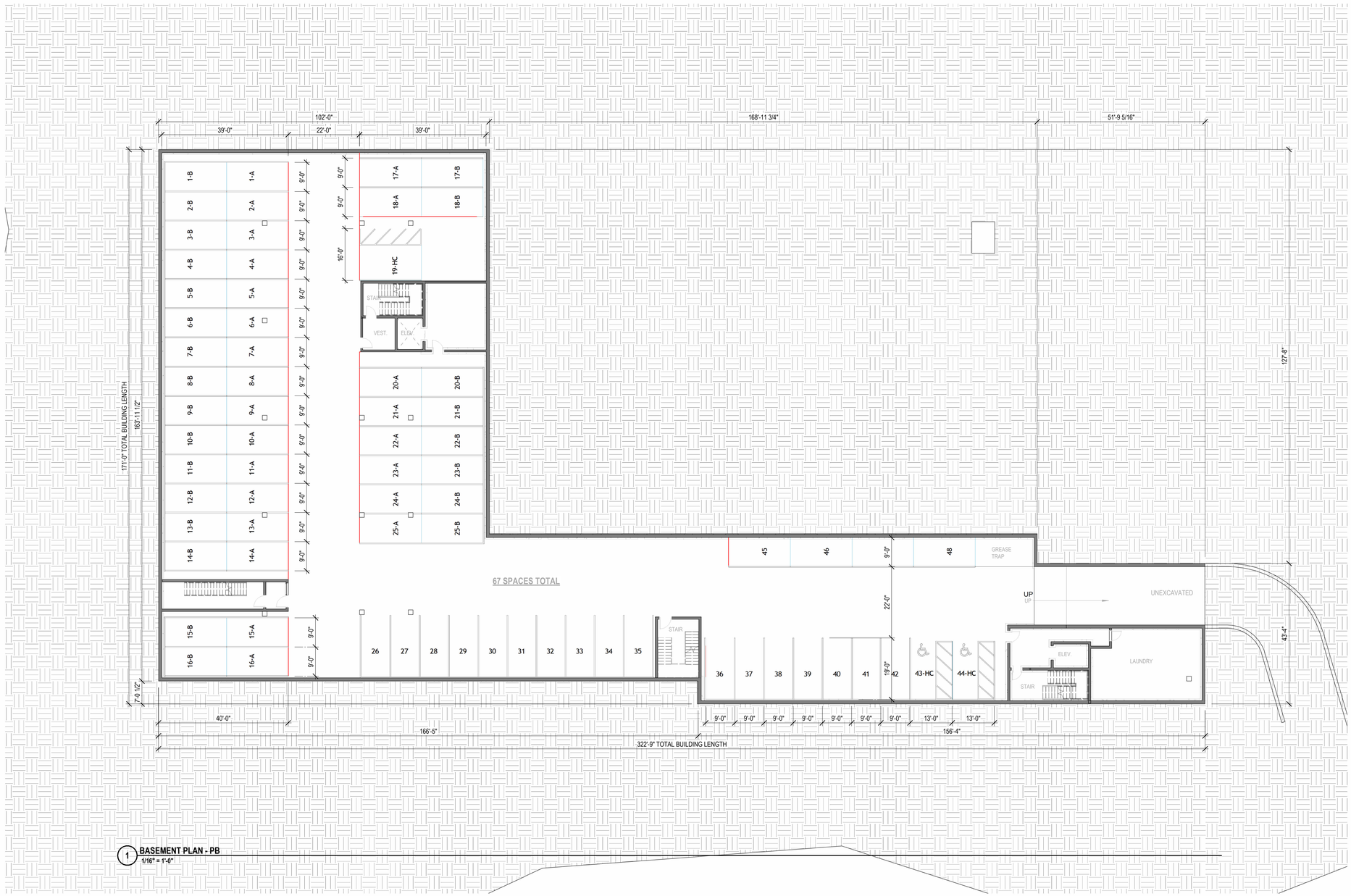
SCALE: AS NOTED NOVEMBER 2023

SEWER DETAILS

D5

FB 259 PG 10

5010156 1397.04



1 **BASEMENT PLAN - PB**
1/16" = 1'-0"

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581 Lafayette Road Apartments

581 LAFAYETTE RD
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PROJECT NO: 1013

OWNER
ATLAS COMMONS, LLC
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LICENSED ARCHITECT
TRACY S. KOZAK
NO. 2662
STATE OF NEW HAMPSHIRE

SITE PLAN REVIEW

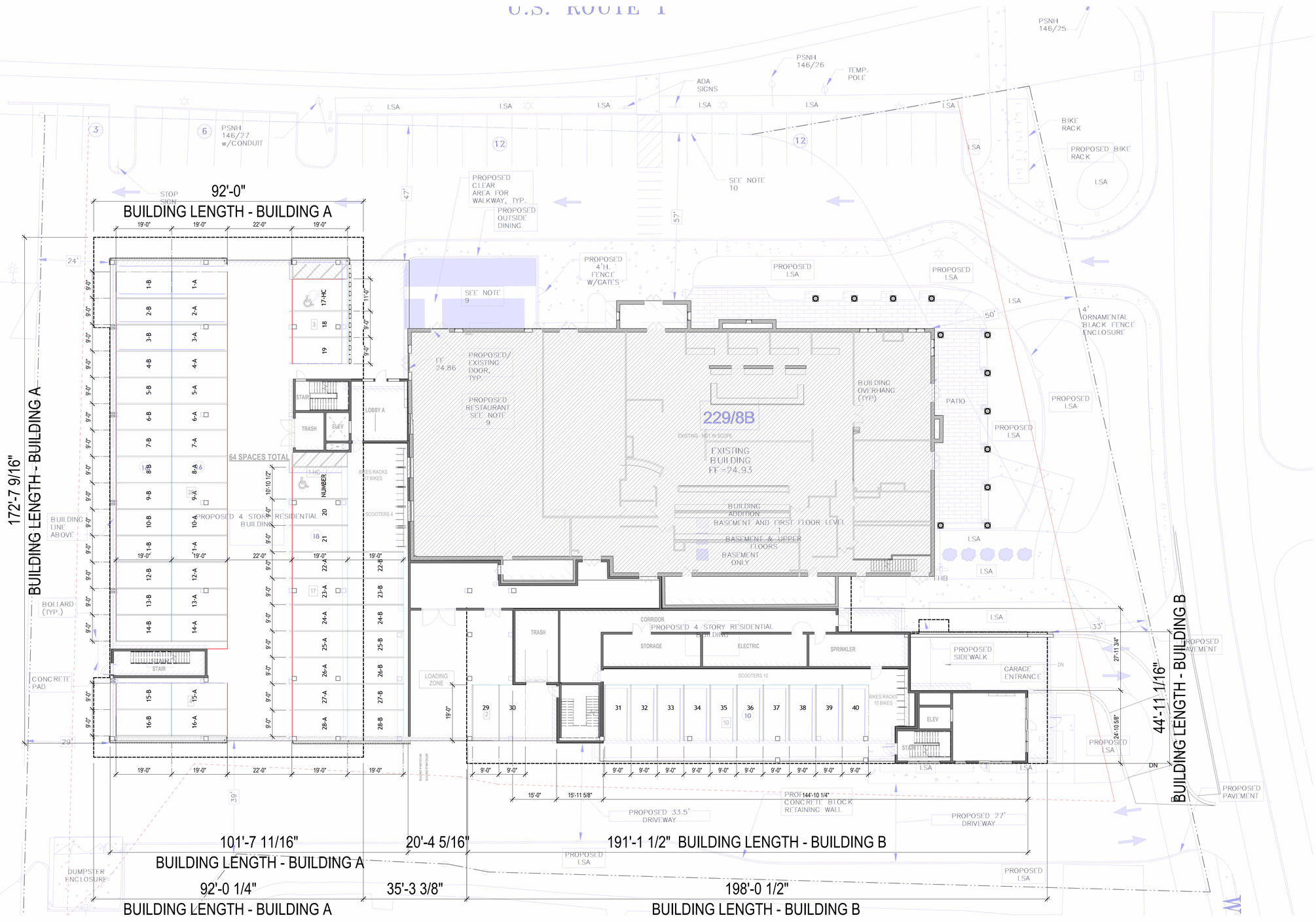
REVISIONS

NO.	DATE	DESCRIPTION

BASEMENT PLAN

SCALE: 1/16" = 1'-0"
DATE: 11/20/2023
DRAWN: Author
CHECKED: Checker

PB1.01



1 LEVEL 1 PLAN - PB
1/16" = 1'-0"

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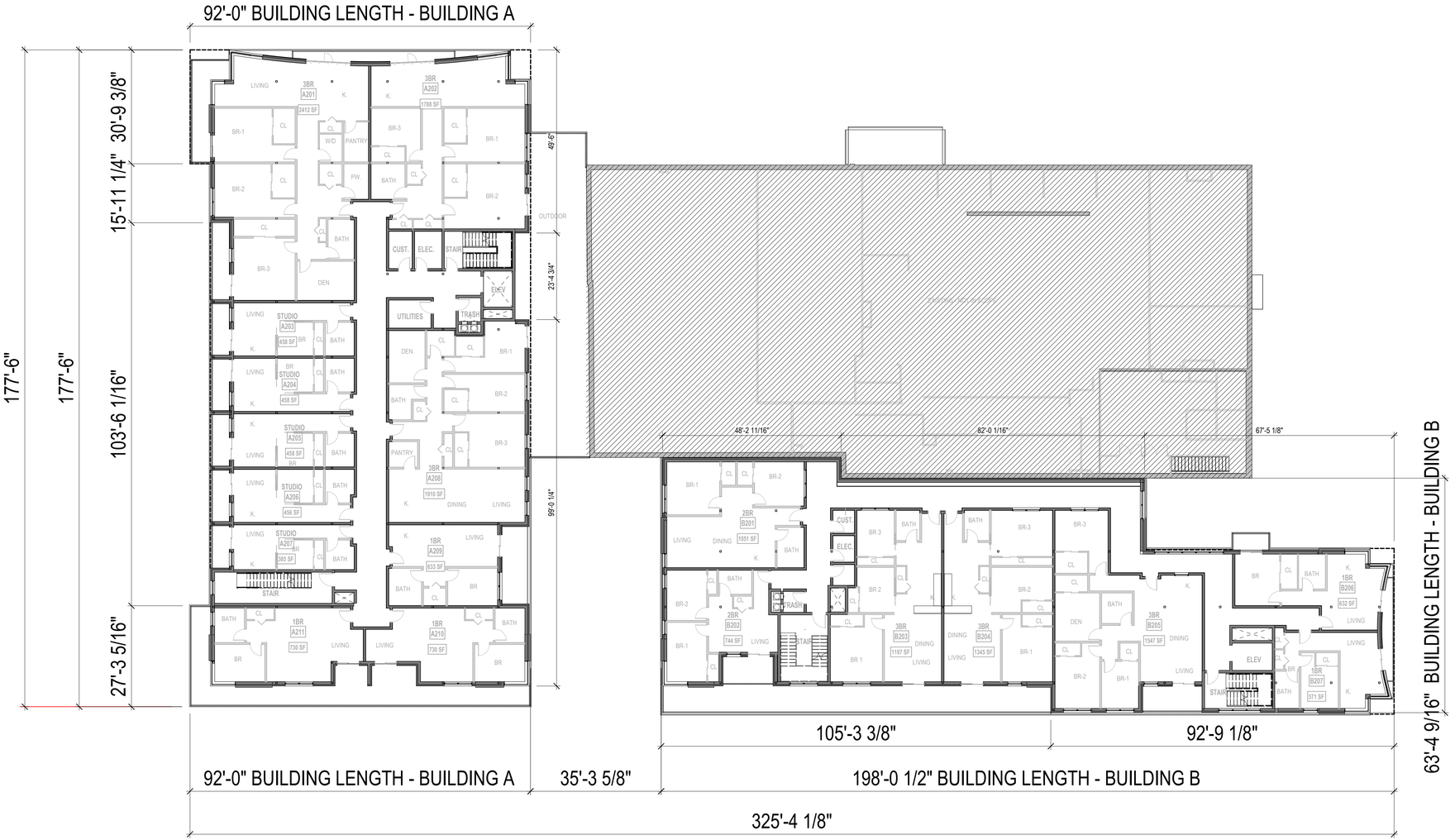
REVISIONS

NO.	DATE	DESCRIPTION

LEVEL 1 FLOOR PLAN

SCALE: 1/16" = 1'-0"
DATE: 11/20/2023
DRAWN: Author
CHECKED: Checker

PB1.02



1 LEVEL 2 PLAN - PB
1/16" = 1'-0"

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NO.	DATE	DESCRIPTION

LEVEL 2 FLOOR PLAN

SCALE: 1/16" = 1'-0"
DATE: 11/20/2023
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CHECKED: Checker

PB1.03

1 **LEVEL 3 PLAN - PB**
1/16" = 1'-0"

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SITE PLAN REVIEW

REVISIONS

NO.	DATE	DESCRIPTION

LEVEL 3 FLOOR PLAN

SCALE: 1/16" = 1'-0"
DATE: 11/20/2023
DRAWN: Author
CHECKED: Checker

PB1.04

1 **LEVEL 4 PLAN - PB**
1/16" = 1'-0"

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SITE PLAN REVIEW

REVISIONS

NO.	DATE	DESCRIPTION

LEVEL 4 FLOOR PLAN

SCALE: 1/16" = 1'-0"
DATE: 11/20/2023
DRAWN: Author
CHECKED: Checker

PB1.05

1 **LEVEL 5 PLAN - PB**
1/16" = 1'-0"

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SITE PLAN REVIEW

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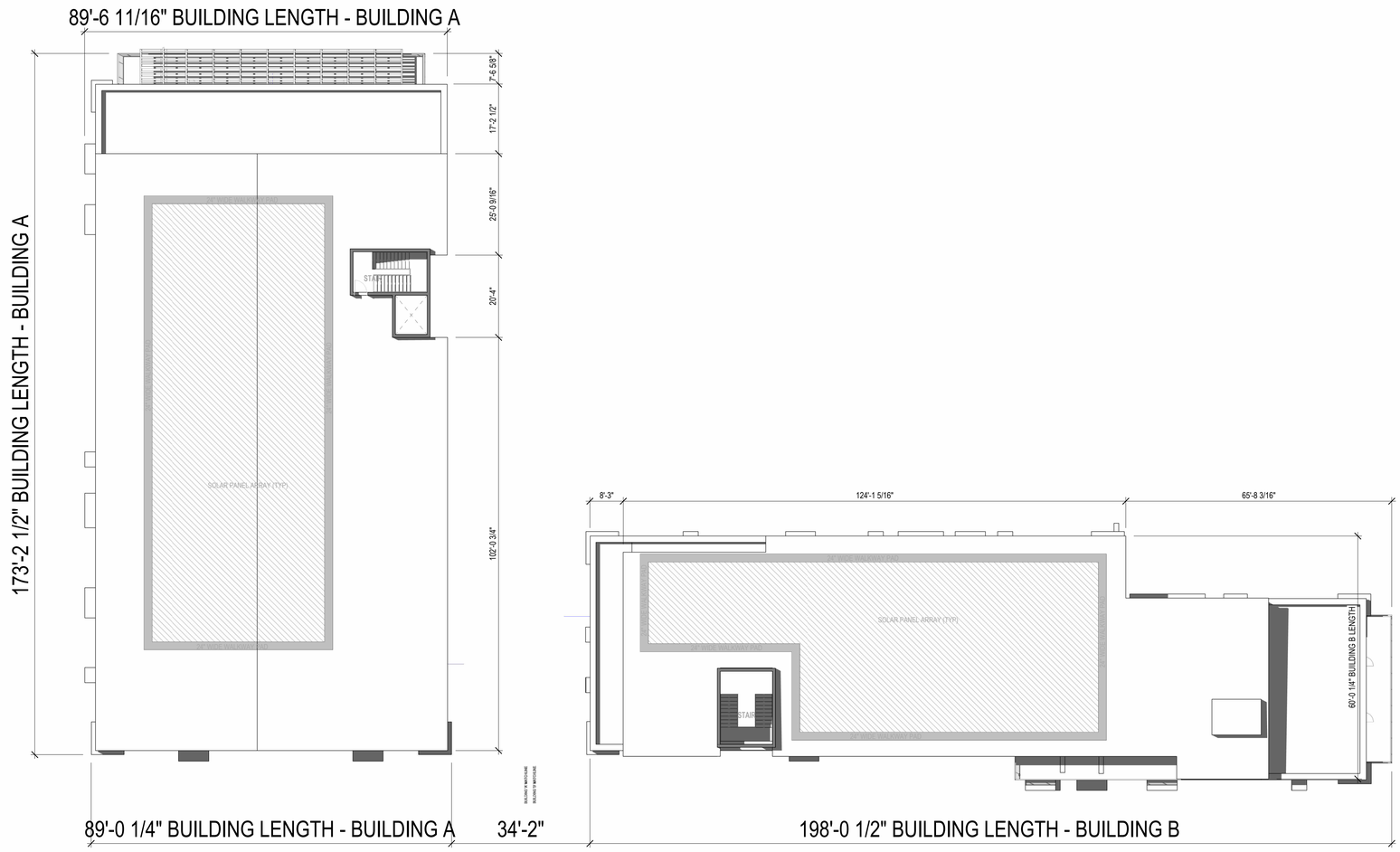
NO.	DATE	DESCRIPTION

LEVEL 5 FLOOR PLAN

SCALE: 1/16" = 1'-0"
DATE: 11/20/2023
DRAWN: Author
CHECKED: Checker

PB1.06



1 ROOF - PB
1/16" = 1'-0"

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SITE PLAN REVIEW

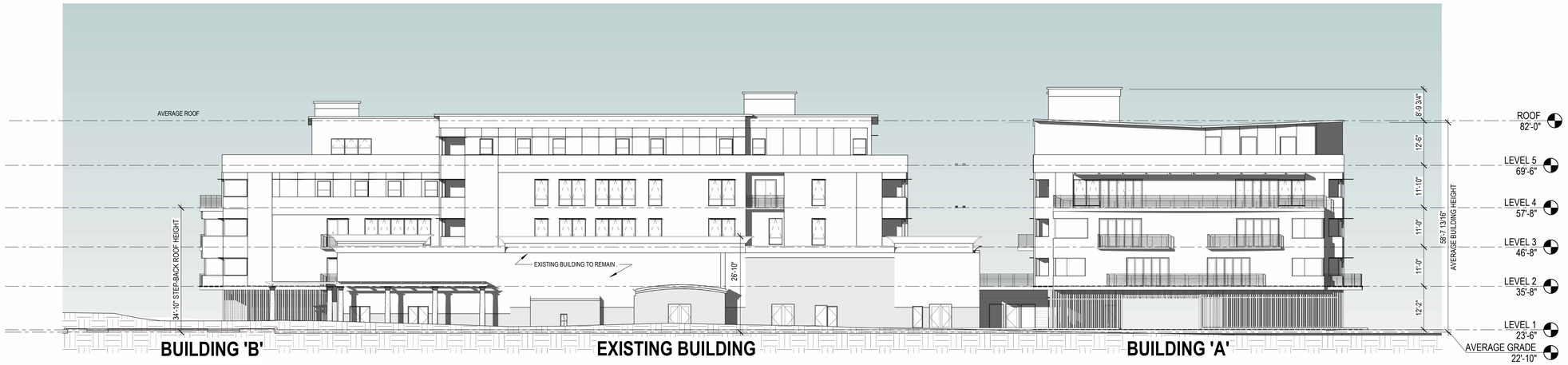
REVISIONS

NO.	DATE	DESCRIPTION

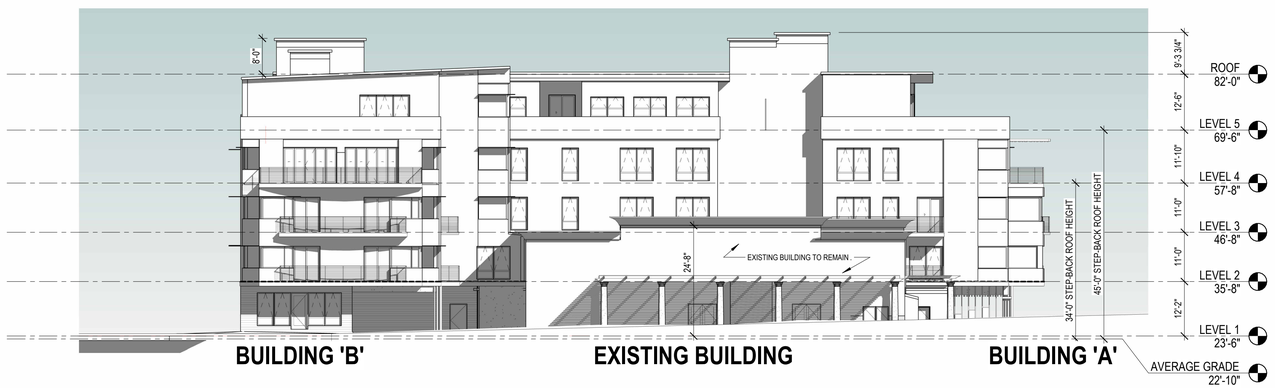
ROOF FLOOR PLAN

SCALE: 1/16" = 1'-0"
DATE: 11/20/2023
DRAWN: Author
CHECKED: Checker

PB1.07



2 **WEST ELEVATION PB**
1/16" = 1'-0"



1 **NORTH ELEVATION PB**
1/16" = 1'-0"

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LICENSED ARCHITECT
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STATE OF NEW HAMPSHIRE

SITE PLAN REVIEW

REVISIONS

NO.	DATE	DESCRIPTION

ELEVATIONS

SCALE: 1/16" = 1'-0"
DATE: 11/20/2023
DRAWN: HA
CHECKED: TK

PB1.08

2 **EAST ELEVATION PB**
1/16" = 1'-0"

1 **SOUTH ELEVATION PB**
1/16" = 1'-0"

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LICENSED ARCHITECT
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No. 2662
THE STATE OF NEW HAMPSHIRE

SITE PLAN REVIEW

REVISIONS

NO.	DATE	DESCRIPTION

ELEVATIONS

SCALE: 1/16" = 1'-0"
DATE: 11/20/2023
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PB1.09

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LICENSED ARCHITECT
TRACY S. KOZAK
No. 2662
STATE OF NEW HAMPSHIRE

SITE PLAN REVIEW

REVISIONS

NO.	DATE	DESCRIPTION

RENDERING

SCALE:

DATE: 11/20/2023
DRAWN: Author
CHECKED: Checker

PB1.10

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

20 November 2023

Peter Stith, Chair, City of Portsmouth TAC
1 Junkins Avenue
Portsmouth, NH 03801

RE: Request for Site Plan Approval at 569 Submarine Way, Museum Expansion

Dear Mr. Stith and TAC Members:

On behalf of the Portsmouth Submarine Memorial Association, we are pleased to submit the attached plan set for **Amended Site Plan Approval** for the above-mentioned project and request that we be placed on the agenda for your **December 5, 2023, TAC Meeting**. The project is the proposed construction of an addition to the exiting Albacore Park with the associated and required site improvements. Albacore Park is operated by the Portsmouth Submarine Memorial Association (PSMA), a Non-Profit devoted to education and to the preservation of submarine history. The site includes the Albacore Museum and a Memorial Garden. The Park was created in 1985 with the existing museum building being constructed around 1986. The showpiece of the Park is the USS Albacore submarine. Albacore Park operates seven days a week with the majority of visitors during the summer months. Attractions include the USS Albacore submarine, the Memorial Gardens, and exhibits within the existing visitor center building. There is ample off-street parking available on the property. Between 2-4 staff members are present at the Property daily depending on the season and museum event schedule.

PSMA currently has access to more exhibits than there is space available to comfortably display the exhibits within the existing building and also intends to display more items relating to the maritime history of the Piscataqua River region. Meeting and office space is also severely limited. Accordingly, PSMA proposes to construct an approximately 1,588 square foot addition to the site and attach it to the existing visitor center building. The proposal will also include improvements to the walkway and ramp adjacent to the building for improved accessibility. Based upon the Parking Demand Analysis, even with the additional space there is ample parking at the site. The Property is located in a transitional area with frontage on both the US Route 1 By-Pass and Market Street. Recently the NH State DOT, as a part of the Sarah Mildred Long Bridge replacement, created a short street known as Submarine Way, which now serves as the park access point. The property is within the SRB Zoning District, adjacent to the Business, General Residence A and Waterfront Industrial Districts. It is surrounded by a mix of uses, with residences to the west and east (across Route 1 By-Pass), commercial fueling uses to the south and Bohenko Gateway Park to the north (across Market Street). The current museum use is a pre-existing permitted non-conforming use through the issuance of a 1983 special exception. The creation of additional museum space is considered an expansion of that non-conforming use which requiring zoning relief (Special Exception) which was granted by the Portsmouth Zoning Board. The proposed addition meets all dimensional requirements of the zoning ordinance.

The following plans are included in our submission:

- Cover Sheet – This shows the Development Team, Legend, Site Location, and Abutters.
- Boundary Plan C1 – This plan shows the existing site property boundary and the existing site easements.
- Existing Conditions Plan – Orthophoto C2 – This plan shows the existing site based on photography from a drone flight, as it was at the time. Note that the Ghost Ship has since been removed.
- Existing Conditions Plan C3 - This plan shows the existing site in detail.
- Amended Site Plan C4 – This plan shows the site development with the proposed addition and the circulation / access improvements and the building layout with setbacks. The project received a Special Exception from the Board of Adjustment for the expansion of the museum use.
- Utility Plan C5 – This plan shows site utilities. The project will connect utilities internally to the addition, with a section of an existing water service being relocated to the same building entrance.
- Grading and Drainage Plan C6 – This plan shows the relocation of existing drainage at the proposed addition, and the addition of a yard drain.
- Erosion Control Notes and Details D1 and Details D2 – These plans shows site details.
- Floor Plans and Elevations A1.1 and A 2.1 – This plan shows the Architectural design for the buildings.

We look forward to TAC review of this submission and request the Committee approval. We look forward to an in-person presentation.

Sincerely,

John R. Chagnon, PE

Construction Cost Estimate

Ambit Engineering

Date: November 20, 2023

Project: Albacore Park Museum Addition 5010373.452.02

Location: 569 Submarine Way

Scope: **Site Cost**

ITEM NO	DESCRIPTION	UNIT	AMOUNT	UNIT COST	TOTAL
1	Walkway Demolition	LS	1	$750.00	$750.00
2	Bike Racks	EA	4	$550.00	$2,200.00
4	New Walkway	LF	160	$40.00	$6,400.00
5	ADA Parking Signage	EA	3	$200.00	$600.00
6	Landscape Planting Relocation	LS	1	$950.00	$950.00
7	Concrete Landing / Stairs / Ramp	LS	2	$7,500.00	$15,000.00
8	Stop Line	LS	1	$400.00	$400.00
9	Force Maine Relocation	LF	30	$75.00	$2,250.00
10	Water Service (Line)	LF	90	$80.00	$7,200.00
11	Yard Drain	EA	1	$1,200.00	$1,200.00
12	4 Inch Drain Pipe	LF	100	$50.00	$5,000.00
13	Erosion Control	LS	1	$1,000.00	$1,000.00
14	Existing Pipe Fill	LS	1	$5,000.00	$5,000.00
15	Drain Manhole	EA	1	$4,500.00	$4,500.00
	TOTAL				**$52,450**

Note: This is an estimate of construction costs based upon various sources

PORT ONE ARCHITECTS

November 20, 2023

Project: Albacore Park
569 Submarine Way
Portsmouth, NH

Site Plan Review - Green Building Statement

The proposed ~1,600 sf addition to the existing welcome center & museum will be constructed as a Type V-B consisting of light-wood, conventionally framed walls and roof structure on concrete foundation.

The projected is not pursuing a certification, but will aim to meet or exceed sustainable industry standards through the following measures:

Site Sustainability
- No additional parking hardscape developed for this addition
- Fully-accessible routes through site and to building addition
- No reduction of trees of landscaping other than turf-grass

Water Efficiency
- Low-flow (dual flush) toilets
- Low Flow faucets
- Replacement of existing toilet and faucet with new, low-flow fixtures

Energy Efficiency
- Meet or exceed IECC prescriptive method for wall assemblies
- Exceed IECC prescriptive roof assembly R-value by 20%
- Exceed below-grade wall (foundation) insulation requirements
- Reduced thermal bridging using continuous insulation
- LED lighting throughout
- Window units with less than 0.28 u-factor

Indoor Environment
- Low VOC paints & adhesives
- Flooring to be Floor Score or Sustainable Carpet Certified

Mechanical Systems
- Mechanical systems to meet or exceed 2018 IMC and ASHRAE standards
- Energy Recovery Ventilation

Respectfully Submitted,

Evan Mullen – Dir. Operations
Port One Architects, Inc.
emullen@portonearchitects.com
603-436-8891, ext. 11

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

23 September, 2023

Parking Demand
Proposed Museum Addition
Albacore Park
569 Submarine Way
Portsmouth, NH

The purpose of this calculation is to identify the proposed parking demand expected to be generated by the proposed Visitor Center addition at 569 Submarine Way in Portsmouth, NH. Currently, the site contains a 1,600 square foot Visitor Center with museum displays, the USS Albacore Submarine walk in exhibit, and a storage out building. The submarine has an estimated floor display area of 4,200 square feet. The project proposes to expand the Visitor Center building with a 1,600 +/- square foot addition.

In developing the expected parking demand Ambit Engineering considered the standard Parking Demand rates and equations published in the Institute of Transportation Engineers (ITE) Parking Generation Manual, 5th Edition. The land use category that best correlates with the site use is Museum (ITE Land Use Code 580). The parking demand, based upon the GFA of the existing and proposed building addition and the added 4 museum staff, is summarized below for the **Average Peak Period of Parking Demand on a Weekday, Saturday, and Sunday**:

Parking Demand Summary – PROPOSED

Peak Period of Demand - Weekday

Museum (0.98 vehicles per 1,000 SF GFA)	0.98 x 7.4 KSF = 8 vehicles
Staff	4 staff = 4 vehicles
Total	12 vehicles

Peak Period of Demand - Saturday

Museum (2.50 vehicles per 1,000 SF GFA)	2.50 x 7.4 KSF = 19 vehicles
Staff	4 staff = 4 vehicles
Total	23 vehicles

Peak Period of Demand - Sunday

Museum (4.34 vehicles per 1,000 SF GFA)	4.34 x 7.4 KSF = 33 vehicles
Staff	4 staff = 4 vehicles
Total	37 vehicles

Based on the calculation there is ample parking on the site to meet the peak demand of 37 vehicles. The site can easily accommodate the proposed museum addition.

Please feel free to call if you have any questions or comments.

Sincerely,

John R. Chagnon, PE
Ambit Engineering – Haley Ward

Museum
(580)

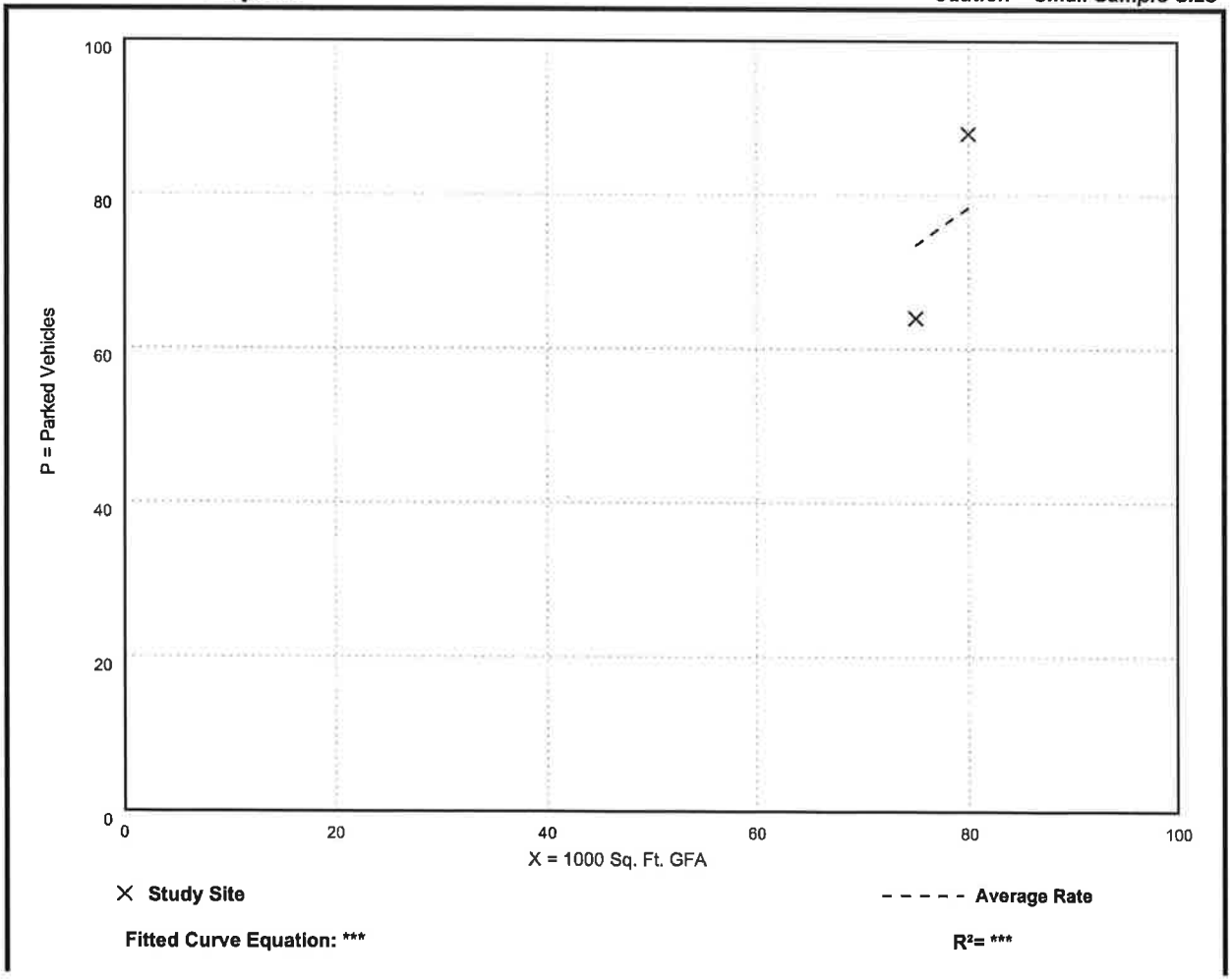
Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Weekday (Monday - Friday)
Setting/Location: Dense Multi-Use Urban
Peak Period of Parking Demand: 10:00 a.m. - 2:00 p.m.
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 78

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.98	0.85 - 1.10	*** / ***	***	*** (***)

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: ***

R^2= ***

Museum
(580)

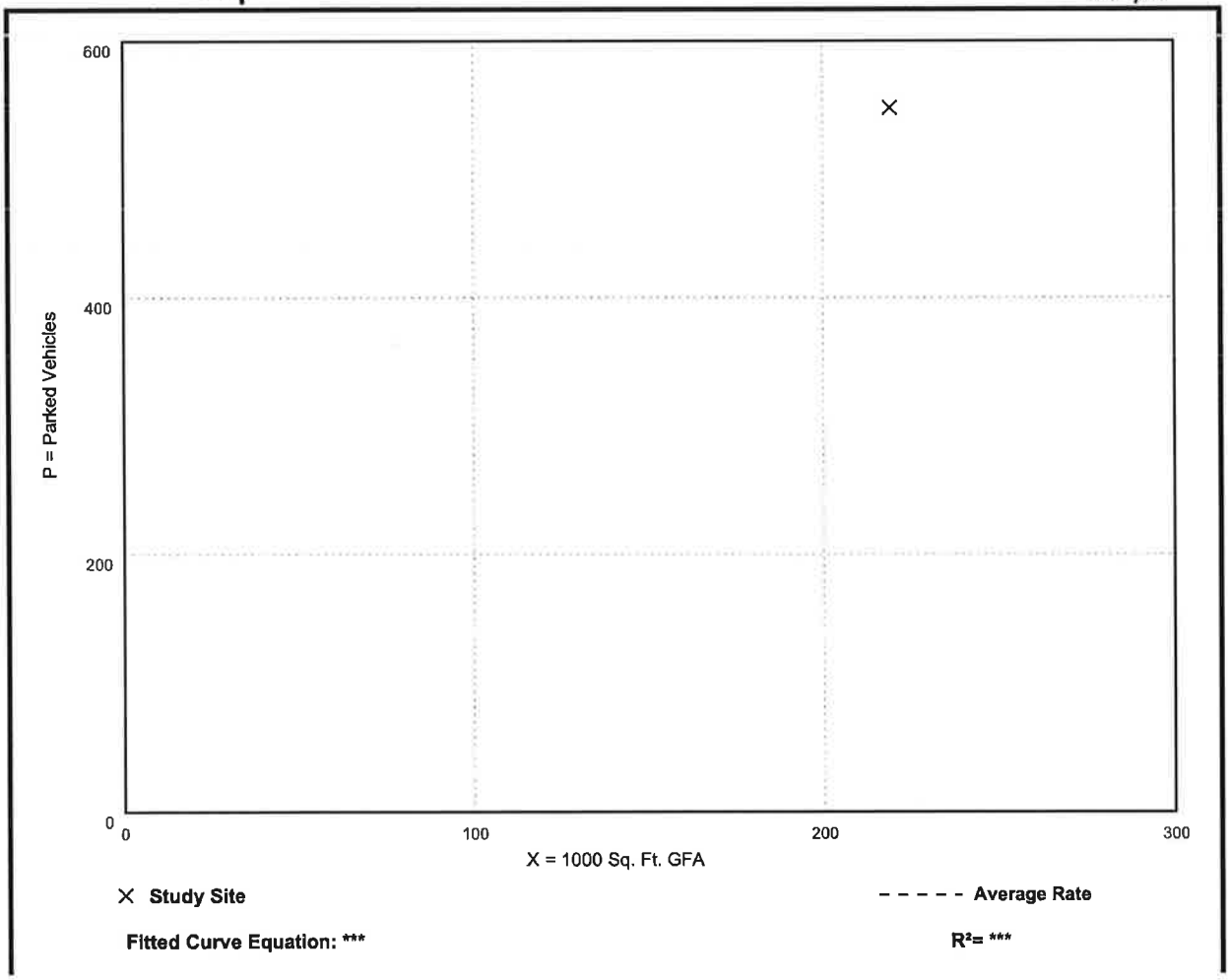
Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Saturday
Setting/Location: Dense Multi-Use Urban
Peak Period of Parking Demand: 12:00 - 4:00 p.m.
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 219

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
2.50	2.50 - 2.50	*** / ***	***	*** (***)

Data Plot and Equation

Caution – Small Sample Size



Museum
(580)

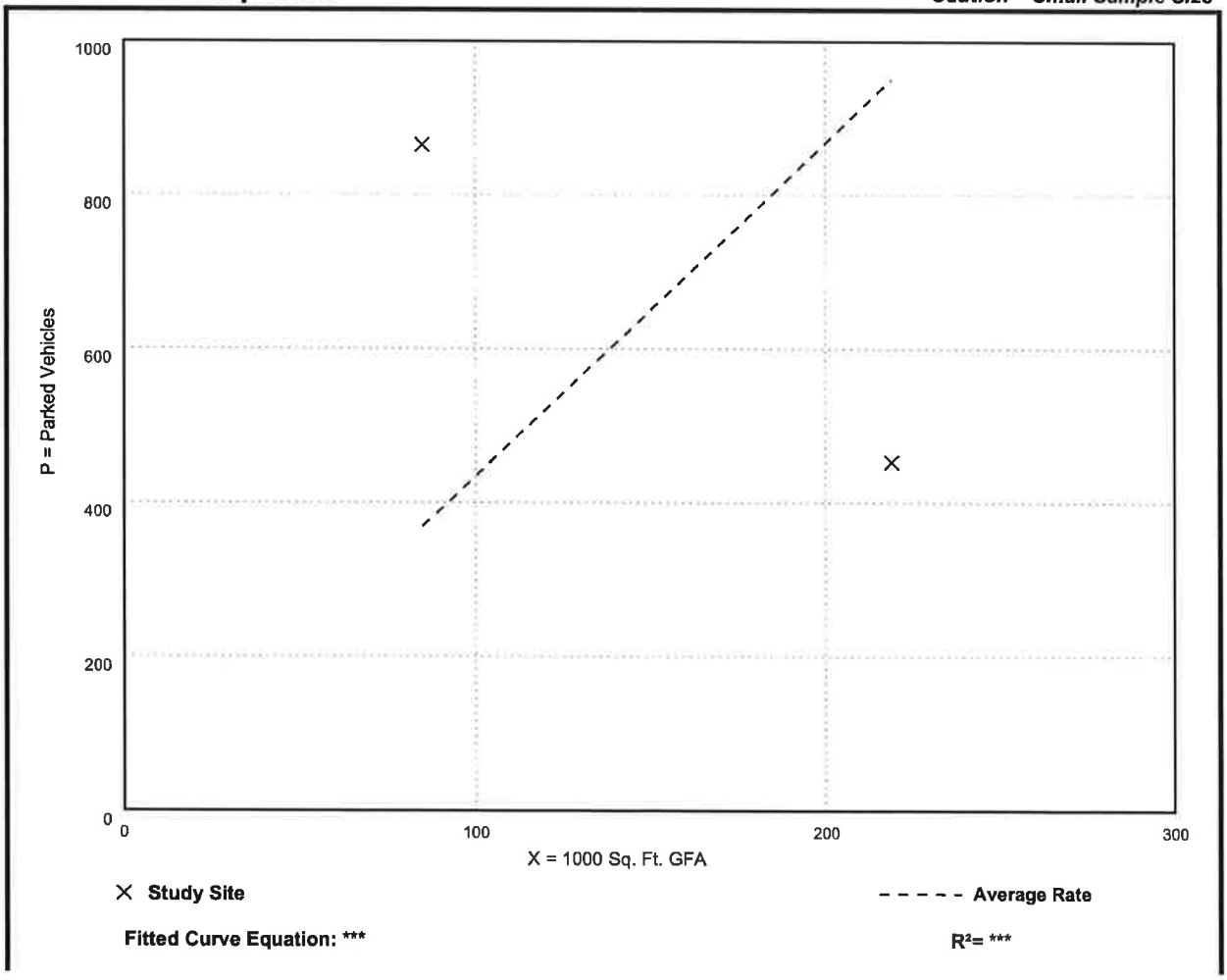
Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Sunday
Setting/Location: Dense Multi-Use Urban
Peak Period of Parking Demand: 1:00 - 5:00 p.m.
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 152

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
4.34	2.07 - 10.18	*** / ***	***	*** (***)

Data Plot and Equation

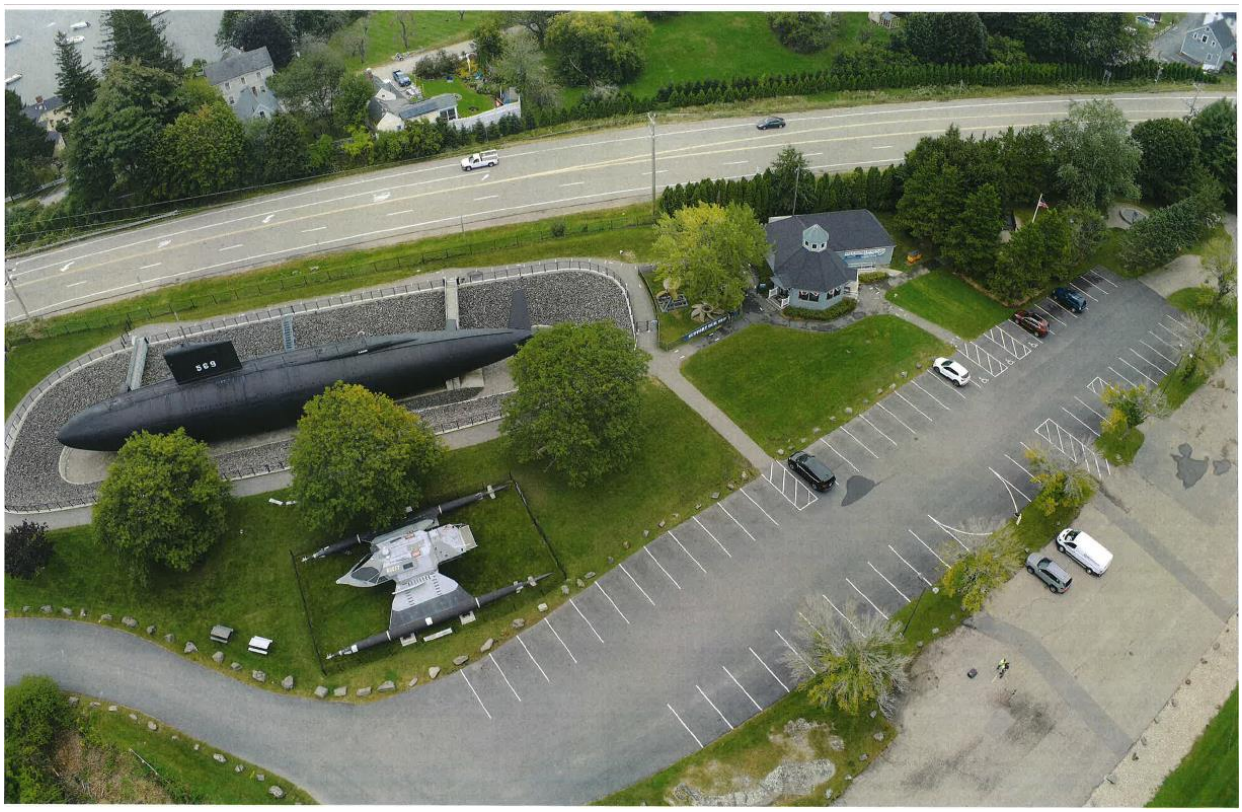
Caution – Small Sample Size



Fitted Curve Equation: ***

R^2= ***

Exhibit E
Site Photographs



Aerial Views of Property

Exhibit E
Site Photographs

View of Property from the North

View of Property from the North

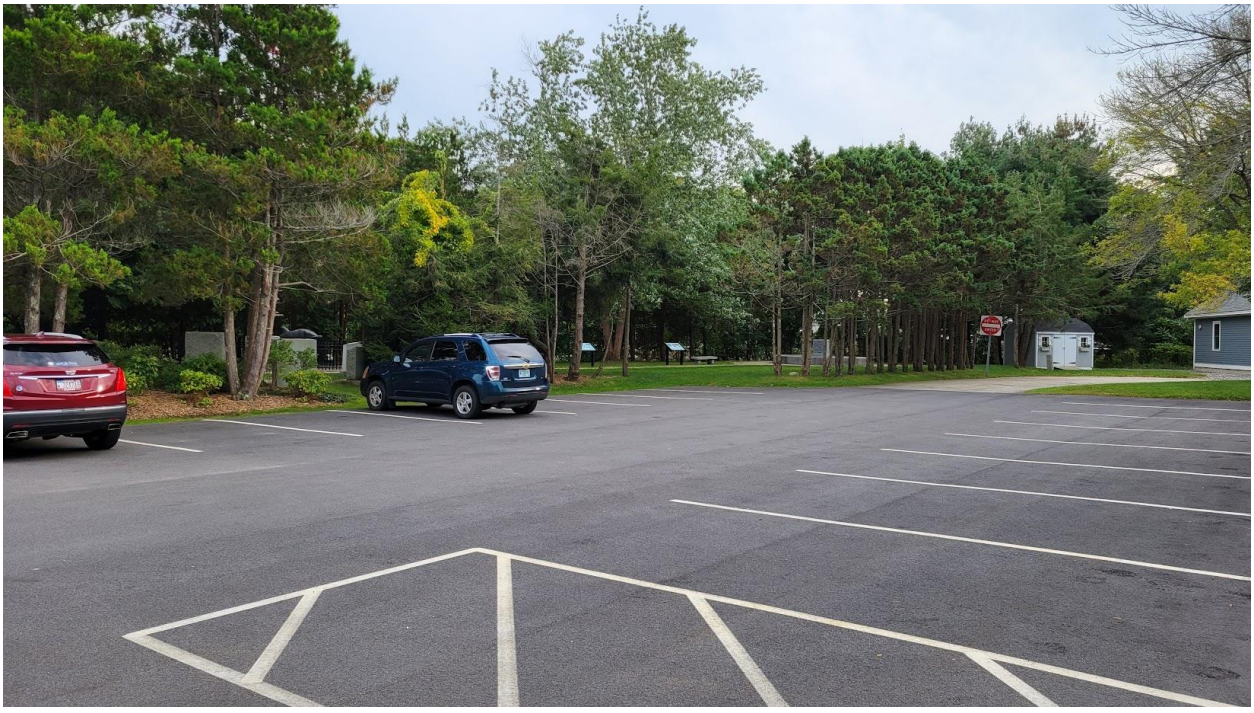
Exhibit E
Site Photographs

View of the Property from the South

View of the Property from the East (towards Leslie Drive)

Exhibit E
Site Photographs

Visitors Center



Memorial Garden

PROPOSED MUSEUM BUILDING
ALBACORE PARK
569 SUBMARINE WAY
PORTSMOUTH, NEW HAMPSHIRE
SITE PLANS

OWNER:

PORTSMOUTH SUBMARINE MEMORIAL ASSOCIATION
569 SUBMARINE WAY
PORTSMOUTH, NH 03801
TEL: (603) 436-3680

LAND SURVEYOR & CIVIL ENGINEER:

AMBIT ENGINEERING
A DIVISION OF HALEY WARD, INC.
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, NH 03801
(603) 430-9282

ARCHITECT:

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

LAND USE ATTORNEY:

HOEFLE, PHOENIX, GORMLEY & ROBERTS, PLLC
127 PARROTT AVENUE
PORTSMOUTH, NH 03801
TEL. (603) 436-0666

INDEX OF SHEETS

UTILITY CONTACTS

ELECTRIC:
EVERSOURCE
1700 LAFAYETTE ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 436-7708, Ext. 555.5678
ATTN: MICHAEL BUSBY, P.E. (MANAGER)

NATURAL GAS:
UNITIL
325 WEST ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 294-5144
ATTN: DAVE BEAULIEU

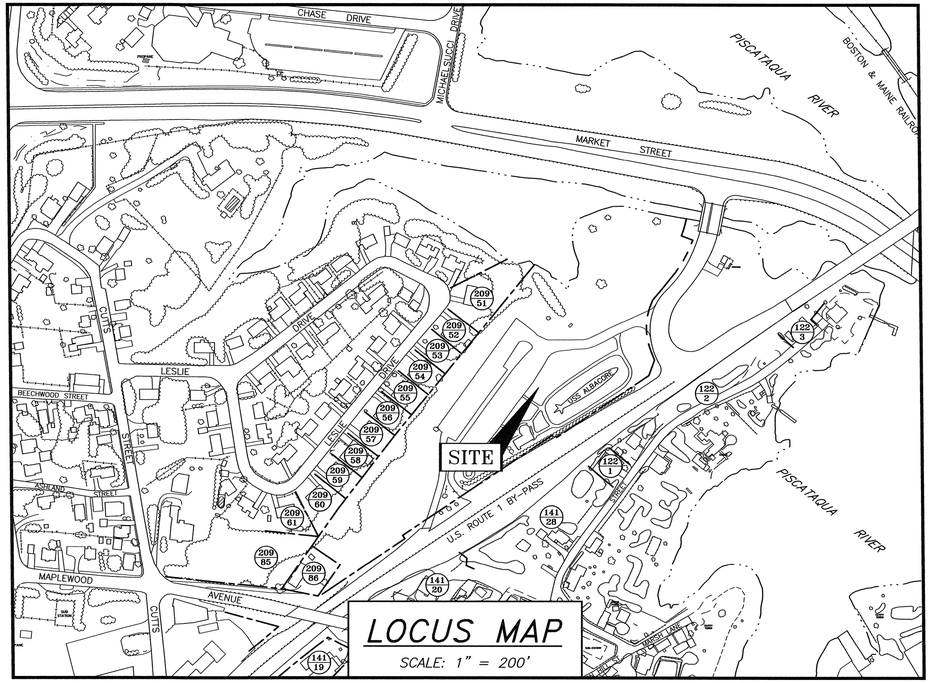
CABLE:
XFINITY BY COMCAST
180 GREENLEAF AVE.
PORTSMOUTH, N.H. 03801
Tel. (603) 266-2278
ATTN: MIKE COLLINS

SEWER & WATER:
PORTSMOUTH DEPARTMENT OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 427-1530
ATTN: JIM TOW

COMMUNICATIONS:
FAIRPOINT COMMUNICATIONS
1575 GREENLAND ROAD
GREENLAND, N.H. 03840
Tel. (603) 427-5525
ATTN: JOE CONSIDINE
EMAIL: jconsidine@fairpoint.com

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____



LOCUS MAP
SCALE: 1" = 200'

PROJECT ABUTTERS:

141/19 — N/F 1010 US ROUTE 1 BYPASS, LLC, 720 LAFAYETTE ROAD, SEABROOK, NH 03874, 5582/0945

122/1 — N/F ANDREA L. ARDITO & BRAD R. LEBO, 121 NORTHWEST STREET, PORTSMOUTH, NH 03801, 5646/0912

209/51 — N/F DONNA J. FLAGG LIVING TRUST, DONNA J. FLAGG, TRUSTEE, 920 SE 46th STREET APT. 2A, CAPE CORAL, FL 33904, 4235/1400

209/54 — N/F JAMES J. & CARLA J. MURPHY REV TRUST, JAMES J. & CARLA J. MURPHY TRUSTEES, 214 LESLIE DRIVE, PORTSMOUTH, N.H. 03801, 5967/2916

209/57 — N/F GERALD R. & DOLORES BROWN IRREVOCABLE TRUST, GERALD R. & DOLORES BROWN TRUSTEES, 174 LESLIE DRIVE, PORTSMOUTH, N.H. 03801, 4860/0981

209/60 — N/F JEFFREY J.. & KELLY L. MEE, 130 LESLIE DRIVE, PORTSMOUTH, N.H. 03801, 6084/1599

209/86 — N/F STATE OF NEW HAMPSHIRE, P.O. BOX 483, 7 HAZEN DRIVE, CONCORD, N.H. 03302, 5014/1442

141/20 — N/F ALLAN I. PECHNER, 399 MAPLEWOOD AVENUE #3, PORTSMOUTH, N.H. 03801, 5573/1754

122/2 — N/F AMANDA B. MORNEAULT, 137 NORTHWEST STREET, PORTSMOUTH, N.H. 03801, 6479/2400

209/52 — N/F MATTHEW C. BEAL & HEIDI L. MEDLYN, 242 LESLIE DRIVE, PORTSMOUTH, N.H. 03801, 5766/2758

209/55 — N/F SAMANTHA SMART & DEREK SWEITZER, 202 LESLIE DRIVE, PORTSMOUTH, N.H. 03801, 6452/2890

209/58 — N/F WILLIAM & MARTHA BOULANGER, 354 POST ROAD, GREENLAND, N.H. 03840, 4614/0005

209/61 — N/F JEANE CLEMENTS, 122 LESLIE DRIVE, PORTSMOUTH, N.H. 03801, 5313/1380

122/2-1 — N/F DAR BUILDERS LLC, 305 MASSABESIC STREET, MANCHESTER, N.H. 03103, 6397/0611

122/4-1 — N/F JOANNE S. & PETER K. MOGREN, 250A NORTHWEST STREET, PORTSMOUTH, NH 03801, 6397/0611

141/28 — N/F JULIANN C. LEHNE & WILLIAM A. LEHNE JR., 73 NORTHWEST STREET, PORTSMOUTH, N.H. 03801, 6198/2447

122/3 — N/F MICHAEL GEORGE PETRIN, KATIE MARIE LAVERRIERE, 239 NORTHWEST STREET, PORTSMOUTH, N.H. 03801, 2304/1890

209/53 — N/F JOSEPH F. & ROSE M. CALDERARA, 230 LESLIE DRIVE, PORTSMOUTH, N.H. 03801, 2320/1967

209/56 — N/F PAMELA EIFFE, 186 LESLIE DRIVE, PORTSMOUTH, NH 03801, 6098/2784

209/59 — N/F JEFFREY J. MEE & KELLEY L. MICHAUD MEE TRUST, JEFFREY J. MEE & KELLY L. MEE TRUSTEES, 146 LESLIE DRIVE, PORTSMOUTH, N.H. 03801, 6497/2676

209/85 — N/F CUTTS MANSION CONDOMINIUM, 525 MAPLEWOOD AVENUE, PORTSMOUTH, N.H. 03801, 5549/413, D-38356

122/4-2 — N/F BRIAN BLANCHETTE, 250B NORTHWEST STREET, PORTSMOUTH, NH 03801, 4298/2699

122/4 — N/F CHRISTIAN SHORE CONDOMINIUM, 250 NORTHWEST STREET, PORTSMOUTH, NH 03801

DIG SAFE
ME – NH – RI – VT
1-888-344-7233
CALL TOLL FREE

REQUIRED PERMITS:
PORTSMOUTH ZONING BOARD: APPROVED 10/17/2023
PORTSMOUTH PLANNING BOARD: PENDING

LEGEND:

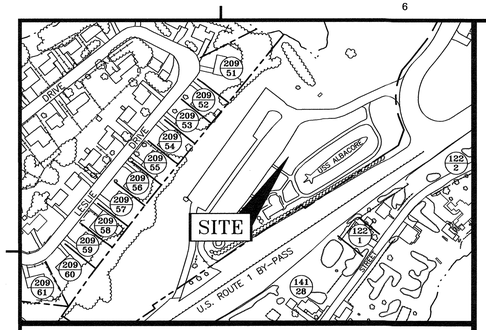
N/F		NOW OR FORMERLY
RP		RECORD OF PROBATE
RCRD		ROCKINGHAM COUNTY REGISTRY OF DEEDS
11/21		MAP 11/LOT 21
IR FND		IRON ROD FOUND
IP FND		IRON PIPE FOUND
IR SET		IRON ROD SET
DH FND		DRILL HOLE FOUND
DH SET		DRILL HOLE SET
		GRANITE BOUND w/IRON ROD FOUND
EXISTING	PROPOSED	
		PROPERTY LINE
		SETBACK LINE
FM	FM	FORCE MAIN
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	PG	GAS LINE
D	D	STORM DRAIN
FD	FD	FOUNDATION DRAIN
W	W	WATER LINE
FS	FS	FIRE SERVICE LINE
UE	UGE	UNDERGROUND ELECTRIC SUPPLY
		UNDERGROUND ELECTRIC SERVICE
OHW	OHW	OVERHEAD ELECTRIC/WIRES
		RETAINING WALL
		EDGE OF PAVEMENT (EP)
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		UTILITY POLE
E	E	ELECTRIC METER
		TRANSFORMER ON CONCRETE PAD
		ELECTRIC HANDHOLD/PULLBOX
WSO	WSO	WATER SHUT OFF/CURB STOP
C.O.	C.O.	PIPE CLEANOUT
	GV	GATE VALVE
	HYD	HYDRANT
CB	CB	CATCH BASIN
S	SMH	SEWER MANHOLE
D	DMH	DRAIN MANHOLE
M	WMH	WATER METER MANHOLE
#5		TEST BORING
TP 1		TEST PIT
LA		LANDSCAPED AREA
CI	CI	CAST IRON PIPE
COP	COP	COPPER PIPE
CMP	CMP	CORRUGATED METAL PIPE
DI	DI	DUCTILE IRON PIPE
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
HYD	HYD	HYDRANT
℄	℄	CENTERLINE
EP	EP	EDGE OF PAVEMENT
EL.	EL.	ELEVATION
FF	FF	FINISHED FLOOR
INV	INV	INVERT
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL
HH	HH	UTILITY HANDHOLE

PROPOSED MUSEUM BUILDING
ALBACORE PARK
569 SUBMARINE WAY
PORTSMOUTH, N.H.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PLAN SET SUBMITTAL DATE: 20 NOVEMBER 2023

373-452.02



LOCATION MAP SCALE: 1' = 200'

PLAN REFERENCES:

1) LAND OF INTERSTATE BRIDGE AUTHORITY FOR ALBACORE MEMORIAL PARK ROUTE 1–BYPASS PORTSMOUTH, NH. PREPARED BY: RICHARD P MILLETTE AND ASSOCIATES, SCALE: 1"=60', DATED: 11/16/84. RCRD D–13159.

2) STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION RIGHT–OF–WAY PLANS X–5379(025) NH PROJECT NO. 13455 US ROUTE 1 BYPASS OVER PISCATAQUA RIVER BRIDGE NO. 251/108. PREPARED BY: GM2 ASSOCIATES, SCALE: 1'=20', DATED: JULY 17, 2019. RCRD D–41603.

3) EASEMENT PLAN FOR MUDFLAT & SALTMARSH MITIGATION SITES ALONG INNER INNER CUTTS COVE ADJACENT TO MARKET STREET EXTENSION PORTSMOUTH, NH. PREPARED BY: KIMBALL CHASE FOR BALSAM ENVIRONMENTAL CONSULTANTS, INC., DATED: APRIL, 1994, SCALE: 1"=60'. NOT RECORDED.

4) SITE PLAN PLAN FOR MUDFLAT & SALTMARSH MITIGATION SITES ALONG INNER INNER CUTTS COVE ADJACENT TO MARKET STREET EXTENSION PORTSMOUTH, NH. PREPARED BY: KIMBALL CHASE FOR NEW HAMPSHIRE PORT AUTHORITY, DATED: APRIL 14, 1994, SCALE: 1"=60'. NOT RECORDED.

5) PLAN OF BERSUM GARDENS FOR MARGO CONST. CO. PORTSMOUTH, NH. PREPARED BY: JOHN W DURGIN CIVIL ENGINEERS, SCALE: 1"=100', DATED: OCTOBER 1955. RCRD #02178.

6) CONDOMINIUM SITE PLAN "THE CUTTS MANSION CONDOMINIUM 525 MAPLEWOOD AVENUE PORTSMOUTH, NH FOR NEW ENGLAND GLORY, LLC. PREPARED BY: JAMES VERRA AND ASSOCIATES, SCALE: 1"=20', DATED: 6–30–2014. RCRD D–38356.

7) PORTSMOUTH POWER COMPANY POWER TRANSMISSION LINE ACROSS LAND OF RICHARD H HAM PORTSMOUTH, NH. SCALE: 1"=200', DATED: MARCH 21, 1924. RCRD #0353.

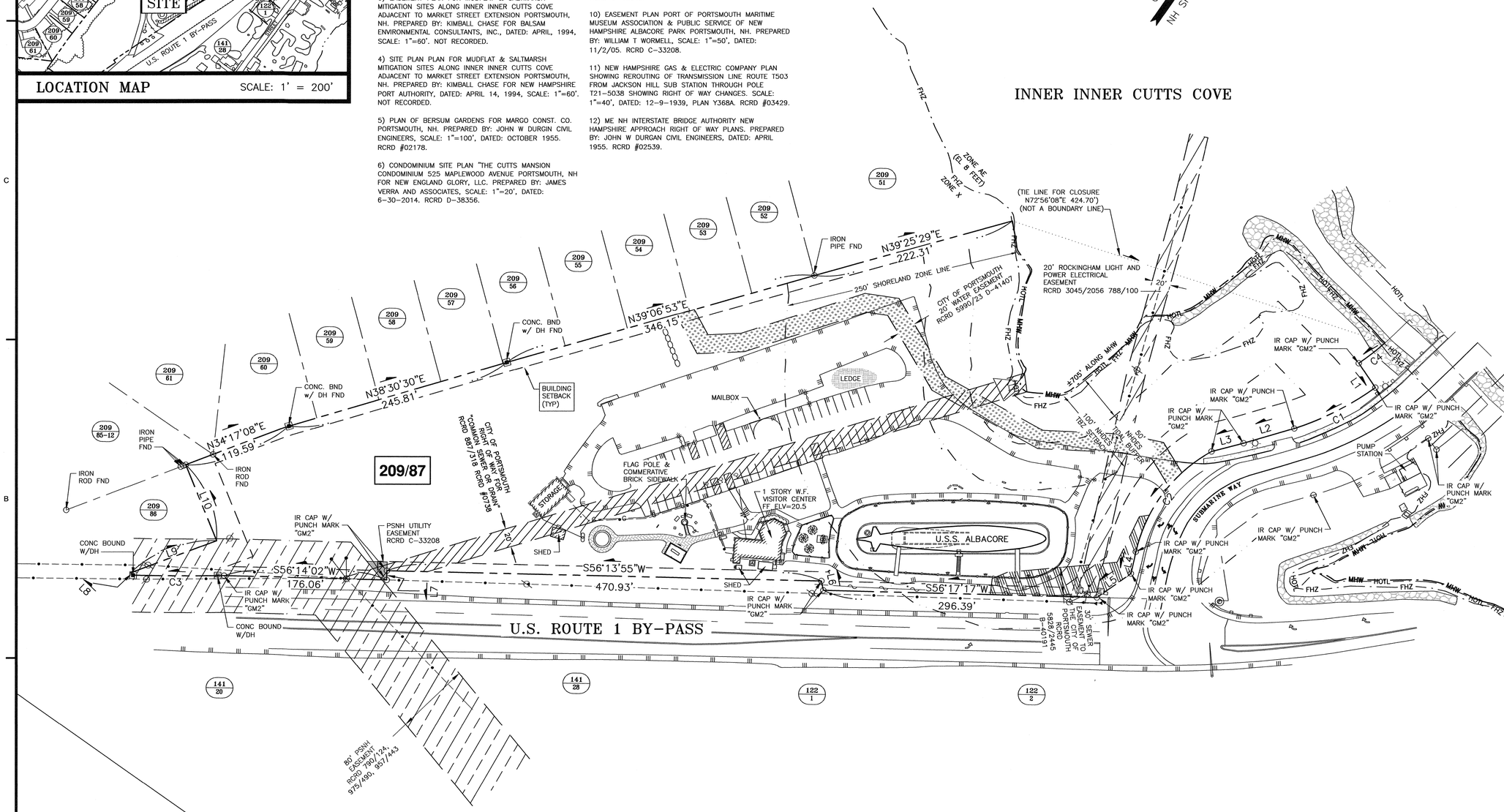
8) CITY OF PORTSMOUTH, NH BOARD OF PUBLIC WORKS LAYOUT OF PROPOSED SEWER ON PROPERTY OF R.H. HAM MAPLEWOOD AVENUE. PREPARED BY: JOHN W DURGIN, SCALE: 1"=200', DATED: FEBRUARY 1929. RCRD #0738.

9) WATER EASEMENT PLAN ACROSS LAND OF ALBACORE TRUST LESLIE DRIVE COUNTY OF ROCKINGHAM PORTSMOUTH, NH. PREPARED BY: RICHARD P MILLETTE AND ASSOCIATES, SCALE: 1"=10', DATED: JULY 26, 1984. RCRD C–12849.

10) EASEMENT PLAN PORT OF PORTSMOUTH MARITIME MUSEUM ASSOCIATION & PUBLIC SERVICE OF NEW HAMPSHIRE ALBACORE PARK PORTSMOUTH, NH. PREPARED BY: WILLIAM T WORMELL, SCALE: 1"=50', DATED: 11/2/05. RCRD C–33208.

11) NEW HAMPSHIRE GAS & ELECTRIC COMPANY PLAN SHOWING REROUTING OF TRANSMISSION LINE ROUTE T503 FROM JACKSON HILL SUB STATION THROUGH POLE T21–5038 SHOWING RIGHT OF WAY CHANGES. SCALE: 1"=40', DATED: 12–9–1939, PLAN Y368A. RCRD #03429.

12) ME NH INTERSTATE BRIDGE AUTHORITY NEW HAMPSHIRE APPROACH RIGHT OF WAY PLANS. PREPARED BY: JOHN W DURGAN CIVIL ENGINEERS, DATED: APRIL 1955. RCRD #02539.



NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 209 AS LOT 87.

2) OWNERS OF RECORD:
PORTSMOUTH SUBMARINE MEMORIAL ASSOCIATION
569 SUBMARINE WAY
PORTSMOUTH, N.H. 03801
2532/1623, 5551/1278

3) PARCEL IS PARTIALLY IN SPECIAL FLOOD HAZARD AREA (AE EL. 8) AS SHOWN ON FIRM PANEL 33015C0259F. DATED JANUARY 29, 2021.

4) EXISTING LOT AREA:
302,176 S.F.±
6.9370 AC.±
705'± ALONG MEAN HIGH WATER

5) PARCEL IS LOCATED IN SINGLE RESIDENCE B DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:		15,000 S.F.
FRONTAGE:		100 FEET
SETBACKS:	FRONT	30 FEET
	SIDE	10 FEET
	REAR	30 FEET
MAXIMUM STRUCTURE HEIGHT:		35 FEET
MAXIMUM BUILDING COVERAGE:		20%
MINIMUM OPEN SPACE:		40%

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE RESULTS OF A STANDARD BOUNDARY SURVEY OF ASSESSOR'S MAP 209 LOT 87 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT GNSS OBSERVATIONS.

9) MEAN HIGH WATER SHOWN AT ELEVATION 3.81' (NAVD88) PER NOAA STATION 8419870 SEAVY ISLAND, PORTSMOUTH HARBOR TIDAL DATUM.

10) PARCEL IS BURDENED BY AN 80' WIDE UTILITY EASEMENT TO PUBLIC SERVICE OF NEW HAMPSHIRE, SEE RCRD 790/124, 975/490, 957/443.

11) PARCEL IS BURDENED BY A PUBLIC SERVICE UTILIY EASEMENT "A" SEE RCRD C–33208.

12) PARCEL IS BURDENED BY A 30' SEWER EASEMENT TO THE CITY OF PORTSMOUTH, SEE RCRD 5828/2445 AND RCRD B–40191.

13) PARCEL IS BURDENED BY A 20' WATER EASEMENT TO THE CITY OF PORTSMOUTH, SEE RCRD 5990/23 AND RCRD D–41407.

14) PARCEL IS BURDENED BY A RIGHT OF WAY FOR COMMON SEWER OR DRAIN TO THE CITY OF PORTSMOUTH, SEE RCRD 887/318 AND RCRD #0738.

15) PARCEL IS BURDENED BY A 20' WATER EASEMENT AND ELECTRIC EASEMENT TO ROCKINGHAM LIGHT AND POWER, SEE RCRD 3045/2056 AND 788/100.

No.	DATE	DESCRIPTION	BY	CHK
1	11/20/23	ISSUED FOR TAC APPROVAL	SJR	JRC
0	11/7/23	ISSUED FOR COMMENT	RJB	JRC

DRAWING ISSUE STATUS

TAC SUBMISSION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

PROJECT

ALBACORE PARK BUILDING ADDITION
569 SUBMARINE WAY PORTSMOUTH, NEW HAMPSHIRE

TITLE

BOUNDARY PLAN

DATE	OCTOBER 2023
SCALE	SCALE: 1" = 60'
DRAWN BY	RJB
DESIGNED BY	---
CHECKED BY	JRC
PROJECT No.	5010373-452.02
FIELD BOOK & PAGE	FB 347 PG 20
SHEET No.	SHEET 1
DWG No.	C1

STATE OF NEW HAMPSHIRE No. 738 JOHN R. CHAGNON LICENSED LAND SURVEYOR SIGNATURE

"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

11.20.23
JOHN R. CHAGNON, LLS 738 DATE

GRAPHIC SCALE
60 40 20 0 50 100 150 200 250 FEET
20 10 0 10 20 30 40 50 60 70 METERS

CURVE TABLE:

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	325.00'	98.66'	98.28'	S28°00'59"W	17°23'37"
C2	165.00'	140.18'	136.01'	S01°51'33"W	48°40'43"
C3	2915.00'	98.67'	98.66'	S55°13'39"W	1°56'22"
C4	280.00'	36.07'	36.05'	S17°02'20"W	7°22'52"

LINE TABLE:

LINE	BEARING	DISTANCE
L1	S69°16'14"E	32.00'
L2	S38°45'23"W	57.13'
L3	S40°26'15"W	35.88'
L4	S22°28'48"E	24.15'
L5	S19°49'28"W	45.11'
L6	N46°29'25"W	10.31'
L7	S33°36'34"E	10.00'
L8	N82°03'04"W	3.84'
L9	N34°27'30"E	99.58'
L10	N57°20'18"W	88.89'

209/87

U.S. ROUTE 1 BY-PASS

SUBMARINE WAY

U.S.S. ALBACORE

GHOST SHIP

MUSUEM/WELCOME CENTER

STORAGE

SHED

BUILDING SETBACK (TYP)

WETLAND (PFO/SSIE) 2,533± S.F.

LEDGE

CITY OF PORTSMOUTH 20' WATER EASEMENT RCRD 5990/23 D-41407

'HABITAT RESTORATION, MITIGATION' SIGN

CONCRETE SEDIMENTATION & OIL SEPARATION CHAMBER

SIGN PARK CLOSED AT DUSK

50' NHDES TIDAL BUFFER

100' NHDES TIDAL SETBACK

PSNH 3171/339/23

SALT MARSH

MUD FLAT (EISB5N2)

EXISTING RIP RAP

FHZ

MHW

MHHW

MLW

MLLW

HOT

TOT

TBM VERTICAL NAIL SET IN 24" MAPLE EL.=17.96

TBM VERTICAL NAIL SET IN 12" 3 LIMB CEDAR EL.=20.45

FLAG POLE & COMMERATIVE BRICK SIDEWALK

CRUSHED STONE (TYP.)

BRICK EDGING

RAISED GARDEN w/ STONE CURB

SUBMARINE MONUMENTS

DOLPHIN SCULPTURE

USS ALBACORE PLAQUE

MESSENGER BUOY

TALKING TOUR BOX (TYP)

OUTLET BOX

COMMEMORATIVE GRANITE BENCH (TYP. OF 5)

USS BANG MONUMENT

SARAH LONG BRIDGE HISTORY SIGN

LANE DESIGNATION SIGN

'BYPASS 1, SOUTH'

PARK 'BIKE LANE' SIGN

'STOP'

4' STEEL POSTS & CHAIN FENCE ON RETAINING WALL

RIP RAP SLOPE

GRANITE MONUMENT 'USS ALBACORE, AGSS 569'

PROPELLER DISPLAYS

ELEC. PANEL

GANGWAY

ELECTRIC METER PANEL

30' SEWER EASEMENT TO THE CITY OF PORTSMOUTH RCRD 5828/2445 B-40191

TRAFFIC SIGNAL BOX

PSNH 3171/339/25

PSNH 3171/339/26

REFLECTOR POST (TYP.)

DIVIDED HIGHWAY SIGN

'40 MPH'

'WELCOME TO NEW HAMPSHIRE'

'NO PARKING'

'SOUTH, BYPASS 1'

PSNH 25 339/24

PSNH 3214/3T w/ UGU

141/28

122/1

122/2

GRAPHIC SCALE

30 0 50 100 120

10 5 0 10 20 30

FEET

METERS

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 209 AS LOT 87.

2) OWNERS OF RECORD:
PORTSMOUTH SUBMARINE MEMORIAL ASSOCIATION
569 SUBMARINE WAY
PORTSMOUTH, N.H. 03801
2532/1623, 5551/1278

3) PARCEL IS PARTIALLY IN SPECIAL FLOOD HAZARD AREA (AE) AS SHOWN ON FIRM PANEL 33015C0259F. DATED JANUARY 29, 2021.

4) EXISTING LOT AREA:
302,176 S.F.±
6.937O AC.±

5) PARCEL IS LOCATED IN SINGLE RESIDENCE B DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:		15,000 S.F.
FRONTAGE:		100 FEET
SETBACKS:	FRONT	30 FEET
	SIDE	10 FEET
	REAR	30 FEET
MAXIMUM STRUCTURE HEIGHT:		35 FEET
MAXIMUM BUILDING COVERAGE:		20%
MINIMUM OPEN SPACE:		40%

7) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT GNSS OBSERVATIONS.

8) MEAN HIGH WATER SHOW AT ELEVATION 3.81' (NAVD88) PER NOAA STATION 8419870 SEAVY ISLAND, PORTSMOUTH HARBOR TIDAL DATUM.

9) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON ASSESSOR'S TAX MAP 209 LOT 87 IN THE CITY OF PORTSMOUTH.

No.	DATE	DESCRIPTION	BY	CHK.
0	11/7/23	ISSUED FOR COMMENT	RJB	JRC

DRAWING ISSUE STATUS

TAC SUBMISSION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PROJECT

ALBACORE PARK BUILDING ADDITION
569 SUBMARINE WAY PORTSMOUTH, NEW HAMPSHIRE

TITLE

EXISTING CONDITIONS PLAN
ORTHOPHOTO

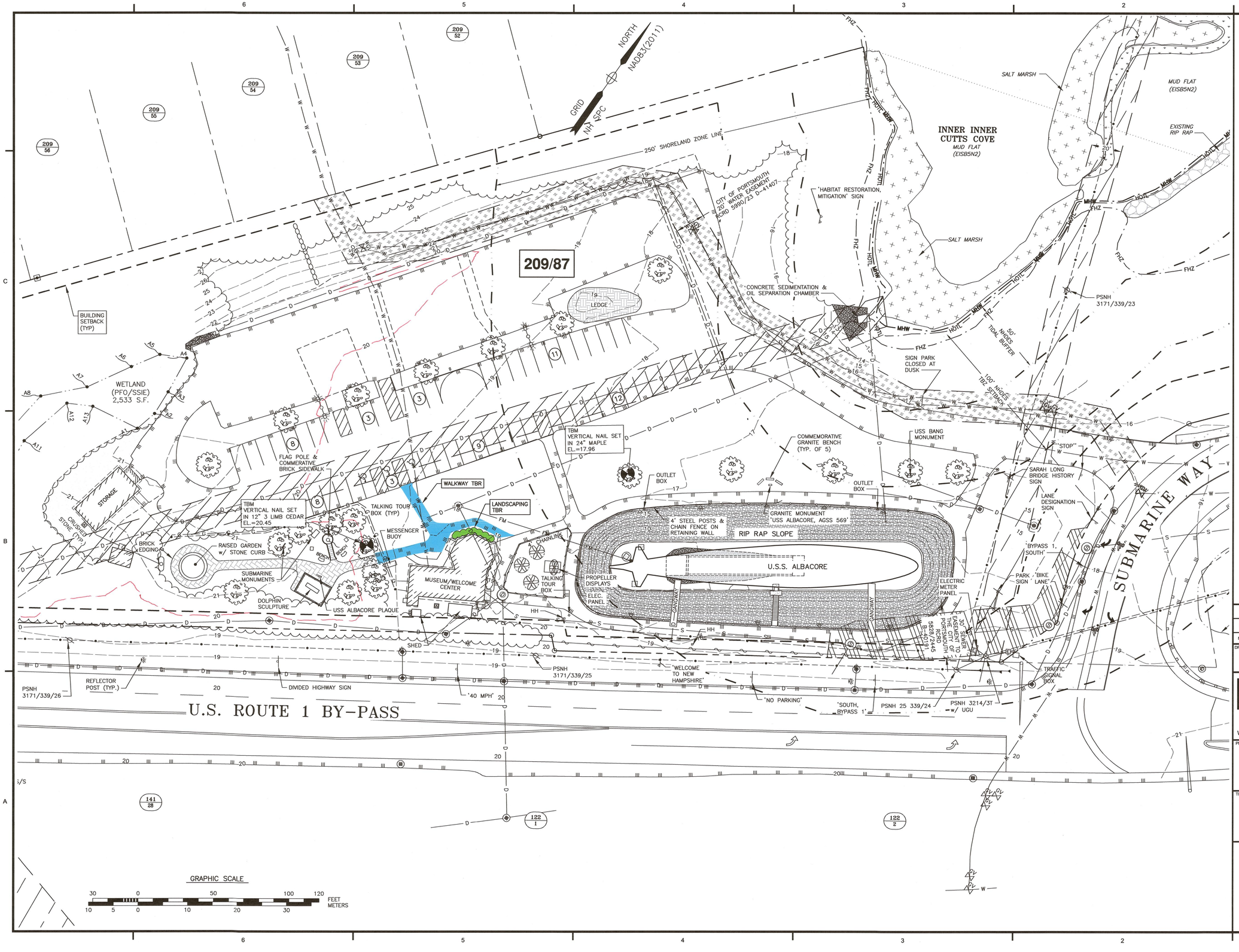
DATE	SCALE
OCTOBER 2023	SCALE: 1" = 30'

DRAWN BY	DESIGNED BY	CHECKED BY
RJB	—	JRC

PROJECT No.	FIELD BOOK & PAGE
5010373-452.02	FB 347 PG 20

SHEET No. SHEET 2

DWG No. C2



NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 209 AS LOT 87.

2) OWNERS OF RECORD:
PORTSMOUTH SUBMARINE MEMORIAL ASSOCIATION
569 SUBMARINE WAY
PORTSMOUTH, N.H. 03801
2532/1623, 5551/1278

3) PARCEL IS PARTIALLY IN SPECIAL FLOOD HAZARD AREA (AE, EL. 8) AS SHOWN ON FIRM PANEL 33015C0259F. DATED JANUARY 29, 2021.

4) EXISTING LOT AREA:
302,176 S.F.±
6.9370 AC.±

5) PARCEL IS LOCATED IN SINGLE RESIDENCE B DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:		15,000 S.F.
FRONTAGE:		100 FEET
SETBACKS:	FRONT	30 FEET
	SIDE	10 FEET
	REAR	30 FEET
MAXIMUM STRUCTURE HEIGHT:		35 FEET
MAXIMUM BUILDING COVERAGE:		20%
MINIMUM OPEN SPACE:		40%

7) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT GNSS OBSERVATIONS.

8) MEAN HIGH WATER SHOW AT ELEVATION 3.81' (NAVD88) PER NOAA STATION 8419870 SEAVY ISLAND, PORTSMOUTH HARBOR TIDAL DATUM.

9) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON ASSESSOR'S TAX MAP 209 LOT 87 IN THE CITY OF PORTSMOUTH.

No.	DATE	DESCRIPTION	BY	CHK.
1	11/20/23	GHOST SHIP, DRAINS	SJR	JRC
0	11/7/23	ISSUED FOR COMMENT	RJB	JRC

DRAWING ISSUE STATUS

TAC SUBMISSION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PROJECT

ALBACORE PARK BUILDING ADDITION
569 SUBMARINE WAY PORTSMOUTH, NEW HAMPSHIRE

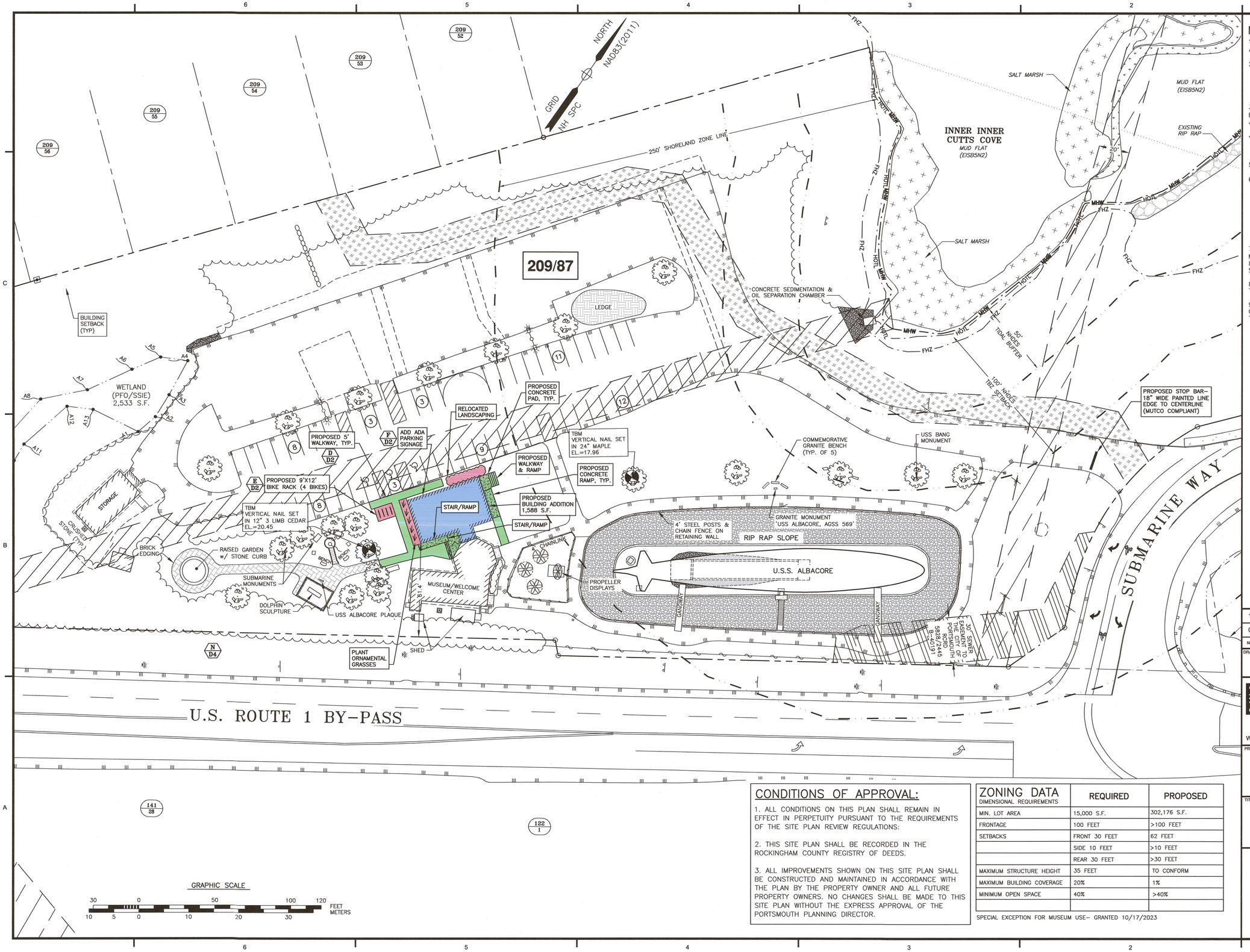
TITLE

EXISTING CONDITIONS PLAN

STATE OF NEW HAMPSHIRE — No. 738 JOHN R. CHAGNON — LAND SURVEYOR — SIGNATURE

DATE	SCALE
OCTOBER 2023	SCALE: 1" = 30'
DRAWN BY: RJB	DESIGNED BY: —	CHECKED BY: JRC
PROJECT No.: 5010373-452.02	FIELD BOOK & PAGE: FB 347 PG 20
SHEET No.: SHEET 3	DWG No.: C3

P:\NH\5010373-Portsmouth_Submarine_Memorial_Assn\452.02-1 Submarine Way, Portsmouth-IRC\2023 Site Plan\Plans & Specs\Site\452.02 Survey 2023.dwg, 11/20/2023 12:11:32 PM, Portsmouth Plotter Canon iR3300.pc3



NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 209 AS LOT 87.

2) OWNERS OF RECORD:
PORTSMOUTH SUBMARINE MEMORIAL ASSOCIATION
569 SUBMARINE WAY
PORTSMOUTH, N.H. 03801
2532/1623, 5551/1278

3) PARCEL IS PARTIALLY IN SPECIAL FLOOD HAZARD AREA (AE, EL. 8) AS SHOWN ON FIRM PANEL 33015C0259F. DATED JANUARY 29, 2021.

4) EXISTING LOT AREA:
302,176 S.F.±
6.9370 AC.±

5) PARCEL IS LOCATED IN SINGLE RESIDENCE B DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:		15,000 S.F.
FRONTAGE:		100 FEET
SETBACKS:	FRONT	30 FEET
	SIDE	10 FEET
	REAR	30 FEET
MAXIMUM STRUCTURE HEIGHT:		35 FEET
MAXIMUM BUILDING COVERAGE:		20%
MINIMUM OPEN SPACE:		40%

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED MUSEUM BUILDING ADDITION ON ASSESSOR'S TAX MAP 209 LOT 87 IN THE CITY OF PORTSMOUTH. ADDITION TO BE OVER CRAWL SPACE.

8. ADD MOTION ACTIVATED BUILDING MOUNTED DARK SKY LIGHTS TO ILLUMINATE THE NEW WALKWAYS.

9. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF PROPOSED CONCRETE BUILDING EXIT PADS, CONCRETE RAMPS, AND STEPS TO ENGINEER & ARCHITECT PRIOR TO CONSTRUCTION.

CONDITIONS OF APPROVAL:

1. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS:

2. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

3. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

ZONING DATA
DIMENSIONAL REQUIREMENTS

	REQUIRED	PROPOSED
MIN. LOT AREA	15,000 S.F.	302,176 S.F.
FRONTAGE	100 FEET	>100 FEET
SETBACKS	FRONT 30 FEET	62 FEET
	SIDE 10 FEET	>10 FEET
	REAR 30 FEET	>30 FEET
MAXIMUM STRUCTURE HEIGHT	35 FEET	TO CONFORM
MAXIMUM BUILDING COVERAGE	20%	1%
MINIMUM OPEN SPACE	40%	>40%

SPECIAL EXCEPTION FOR MUSEUM USE– GRANTED 10/17/2023

No.	DATE	DESCRIPTION	BY	CHK.
1	11/20/23	ISSUED FOR TAC APPROVAL	SJR	JRC
0	11/7/23	ISSUED FOR COMMENT	RJB	JRC

DRAWING ISSUE STATUS
TAC SUBMISSION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PROJECT
ALBACORE PARK BUILDING ADDITION
569 SUBMARINE WAY PORTSMOUTH, NEW HAMPSHIRE

TITLE
AMENDED SITE PLAN

STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON No. 7651 LICENSED PROFESSIONAL ENGINEER

DATE	OCTOBER 2023
SCALE	SCALE: 1" = 30'
DRAWN BY	OMS
DESIGNED BY	JRC
CHECKED BY	JRC
PROJECT No.	5010373-452.02
FIELD BOOK & PAGE	FB 347 PG 20
SHEET No.	SHEET 4
DWG No.	C4

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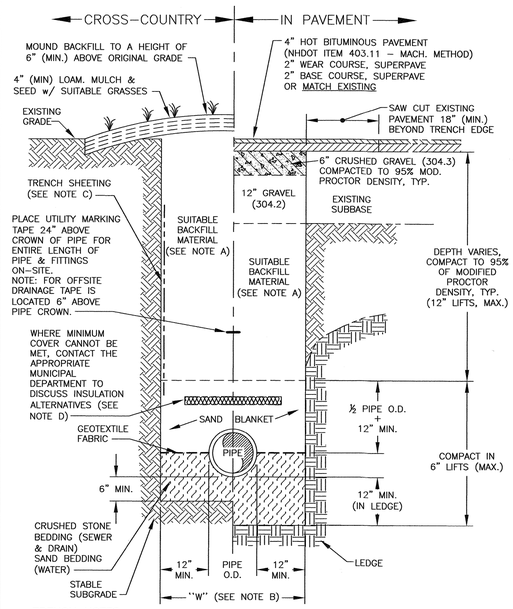
UTILITY NOTES:

1) SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
2) COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY.
3) SEE GRADING AND DRAINAGE PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
4) ALL WATER SERVICE INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION AND BEFORE ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE WITH THE CITY OF PORTSMOUTH.
5) ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
6) ALL WORK WITHIN CITY R.O.W. SHALL BE COORDINATED WITH CITY OF PORTSMOUTH
7) CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
8) ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
9) THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH BUILDING DRAWINGS AND UTILITY COMPANIES.
10) ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
11) THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATED TO THE OWNER PRIOR TO THE COMPLETION OF PROJECT.
12) THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED IN THESE DRAWING TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
13) CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR ALL UTILITIES.
14) A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS WATER ABOVE SEWER.
15) VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
16) COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.



TRENCH NOTES:

A) TRENCH BACKFILL:
- IN PAVED AREAS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIALS DEEMED TO BE UNACCEPTABLE BY THE ENGINEER.

- IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE.

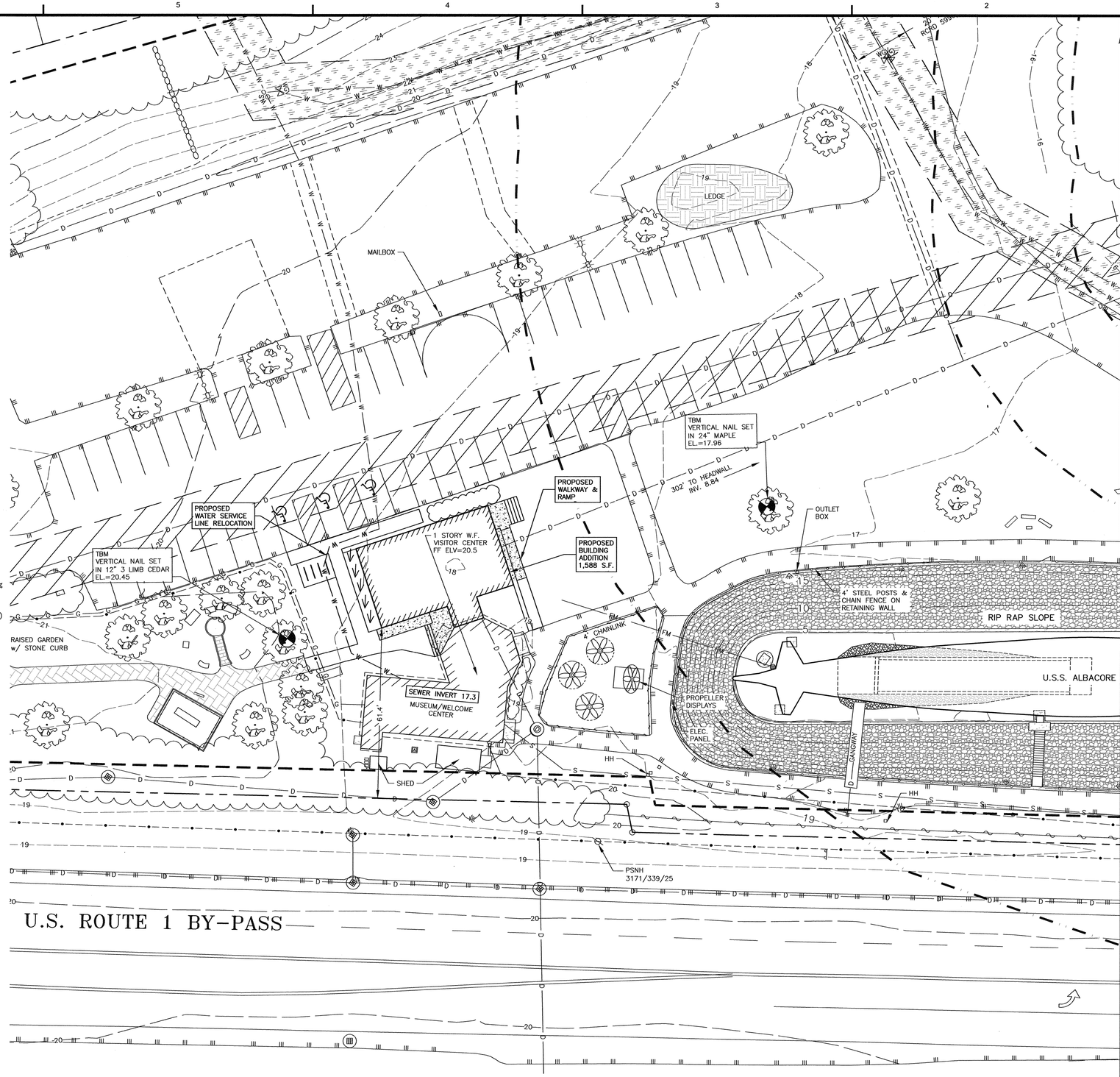
B) "W" = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D..

C) TRENCH SHEETING:
THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SAFE EXCAVATION PRACTICES.

D) MINIMUM PIPE COVER FOR UTILITY MAINS (UNLESS GOVERNED BY OTHER CODES):
- 5' MINIMUM FOR SEWER (IN PAVEMENT)
- 4' MINIMUM FOR SEWER (CROSS COUNTRY)
- 3' MINIMUM FOR STORMWATER DRAINS
- 5' MINIMUM FOR WATER MAINS

E) ALL PAVEMENT CUTS SHALL BE REPAIRED BY THE INFRARED HEAT METHOD.

1 / C5 TYPICAL PIPE TRENCH
NTS



GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

NOTES:

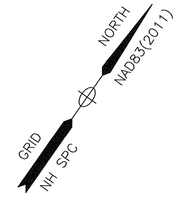
1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) SEWER INFORMATION:
SEWER SERVICE TO THE NEW BATHROOMS WILL BE CONNECTED INTERNALLY. ADDITIONAL SEWER FLOW IS NOT EXPECTED FROM THE PROPOSED ADDITION.

5) WATER SERVICE WILL BE EXTENDED INTERNALLY TO NEW FIXTURES FROM OLD BUILDINGS CONNECTION.



No.	DATE	DESCRIPTION	BY	CHK.
1	11/20/23	ISSUED FOR TAC APPROVAL	SJR	JRC
0	11/7/23	ISSUED FOR COMMENT	OMS	JRC

DRAWING ISSUE STATUS
TAC SUBMISSION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PROJECT
ALBACORE PARK BUILDING ADDITION
569 SUBMARINE WAY PORTSMOUTH, NEW HAMPSHIRE

TITLE
UTILITY PLAN

JOHN R CHAGNON NO. 7651 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

DATE	SCALE
OCTOBER 2023	SCALE: 1" = 20'

DRAWN BY	DESIGNED BY	CHECKED BY
OMS	JRC	JRC

PROJECT No.	FIELD BOOK & PAGE
5010373-452.02	FB 347 PG 20

SHEET No.	DWG No.
SHEET 5	C5

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DRAINAGE STRUCTURE SCHEDULE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT
CB 1	EX	17.74	18" C. PVC	8.84
CB 1	EX	17.74	18" PVC	8.84
CB 1	EX	17.74	(2) 4" PVC	13.84
CB 1	EX	17.74	4" CPP	11.54
CB 2	EX	18.98	12" PVC	13.68
CB 2	EX	18.98	12" PVC	13.58
CB 3	EX	16.98	12" CMP	13.43
CB 3	EX	16.98	18" RCP	13.33
CB 3	EX	16.98	12" CMP	13.12
DMH 1	EX	18.90	18" PVC IN	10.32
DMH 1	EX	18.90	12" PVC IN	12.88
DMH 1	EX	18.90	18" PVC OUT	10.22
DMH 2	PROP	18.50	4" PVC IN	14.50
DMH 2	PROP	18.50	18" PVC IN	9.51
DMH 2	PROP	18.50	18" PVC OUT	8.53
YD 1	PROP	18.90	4" PVC OUT	15.50

PIPE SCHEDULE

PIPE #	PIPE SIZE	LENGTH	SLOPE
1	4"	100'	0.01
2	18"	71'	0.01

*ALL PIPE TO BE HDPE

NORTH
NAD83(2011)
GRID
NH SPC

SEE NOTE 4
LEDGE
REMOVE CB & PIPE-FILL PIPE UNDER BUILDING
SIDEWALK FLUSH TO PAVEMENT
20X5
TBM VERTICAL NAIL SET IN 24" MAPLE EL.=17.96
302' TO HEADWALL
OUTLET BOX
G D2 YARD DRAIN (YD) 1 RIM 18.9
H D2 DMH 2
PROPOSED BUILDING ADDITION 1,588 S.F.
TBM VERTICAL NAIL SET IN 12" 3 LIMB CEDAR EL.=20.45
PROPOSED ADDITION FF=20.5
CB 3
P1
P2
18X9
19X11
19X10
19X15
19X20
19X46
19X50
20X50
4" STEEL POSTS & CHAIN FENCE ON RETAINING WALL
RIP RAP SLOPE
4" CHAINLINK
RAISED GARDEN w/ STONE CURB
DUPLEX PUMP STATION
U.S.S. ALBACO
PROPELLER DISPLAYS
ELEC. PANEL
GANGWAY
FLOWABLE FILL
61.4'
FF=20.5
DMH 1
CB 2
CB 3
PSNH 3171/339/25
U.S. ROUTE 1 BY-PASS

GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) CONTRACTOR TO DETERMINE LOCATION OF EXTERIOR LIGHTING CONDUIT (TO POLE MOUNTED LIGHTS) AND SUBMIT TO ARCHITECT AND ENGINEER PRIOR TO CONSTRUCTION TO DETERMINE ANY CONFLICTS/RESOLUTIONS.

No.	DATE	DESCRIPTION	BY	CHK.
1	11/20/23	ISSUED FOR TAC APPROVAL	SJR	JRC
0	11/7/23	ISSUED FOR COMMENT	OMS	JRC

DRAWING ISSUE STATUS

TAC SUBMISSION

AMBIT ENGINEERING, INC.
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603.430.9282
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PROJECT

ALBACORE PARK BUILDING ADDITION
569 SUBMARINE WAY PORTSMOUTH, NEW HAMPSHIRE

TITLE

GRADING & DRAINAGE PLAN

STATE OF NEW HAMPSHIRE · JOHN R. CHAGNON No. 7631 · LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
OCTOBER 2023	SCALE: 1" = 20'

DRAWN BY	DESIGNED BY	CHECKED BY
OMS	JRC	JRC

PROJECT No.	FIELD BOOK & PAGE
5010373-452.02	FB 347 PG 20

SHEET No. **SHEET 6** DWG No. **C6**

P:\NH\5010373 Portsmouth Submarine_Memorial_ Assn\452.02\ 1 Submarine Way, Portsmouth-JRC\2023 Site Plan\Plans & Specs\Site\452.02 Survey 2023.dwg, 11/20/2023 3:58:35 PM, Portsmouth Plotter Canon TX3000.pc3

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE

DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

IF REQUIRED THE CONTRACTOR SHALL OBTAIN AN **NPDES** PHASE II STORMWATER PERMIT AND SUBMIT A NOTICE OF INTENT (N.O.I) BEFORE BEGINNING CONSTRUCTION AND SHALL HAVE ON SITE A STORMWATER POLLUTION PREVENTION PLAN (**S.W.P.P.P.**) AVAILABLE FOR INSPECTION BY THE PERMITTING AUTHORITY DURING THE CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THE **S.W.P.P.P.** AND INSPECTING AND MAINTAINING ALL BMP'S CALLED FOR BY THE PLAN. THE CONTRACTOR SHALL SUBMIT A NOTICE OF TERMINATION (**N.O.T.**) FORM TO THE REGIONAL EPA OFFICE WITHIN 30 DAYS OF FINAL STABILIZATION OF THE ENTIRE SITE OR TURNING OVER CONTROL OF THE SITE TO ANOTHER OPERATOR.

THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
1. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
2. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
3. A REPRESENTATIVE OF THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
4. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.

INSTALL PERIMETER CONTROLS, i.e., SILTSOXX AND CATCH BASIN PROTECTION AROUND THE LIMITS OF DISTURBANCE BEFORE ANY EARTH MOVING OPERATIONS. THE USE OF HAYBALES IS NOT ALLOWED.

THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES. PLACE FODS AS NEEDED.

CUT AND GRUB ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND REMOVE OTHER DEBRIS AND RUBBISH AS REQUIRED.

ROUGH GRADE SITE/EXCAVATE FOR FOUNDATION.

LAYOUT AND INSTALL ALL BURIED UTILITIES AND SERVICES UP TO 10' OF THE PROPOSED BUILDING FOUNDATIONS. CAP AND MARK TERMINATIONS OR LOG SWING TIES.

CONSTRUCT BUILDING.

CONNECT UTILITIES.

PLACE BINDER LAYER OF PAVEMENT FOR SIDEWALKS.

PLANT LANDSCAPING IN AREAS OUT OF WAY OF BUILDING CONSTRUCTION. PREPARE AND STABILIZE FINAL SITE GRADING BY ADDING TOPSOIL, SEED, MULCH AND FERTILIZER.

AFTER BUILDINGS ARE COMPLETED, FINISH ALL REMAINING LANDSCAPED WORK.

CONSTRUCT SIDEWALKS.

REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF FINAL STABILIZATION OF THE SITE.

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF A BUILDING ADDITION WITH WALKWAYS.

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 10,000 S.F.

BASED ON THE USCS WEB SOIL SURVEY THE SOILS ON SITE CONSIST OF 799 WHICH IS URBAN LAND COMPLEX. SITE WAS DISTURBED FOR PARK CONSTRUCTION.

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA A CLOSED DRAINAGE SYSTEM TO THE CITY OF PORTSMOUTH CLOSED DRAINAGE SYSTEM WHICH ULTIMATELY FLOWS TO INNER INNER CUTS COVE THEN TO THE PISCATAQUA RIVER.

GENERAL CONSTRUCTION NOTES

THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.

ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.

THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DUST CONTROL: DUST CONTROL MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.
IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.

SILTSOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILTSOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.

ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.

ALL NON-STRUCTURAL, SITE-FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.

FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.

FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.

DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.

THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.

ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED;
- BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
- A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
- EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
- IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.

STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA.

STABILIZATION MEASURES TO BE USED INCLUDE:
- TEMPORARY SEEDING;
- MULCHING.

1. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
2. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN THESE AREAS, SILTSOXX, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
3. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILTSOXX, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

MAINTENANCE AND PROTECTION

THE SILTSOXX BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.

SILTSOXX SHALL BE REMOVED ONCE SITE IS STABILIZED, AND DISTURBED AREAS RESULTING FROM SILTSOXX REMOVAL SHALL BE PERMANENTLY SEEDED.

THE CATCH BASIN INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.
SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

WINTER NOTES

ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.

ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;

AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;

STOCKPILES

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

CONCRETE WASHOUT AREA

THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
1. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FAILITY;
2. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
3. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
4. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES

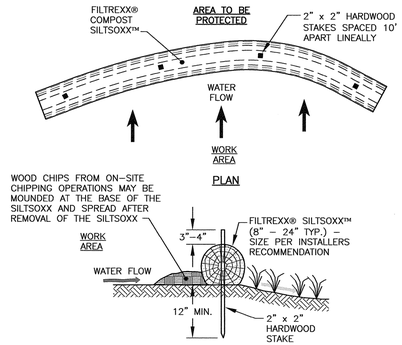
1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL

1. WASTE MATERIAL
   - ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   - NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   - ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE
   - ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   - SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE
   - ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

BLASTING NOTES

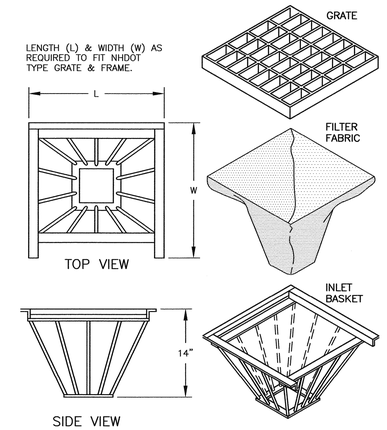
1. CONTRACTOR SHALL CONTACT THE NHDES AND/OR LOCAL JURISDICTION PRIOR TO COMMENCING ANY BLASTING ACTIVITIES.
2. FOR ANY PROJECT FOR WHICH BLASTING OF BEDROCK IS ANTICIPATED, THE APPLICANT SHALL SUBMIT A BLASTING PLAN THAT IDENTIFIES:
   - WHERE THE BLASTING ACTIVITIES ARE ANTICIPATED TO OCCUR;
   - THE ESTIMATED QUANTITY OF BLAST ROCK IN CUBIC YARDS; AND
   - SITE-SPECIFIC BLASTING BEST MANAGEMENT PRACTICES.



NOTES:
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILLTREXX SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTREXX INSTALLER.
3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
4. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
5. THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

A C6 FILTREXX® SILTSOXX™ FILTRATION SYSTEM

NTS



1) INLET BASKETS SHALL BE INSTALLED IMMEDIATELY AFTER CATCH BASIN CONSTRUCTION IS COMPLETE AND SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL PAVEMENT BINDER COURSE IS COMPLETE.

2) FILTER FABRIC SHALL BE PUSHED DOWN AND FORMED TO THE SHAPE OF THE BASKET. THE SHEET OF FABRIC SHALL BE LARGE ENOUGH TO BE SUPPORTED BY THE BASKET FRAME WHEN HOLDING SEDIMENT AND, SHALL EXTEND AT LEAST 6" PAST THE FRAME. THE INLET GRATE SHALL BE PLACED OVER THE BASKET/FRAME AND WILL SERVE AS THE FABRIC ANCHOR.

3) THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC; POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE, OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:
- -RAB STRENGTH: 45 LB. MIN. IN ANY PRINCIPAL DIRECTION (ASTM D1682)
- -MULLEN BURST STRENGTH: MIN. 60 psi (ASTM D774)

4) THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND A MINIMUM PERMEABILITY OF 120 gpm/s.f. (MULTIPLY THE PERMITTIVITY IN SEC.-1 FROM ASTM 54491-85 CONSTANT HEAD TEST USING THE CONVERSION FACTOR OF 74.)

5) THE INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.

6) SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

B C6 CATCH BASIN INLET BASKET

NTS

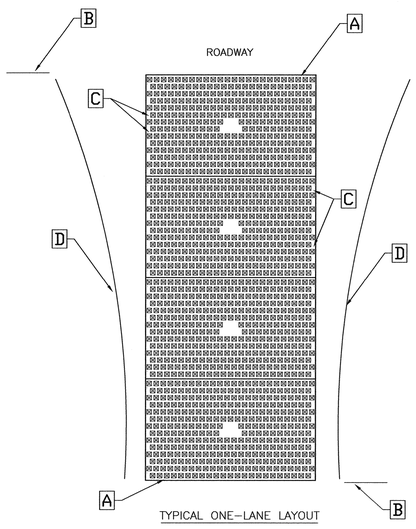
FODS TRACKOUT CONTROL SYSTEM

INSTALLATION:

THE PURPOSE AND DESIGN OF THE FODS TRACKOUT CONTROL SYSTEM IS TO EFFECTIVELY REMOVE MOST SEDIMENT FROM VEHICLE TIRES AS THEY EXIT A DISTURBED LAND AREA ONTO A PAVED STREET. THIS MANUAL IS A PLATFORM FROM WHICH TO INSTALL A FODS TRACKOUT CONTROL SYSTEM. (NOTE: THIS IS NOT A ONE SIZE FITS ALL GUIDE.) THE INSTALLATION MAY NEED TO BE MODIFIED TO MEET THE EXISTING CONDITIONS, EXPECTATIONS, OR DEMANDS OF A PARTICULAR SITE. THIS IS A GUIDELINE. ULTIMATELY THE FODS TRACKOUT CONTROL SYSTEM SHOULD BE INSTALLED SAFELY WITH PROPER ANCHORING AND SIGNS PLACED AT THE ENTRANCE AND EXIT TO CAUTION USERS AND OTHERS.

KEY NOTES:

A. FODS TRACKOUT CONTROL SYSTEM MAT.
B. FODS SAFETY SIGN.
C. ANCHOR POINT.
D. SILTSOXX OR ORANGE CONSTRUCTION FENCE.



TYPICAL ONE-LANE LAYOUT

INSTALLATION:
1. THE SITE WHERE THE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED SHOULD CORRESPOND TO BEST MANAGEMENT PRACTICES AS MUCH AS POSSIBLE. THE SITE WHERE FODS TRACKOUT CONTROL SYSTEM IS PLACED SHOULD ALSO MEET OR EXCEED THE LOCAL JURISDICTION OR STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS.
2. CALL FOR UTILITY LOCATES 3 BUSINESS DAYS IN ADVANCE OF THE OF FODS TRACKOUT CONTROL SYSTEM INSTALLATION FOR THE MARKING OF UNDERGROUND UTILITIES. CALL THE UTILITY NOTIFICATION CENTER AT 811.
3. ONCE THE SITE IS ESTABLISHED WHERE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED, ANY EXCESSIVE UNEVEN TERRAIN SHOULD BE LEVELED OUT OR REMOVED SUCH AS LARGE ROCKS, LANDSCAPING MATERIALS, OR SUDDEN ABRUPT CHANGES IN ELEVATION.
4. THE INDIVIDUAL MATS CAN START TO BE PLACED INTO POSITION. THE FIRST MAT SHOULD BE PLACED NEXT TO THE CLOSEST POINT OF EGRESS. THIS WILL ENSURE THAT THE VEHICLE WILL EXIT STRAIGHT FROM THE SITE ONTO THE PAVED SURFACE.
8. AFTER THE FIRST MAT IS PLACED DOWN IN THE PROPER LOCATION, MATS SHOULD BE ANCHORED TO PREVENT THE POTENTIAL MOVEMENT WHILE THE ADJOINING MATS ARE INSTALLED. ANCHORS SHOULD BE PLACED AT EVERY ANCHOR POINT (IF FEASIBLE) TO HELP MAINTAIN THE MAT IN ITS CURRENT POSITION.
9. AFTER THE FIRST MAT IS ANCHORED IN ITS PROPER PLACE, AN H BRACKET SHOULD BE PLACED AT THE END OF THE FIRST MAT BEFORE ANOTHER MAT IS PLACED ADJACENT TO THE FIRST MAT.
10. ONCE THE SECOND MAT IS PLACED ADJACENT TO THE FIRST MAT, MAKE SURE THE H BRACKET IS CORRECTLY SITUATED BETWEEN THE TWO MATS, AND SLIDE MATS TOGETHER.
11. NEXT THE CONNECTOR STRAPS SHOULD BE INSTALLED TO CONNECT THE TWO MATS TOGETHER.
12. UPON PLACEMENT OF EACH NEW MAT IN THE SYSTEM, THAT MAT SHOULD BE ANCHORED AT EVERY ANCHOR POINT TO HELP STABILIZE THE MAT AND ENSURE THE SYSTEM IS CONTINUOUS WITH NO GAPS IN BETWEEN THE MATS.
13. SUCCESSIVE MATS CAN THEN BE PLACED TO CREATE THE FODS TRACKOUT CONTROL SYSTEM REPEATING THE ABOVE STEPS.

USE AND MAINTENANCE
1. VEHICLES SHOULD TRAVEL DOWN THE LENGTH OF THE TRACKOUT CONTROL SYSTEM AND NOT CUT ACROSS THE MATS.
2. DRIVERS SHOULD TURN THE WHEEL OF THEIR VEHICLES SUCH THAT THE VEHICLE WILL MAKE A SHALLOW S-TURN ROUTE DOWN THE LENGTH OF THE FODS TRACKOUT CONTROL SYSTEM.
3. MATS SHOULD BE CLEANED ONCE THE VOIDS BETWEEN THE PYRAMIDS BECOME FULL OF SEDIMENT. TYPICALLY THIS WILL NEED TO BE PERFORMED WITHIN TWO WEEKS AFTER A STORM EVENT. BRUSHING IS THE PREFERRED METHOD OF CLEANING, EITHER MANUALLY OR MECHANICALLY.
4. THE USE OF ICE MELT, ROCK SALT, SNOW MELT, DE-ICER, ETC. SHOULD BE UTILIZED AS NECESSARY DURING THE WINTER MONTHS AND AFTER A SNOW EVENT TO PREVENT ICE BUILDUP.

REMOVAL
1. REMOVAL OF FODS TRACKOUT CONTROL SYSTEM IS REVERSE ORDER OF INSTALLATION.
2. STARTING WITH THE LAST MAT, THE MAT THAT IS PLACED AT THE INNERMOST POINT OF THE SITE OR THE MAT FURTHEST FROM THE EXIT OR PAVED SURFACE SHOULD BE REMOVED FIRST.
3. THE ANCHORS SHOULD BE REMOVED.
4. THE CONNECTOR STRAPS SHOULD BE UNBOLTED AT ALL LOCATIONS IN THE FODS TRACKOUT CONTROL SYSTEM.
5. STARTING WITH THE LAST MAT IN THE SYSTEM, EACH SUCCESSIVE MAT SHOULD THEN BE MOVED AND STACKED FOR LOADING BY FORKLIFT OR EXCAVATOR ONTO A TRUCK FOR REMOVAL FROM THE SITE.

C C6 FODS (OPTIONAL)

NTS

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

No.	DATE	DESCRIPTION	BY	CHK.
0	11/7/23	ISSUED FOR COMMENT	OMS	JRC

DRAWING ISSUE STATUS

TAC SUBMISSION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

PROJECT

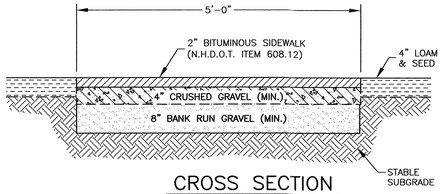
ALBACORE PARK BUILDING ADDITION
569 SUBMARINE WAY PORTSMOUTH, NEW HAMPSHIRE

TITLE

EROSION PROTECTION NOTES & DETAILS

JOHN R. CHAGNON NO. 7851 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

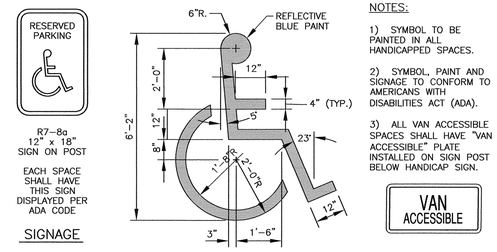
DATE	OCTOBER 2023
SCALE	SCALE: AS SHOWN
DRAWN BY	OMS
DESIGNED BY	JRC
CHECKED BY	JRC
PROJECT No.	5010373-452.02
FIELD BOOK & PAGE	FB 347 PG 20
SHEET No.	SHEET 7
DWG No.	D1



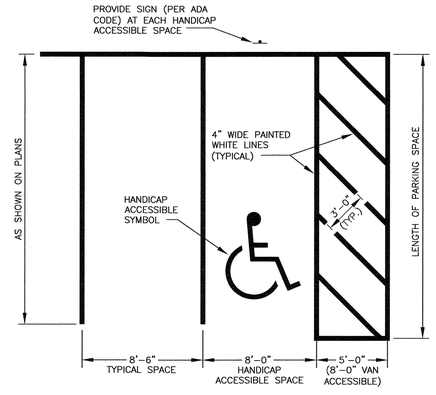
CROSS SECTION

D / C4 BITUMINOUS CONCRETE SIDEWALK

NTS

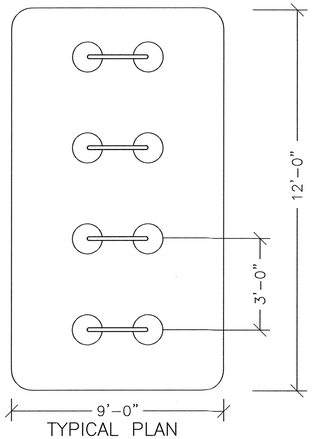


HANDICAP ACCESSIBLE SYMBOL

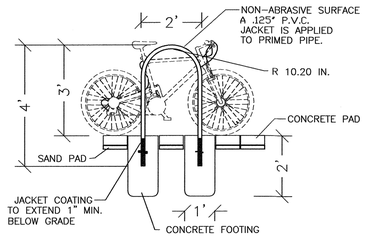


F / C4 HANDICAP PARKING

NTS

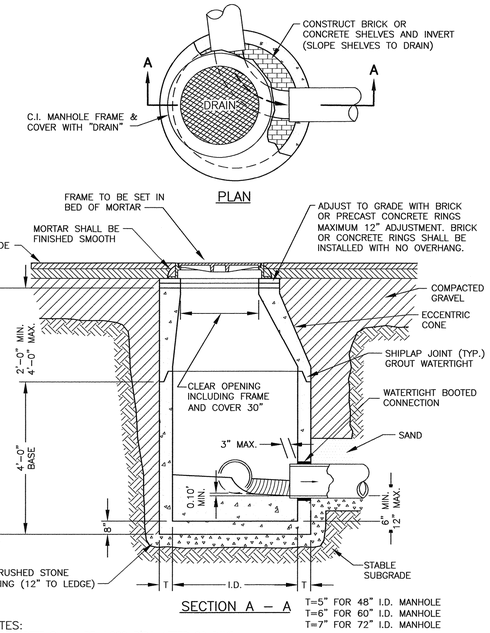


TYPICAL PLAN



E / C4 BICYCLE RACK

NTS



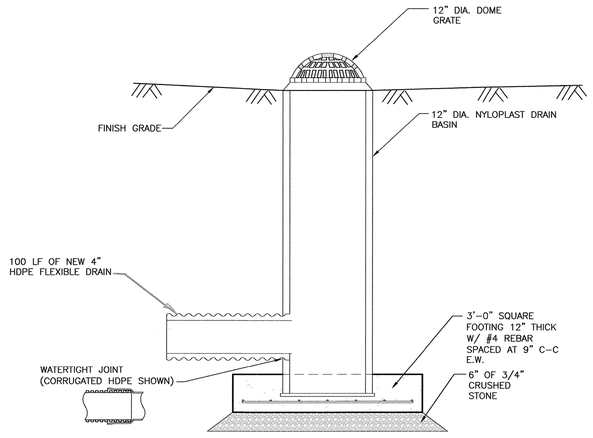
SECTION A – A

T=5" FOR 48" I.D. MANHOLE
T=6" FOR 60" I.D. MANHOLE
T=7" FOR 72" I.D. MANHOLE

NOTES:
1. CONCRETE SHALL BE 4,000 P.S.I. AFTER 28 DAYS.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FOOT.
4. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
5. ALL MANHOLES SHALL BE 48" I.D. UNLESS SPECIFIED OTHERWISE ON THE PLANS.
6. MANHOLE SHALL BE DESIGNED AND CONSTRUCTED TO WITHSTAND H-20 LOADING.

H / C6 DRAIN MANHOLE W/BOOT

NTS



G / C6 YARD DRAIN

NTS

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No.	DATE	DESCRIPTION	BY	CHK
0	11/20/23	ISSUED FOR TAC APPROVAL	OMS	JRC

DRAWING ISSUE STATUS

TAC SUBMISSION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PROJECT

ALBACORE PARK BUILDING ADDITION
569 SUBMARINE WAY PORTSMOUTH, NEW HAMPSHIRE

TITLE

DETAILS

STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON No. 7651 – LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
OCTOBER 2023	SCALE: AS SHOWN

DRAWN BY	DESIGNED BY	CHECKED BY
OMS	JRC	JRC

PROJECT No.	FIELD BOOK & PAGE
5010373-452.02	FB 347 PG 20

SHEET No. SHEET 8 | DWG No. D2

FLOOR PLAN LEGEND

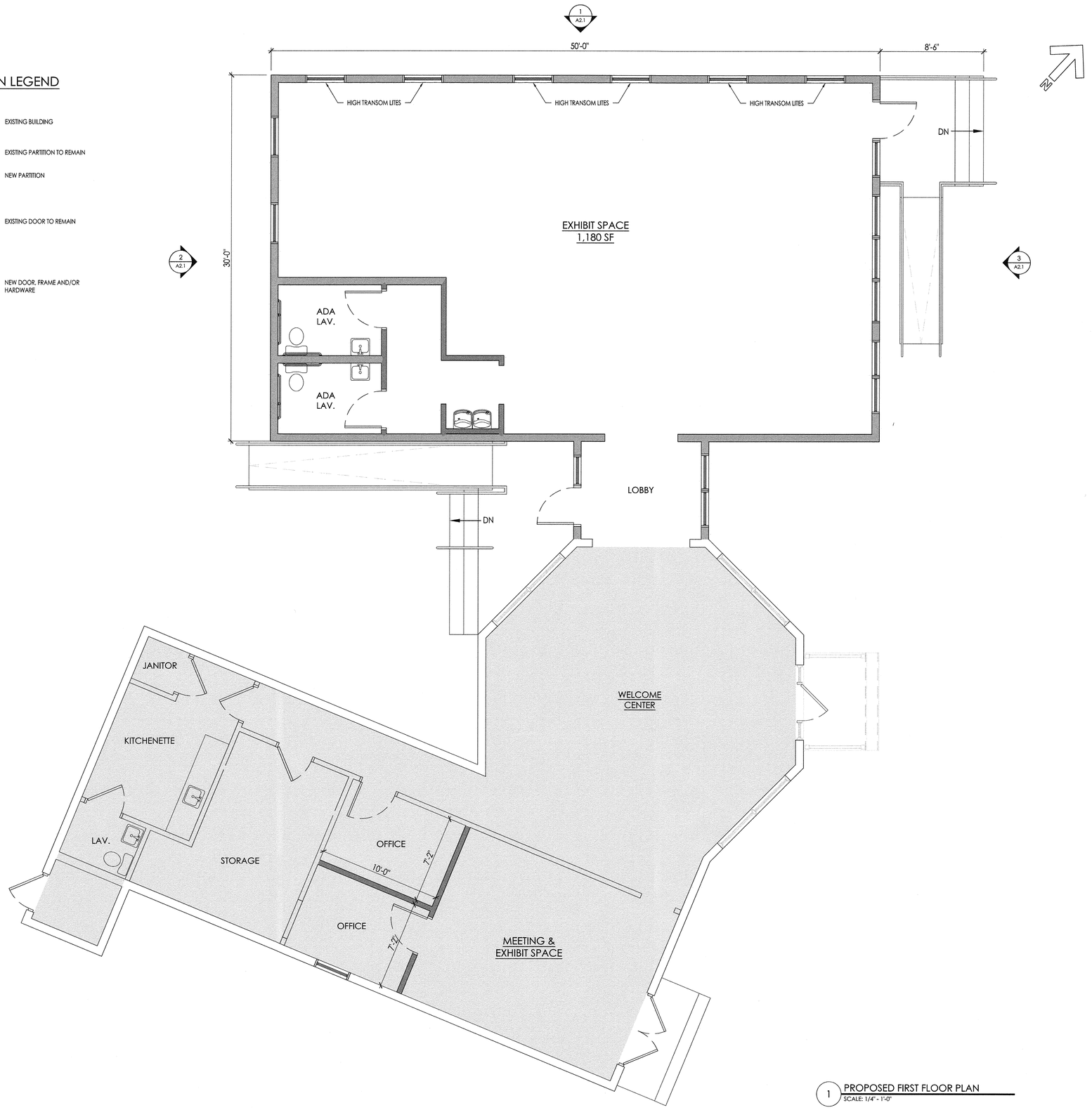
EXISTING BUILDING

EXISTING PARTITION TO REMAIN

NEW PARTITION

EXISTING DOOR TO REMAIN

100 NEW DOOR, FRAME AND/OR HARDWARE



1 PROPOSED FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

OWNER:

ALBACORE PARK
BUILDING COMMITTEE

ALBACORE PARK
PORTSMOUTH, NH

ARCHITECT:

PORTONE ARCHITECTS

959 Islington Street
Portsmouth, NH 03801

603.436.8891
info@portonearchitects.com

CONTRACTOR:

CIVIL / STRUCTURAL ENGINEER:

MEPFP ENGINEER:

Revision History		
#	Date	Issuance

SEAL

SCHEMATIC DESIGN

LOCUS MAP

PROJECT NAME:

ALBACORE PARK
WELCOME CENTER
ADDITION &
RENOVATIONS

DRAWING TITLE:

**SCHEMATIC
FLOOR PLAN**

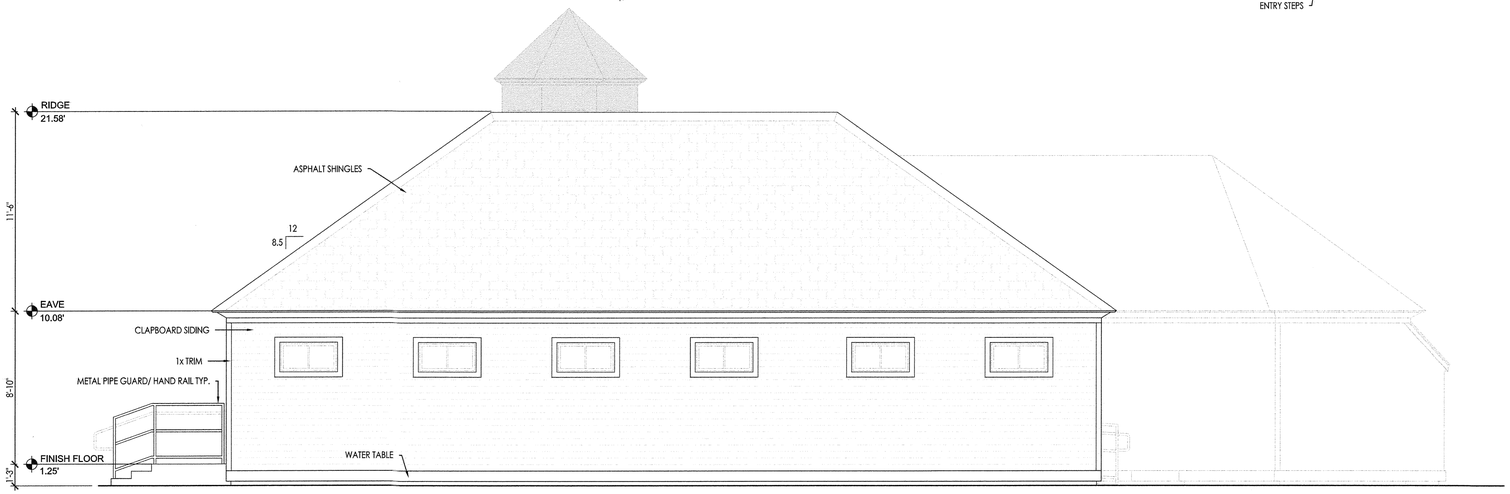
PROJECT No:	23-041
DATE:	Nove. 7, 2023
DRAWING SCALE:	As indicated

DRAWING No:

A1.1

3 PROPOSED NORTH EXTERIOR ELEVATION
SCALE: 1/4" - 1'-0"

2 PROPOSED SOUTH EXTERIOR ELEVATION
SCALE: 1/4" - 1'-0"



1 PROPOSED WEST ELEVATION
SCALE: 1/4" - 1'-0"

OWNER:

ALBACORE PARK
BUILDING COMMITTEE

ALBACORE PARK
PORTSMOUTH, NH

ARCHITECT:
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CONTRACTOR:

CIVIL / STRUCTURAL ENGINEER:

MEPFP ENGINEER:

Revision History		
#	Date	Issuance

SEAL

SCHEMATIC DESIGN

LOCUS MAP

PROJECT NAME:

ALBACORE PARK
WELCOME CENTER
ADDITION &
RENOVATIONS

DRAWING TITLE:

EXTERIOR
ELEVATIONS

PROJECT No:	23-041
DATE:	Nove. 7, 2023
DRAWING SCALE:	As indicated

DRAWING No:

A2.1