

**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

May 7, 2024

AGENDA

I. APPROVAL OF MINUTES

- A. Approval of minutes from the April 2, 2024 Site Plan Review Technical Advisory Committee Meeting.

II. OLD BUSINESS

- A. **REQUEST TO POSTPONE** The request of **635 Sagamore Development LLC (Owner)**, For property located at **635 Sagamore Avenue** requesting Site Plan approval for the removal of the existing structures and construction of 4 single-family dwellings on one lot with associated site improvements. Said property is located on Assessor Map 222 Lot 19 and lies within the Single Residence A (SRA) District. (LU-22-209)
REQUEST TO POSTPONE

III. NEW BUSINESS

- A. The request of **Friends of Lafayette House (Owner)**, for property located at **413 Lafayette Road** requesting Site Plan Review Approval for a 635 square foot addition with associated site improvements. Said property is located on Assessor Map 230 Lot 23A and lies within the Single Residence B (SRB) District. (LU-24-61)
- B. The request of **Oak Street Real Estate Capital (Owner) 100 Durgin Lane Owner, LLC (Applicant)**, for property located at **100 Durgin Lane** requesting Subdivision approval of a lot line adjustment and Site Plan Review approval for the demolition of the existing buildings and the construction of 360 rental housing units in a mix of 3-story and 4-story buildings with associated site improvements including parking, pedestrian access, community spaces, utilities, stormwater management, lighting, and landscaping. Said property is located on Assessor Map 239 Lot 18 and lies within the Gateway Corridor (G1) District. (LU-24-62)

IV. ADJOURNMENT

**Members of the public also have the option to join this meeting over Zoom, a unique meeting ID and password will be provided once you register. To register, click on the link below or copy and paste this into your web browser:*

https://us06web.zoom.us/webinar/register/WN_-OMujPTvQ5yF0SMkW2kw_Q

**SITE PLAN REVIEW TECHNICAL ADVISORY COMMITTEE
PORTSMOUTH, NEW HAMPSHIRE**

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

2:00 PM

April 2, 2024

MINUTES

MEMBERS PRESENT:

Peter Stith, Chairperson, Planning Manager; David Desfosses, Construction Technician Supervisor; Patrick Howe, Deputy Fire Chief; Shanti Wolph, Chief Building Inspector; Peter Britz, Director of Planning & Sustainability; Zachary Cronin, Assistant City Engineer, Eric Eby, Parking and Transportation Engineer; Mike Maloney; Deputy Police Chief

MEMBERS ABSENT:

Vincent Hayes; Land Use Compliance Agent/Associate Planner

**ADDITIONAL
STAFF PRESENT:**

Stefanie Casella, Planner II; Kate Homet, Associate Environmental Planner

The meeting began at 2:00 p.m.

I. APPROVAL OF MINUTES

- A.** Approval of minutes from the March 5, 2024 Site Plan Review Technical Advisory Committee Meeting.

[0:31] E. Eby made a motion to approve the minutes as presented. D. Desfosses seconded the motion. The motion passed unanimously.

II. OLD BUSINESS

- A.** The request of **RIGZ Enterprises LLC (Owner)**, for property located at **822 Rt 1 Bypass** requesting Site Plan review approval to demolish the existing building and construct a new commercial building as well as associated paving, stormwater management, lighting, utilities and landscaping. Said property is located on Assessor Map 160 Lot 29 and lies within the Business (B) District. (LU-23-209)

[0:39] Chairman Stith introduced this item.

SPEAKING TO THE APPLICATION

[1:04] Alex Ross of Ross Engineering came to present this application along with the property owner, Rich Rigazio, and the contractor Dave. Mr. Ross went through and addressed the staff comments received by the applicants.

1. *Proposed utilities must be installed in Burkitt Street, not in grass strip.*

The gas line in the gas strip will be moved.

2. *Change 6" fire service into a 6" main with flushing hydrant at the end. Connect fire services and domestic services to the new 6" main. Connect 2" service for adjacent property to the 6" main, cut and cap all old services for both properties as necessary at water main on Dennett.*

This will be updated.

3. *Third party oversight of work in City right of way may be required.*

MAC construction will be doing all work and the applicant does not feel the additional expense is necessary for a third party oversight as MAC will be working closely with the City.

4. *Burkitt Street will need to be milled & overlaid after the conclusion of the utility work.*

They would like to know if it is possible to waive the hookup fees for this project and they will discuss this with DPW offline. Notes can be added to the plan about this.

5. *Move dumpsters about 10' further toward the back of building for sight distance. Do not cover manholes with dumpsters.*

They will do this.

6. *Show outline of roof overhanging the front sidewalk.*

The drip edge is located at the outer edge of the sidewalk. This will be clarified on the plans.

7. *Move light pole LP1 closer to building, away from the stormwater main, and out of DOT right of way.*

This will get moved back onto the property.

8. *Move light pole 2 closer to parking lot entrance and Route 1 Bypass.*

This will be moved up to be closer to the entrance.

9. *Add a light pole to west entrance of parking lot out of DOT right of way.*

This will be added to the lighting plan.

10. Drain manholes must have inverts.

This will be added to the plans.

11. Please include in stormwater management operations and maintenance manual that an annual report will be submitted to the City of Portsmouth Department of Public Works.

That has been updated and uploaded.

12. The plans show landscaping in the DOT roadway, please provide permission or documentation from DOT for work to be completed.

They met with NHDOT yesterday and NHDOT asked for the island in the ROW to be concrete.

13. Site plan amendment needed for 806 Rt 1 bypass property to show new drain line.

This will be amended and recorded before it expires in June.

14. Utility plans need to be updated to show utilities in pavement area of Burkitt St.

This has been updated.

[9:55] D. Desfosses noted that there are multiple offsite properties that have connected drainage to this lot and easements or something similar needs to be memorialized. Mr. Ross mentioned that they had initially talked about these issues and were planning to have a drainage easement, an easement to allow drivers to pass through Burkitt on the property, and for the existing City drain and sewer infrastructure. They will talk more with staff about potential hookup fees.

[11:55] E. Eby mentioned that the snow storage area shows plantings in the same space and that the applicants should ensure that the plantings can handle snow being piled on them.

[12:21] S. Casella asked if an easement plan would be needed to which D. Desfosses responded that it would be.

A discussion continued about NHDOT's wishes for the islands and driveway.

PUBLIC HEARING

[13:45] Chairman Stith opened the public hearing. No one spoke. The hearing was closed.

DISCUSSION AND DECISION OF THE BOARD

[14:18] E. Eby asked how Light Pole #1 would be moved. Mr. Ross responded that it would be moved into the parking area where they currently have room to place it.

[15:158] P. Britz mentioned that the easement plan will have to be reviewed before the Planning Board meeting.

[14:04] D. Desfosses noted that Eversource was still having issues trying to figure out how to power the proposed building, but staff could work with them on that issue with the design. He made a motion to recommend approval of the application to the Planning Board with the following stipulations:

1. *All permanent drainage to be installed will need drainage easements from the lots connected.*
2. *Meet with DPW to determine hookup fees.*
3. *Provide an easement plan.*
4. *Proposed utilities must be installed in Burkitt Street, not in grass strip.*
5. *Change 6" fire service into a 6" main with flushing hydrant at the end. Connect fire services and domestic services to the new 6" main. Connect 2" service for adjacent property to the 6" main, cut and cap all old services for both properties as necessary at water main on Dennett.*
6. *Need for third party oversight of work in City right of way to be determined by Department of Public Works.*
7. *Burkitt Street shall be milled & overlaid after the conclusion of utility work.*
8. *Dumpsters must be moved 10' further toward the back of building for sight distance. No manholes shall be covered by the dumpsters.*
9. *Outline of the roof overhanging the front sidewalk must be shown on plans.*
10. *The light pole, LP1, shall be moved closer to the building, away from the stormwater main, and out of DOT right of way.*
11. *The light pole 2 must be moved closer to the parking lot entrance and the Route 1 Bypass.*
12. *A light pole shall be added to the west entrance of the parking lot out of the NHDOT right of way.*
13. *All drain manholes must have inverts.*

14. *The Stormwater Management Operations and Maintenance Manual shall include language detailing that an annual report on maintenance operations shall be submitted to the City of Portsmouth Department of Public Works.*
15. *Please provide documentation from NHDOT for work to be completed in the NHDOT right of way.*
16. *Site plan amendment needed for 806 Rt 1 bypass property to show new drain line.*
17. *Utility plans need to be updated to show utilities in pavement area of Burkitt St.*

[16:57] Z. Cronin seconded the motion. The motion passed unanimously.

III. NEW BUSINESS

- A.** The request of **ZJBV Properties LLC (Owner)**, For property located at **180 Islington Street** requesting a Conditional Use Permit in accordance with Section 10.1112.14 of the Zoning Ordinance to provide 0 parking spaces where 9 are required. Said property is located on Assessor Map 137 Lot 19 and lies within the Character District 4-L2 (CD4-L2) and Historic district. (LU-24-27)

[17:22] Chairman Stith introduced this application.

SPEAKING TO THE APPLICATION

[17:55] Chris Mulligan of Bosen and Associates came to present this application along with Zeke Blumenfeld, the potential occupant, and Eric Weinrieb of Altus Engineering. Mr. Mulligan stated that they are trying to get approval to use the space as a retail establishment for 1100 s.f. for the sale of antiques. The building on this property was originally built in 1840 and tax records and building records show a history of mainly residential uses with a recent history of commercial use. There is currently an apartment on the second floor and a tattoo parlor on the first floor. According to parking requirements, this project needs nine parking spaces, Mr. Weinrieb provided a parking analysis to demonstrate that this need is already met.

Mr. Mulligan proceeded to address staff comments.

1. *Existing sewer lateral is likely collapsed based on the depression in the parking area. Video inspection of the line will be necessary to confirm it is ok as is. Replace sewer lateral if necessary.*

This is not relevant to the CUP but they do note that it is a concern that the owner has been made aware of.

2. *Updated use may require a handicapped parking space.*

They feel as though they are not required to provide this, there is currently no handicap access to the building.

3. *Parking may not block the sidewalk. This condition is to run with the approval.*

They agree with this, there is currently no clear delineation between the sidewalk and the street.

4. *Final CUP request should be for 3 existing non-conforming spaces where 9 conforming spaces are required.*

They do not agree. They will submit for zero spaces so that they do not need any variances.

5. *Plans need to be updated to show designated parking areas, dimensions, and vehicle designations.*

This can be updated by Altus in their demand analysis.

[27:22] S. Wolph asked if they would remove all vehicle-size parking spaces with this application and how the resident upstairs would park. Mr. Mulligan responded that there currently existed no parking spaces. S. Wolph noted that the tenants of this building would have to park offsite and that just because it is historical, does not mean that it does not need to comply with ADA entrances. As renovations and reconfigurations happen to older buildings, those projects are held to certain ADA standards which need to be met, especially within the interior of the space. If they can include an accessible parking stall, that would be ideal. A discussion continued with the applicants, E. Eby, S. Wolph and P. Britz about the potential for accessible spaces that may not be necessarily fully compliant and what the applicants could ask the Planning Board for in terms of number of parking spaces.

PUBLIC HEARING

[37:29] Chairman Stith opened the public hearing. No one spoke. The hearing was closed.

DISCUSSION AND DECISION OF THE BOARD

[37:56] Chairman Stith noted that the main question to figure out is whether or not a handicap space is required.

[38:17] P. Britz noted that the Planning Board needs TAC to review it and proposed a motion to have the application move forward for the Board's review, stating that the Committee will support only two or zero spaces. The motion was made with the following conditions for approval:

1. *Applicant shall submit an updated parking demand analysis that must include current and proposed dimensions of parking area on site and vehicle designations.*

2. *Proposed plans shall not have any parking blocking the sidewalk.*
3. *Front area should be striped for scooter and motorcycle parking.*

[38:57] Z. Cronin seconded the motion. The motion passed unanimously.

- B.** The request of **635 Sagamore Development LLC (Owner)**, For property located at **635 Sagamore Avenue** requesting Site Plan approval for the removal of the existing structures and construction of 4 single-family dwellings on one lot with associated site improvements. Said property is located on Assessor Map 222 Lot 19 and lies within the Single Residence A (SRA) District. (LU-24-34)

[39:43] Chairman Stith introduced this application.

SPEAKING TO THE APPLICATION

[40:49] Joe Coronati of Jones and Beach Engineering and Michael Garrepy (developer) came to present this application. They mentioned that they had previously come before TAC for this project and after feedback, made changes to the driveway, curb cuts, sight distances, etc. and had met with staff. This new proposal has the driveway on the northern side of the parcel but still proposed the same four-unit development for a condo association with a private driveway and associated turnaround. The current plans include propane tanks as the existing natural gas lines in the area would need to be moved up the road to be able to move it into this site. If gas lines were to enter the site, the best location for the applicants would be under the sidewalk that runs from Tidewatch to the current site and behind a utility pole so that it does not need to cross the street. If that is not achievable, they will stick with the proposed propane tanks. Additionally, they need help deciding where to place the water main lines if it can be tapped in the proposed driveway. Z. Cronin noted that the Sagamore project with Severino in that area will require them to tap into the main within the right of way prior to City work being started in that area.

[47:24] P. Howe asked if there were any plans for sprinkler lines. Mr. Coronati responded that they had not planned to install a sprinkler system and instead opted for a fire truck turnaround. P. Howe noted that the current turnaround did not appear to be compliant with the current 2018 IFC regulations and would need to be designed as compliant or a sprinkler system would need to be installed. Mr. Coronati stated that they would have this decision before the next TAC meeting.

[50:05] Mr. Coronati acknowledged the staff comments and how most comments revolved around drainage. He began to address these comments by starting with addressing the soil type, which is hydrologic soil group B according to their soil scientist, which they can increase to a C-type soil, but they believe a B-soil is a more conservative design. There is currently a variation of soils on this site including ledge and sand. They agreed to combine the hydrographs and they could change the outfall for bioretention pond #1 as requested. Additionally, the applicant has reached out and met with members of the Tidewatch community to discuss potential issues and they will continue to work with them. A third-party review of the stormwater analysis will be performed at the request and the hiring of the Tidewatch community.

[55:27] Mr. Coronati asked if working with the third party engineer that Tidewatch hired would be considered a third party for the City as well. P. Britz responded that the City would want their own contract to come up with a third-party engineer.

[56:07] Mr. Coronati proceeded to address the stormwater analysis generated for the application and the staff comments related to stormwater and the landscaping proposed.

[1:00:07] Mr. Coronati asked if the City would be signing condominium site plans. P. Britz responded that they need to see the plans to review the limited common area and the overall layout so that it does not create an illegal subdivision.

[1:00:51] S. Wolph asked the applicants if they anticipate needing to blast the site. Mr. Coronati responded yes, there is ledge all over the property. A discussion continued about blasting vs. hammering.

[1:02:35] Z. Cronin asked if the applicants had been in touch with the Tidewatch community about a possible culvert to prevent directing water straight into their sidewalk. Mr. Garrepy responded that they had discussed drainage and plan to leave it up to the engineers, especially the third-party engineer hired by Tidewatch, to help them find a solution. He continued to discuss the stormwater and that a portion of the stormwater will be directed towards the back of the lot into Tidewatch. Additionally, a sidewalk is proposed at the front of the property, and it needs review and approval by DPW, especially with the newly relocated driveway.

[1:07:24] P. Britz noted that the applicants mentioned using gas or propane on site and he suggested they use neither and instead consider more sustainable technologies such as air-source heat pumps.

PUBLIC HEARING

[1:08:04] Chairman Stith opened the public hearing.

[1:08:32] Tim McNamara, an abutter residing at 579 Sagamore Avenue (Tidewatch). Mr. McNamara noted concerns about the size of the proposed project and the associated risks such as drainage, wetland health, and flooded basements in neighboring Tidewatch homes. He wanted to know who would maintain and address the stormwater manual, he expressed concerns for traffic and sight lines, and the existing tree cut lines which could be at risk with new development. Additionally, he felt that the truck turning plan was a failure because a landscaping truck with a trailer would not be able to maneuver within its bounds. Lastly, he noted that the Board of Adjustment did not approve of walk out basements and the proposed units appear larger than what was approved.

[1:16:33] Mary Pontrello, owner at 579 Sagamore Unit 5, came to express her concern. Ms. Pontrello raised issue with the current existing and expensive drainage issues within this neighborhood and her own association, Tidewatch. Ms. Pontrello wanted to know whether or not the applicants had done ledge borings to understand how deep the proposed buildings can go.

She noted that the topsoil above the ledge currently allows for sheet flow stormwater and create sheets of ice in the winter. She noted that she does not support the current drainage plans and has concerns about ledge blasting and the drainage ditch currently in Tidewatch. She believes the applicants should return to the Board of Adjustment due to a perceived flawed comparison of buildings and units between Tidewatch.

[1:23:55] Jerry Stowe, owner of 579 Sagamore Avenue Unit 22, came to express his concerns about the proposed drainage into Tidewatch and traffic sight lines. He also thought they could lower the grade of the hill and/or possibly lower the speed limit of Sagamore Avenue. He disagreed with the Board of Adjustment decision to deny a rehearing.

[1:26:30] Suzan Harding, owner of 594 Sagamore, came to speak to her concerns about traffic, drainage and blasting. In particular, she is concerned about leaving her own personal driveway with the traffic increase on Sagamore, and she is concerned for the physical and mental well-being of her neighbors if they must endure blasting.

[1:28:56] Linda Brown, owner of 650 and 698 Sagamore Avenue, came to express her concerns about traffic, cyclists on Sagamore Avenue, and pedestrian safety.

[1:31:29] Jean Roalsvig, owner of 579 Sagamore Avenue Unit 94, came to express her concerns. She listed concerns about drainage, impacts from climate change, such as increased precipitation, pedestrian safety and the removal of trees which would reduce the amount of moisture absorbed in the soil in the area.

[1:32:55] Peter Wissel, owner of 579 Sagamore Avenue Unit 75, expressed concern for the proposed fire truck turnaround plan and mentioned that if parking is allowed in the proposed private driveway, that could impact sight lines and driveway safety.

[1:38:34] Rod Burdette, owner of 579 Sagamore Avenue Unit 46, expressed his concern for the proposed basements, the need for blasting and drilling, and he advocated for a more in-depth assessment of ledge on the site.

[1:39:40] Chairman Stith closed the public hearing.

DISCUSSION AND DECISION OF THE BOARD

[1:39:59] Chairman Stith clarified that the Zoning Board of Adjustment approval was conditioned that the design and location of the dwellings may change as a result of this process. P. Britz also clarified that the Tidewatch development was a Planned Unit Development (PUD) which is a different type of development compared to what is being proposed as a condo association. When they went to the Board of Adjustment for relief they received relief from specific zoning requirements in that zone.

[1:41:06] P. Britz followed up with a comment that in addition to having a third-party engineer, the City would also like to hire a third-party wetland scientist to review the wetland delineations

[1:41:31] P. Howe noted that if the buildings do not have fire suppression systems, a 20' wide fire department access road would require signage for no parking on either side. He has noticed in areas similar that over time, these areas turn into parking spaces and the community has no idea that they are for emergency access, so signage is needed. Mr. Coronati mentioned that they do have a no parking sign at the turnaround, and they will investigate widening the driveway and will add signage to the fire lane. P. Howe noted that all these regulations will be in the IFC to reference.

[1:43:00] Mr. Garrepy noted that in the packet there was a memo from their traffic engineer that looks at trips per day and has a traffic analysis. They feel good about the proposed location of the driveway and their traffic engineer hypothesized that the trips per day will be less than the current trips due to the proposed change to residential from commercial. E. Eby added that the speed data provided within this analysis shows consistency with the data that the City has been collecting in this area. He feels confident in the provided analysis but notes that it still does not meet minimum sight distance requirements, but it also needs to be tied into the final City designs to get a better determination.

[1:45:38] P. Britz made a motion to postpone this application until next month's meeting. Z. Cronin seconded the motion. The motion passed unanimously.

- C.** The request of **15 Middle Street Real Estate Holding CO LLC (Owner)**, For property located at **15 Middle Street** requesting Site Plan approval for the addition of 3 residential units in an existing commercial building. Said property is located on Assessor Map 126 Lot 12 and lies within the Character District 4 (CD4), Downtown Overlay, and Historic Districts. (LU-24-35)

[1:47:05] Chairman Stith introduced this application.

SPEAKING TO THE APPLICATION

[] Alex Ross of Ross Engineering and Derek Durbin of Durbin Law Offices came to present this application. Mr. Ross immediately address the staff comments as follows:

1. *Please provide information about sustainable practices on the interior of the building.*

This has now been submitted from the architect that lists all the sustainable practices inside the building.

2. *Please provide the development agreement (from J. Walker) for planning board application.*

This will be included in the application to the Planning Board.

3. *Please provide waiver requests for site review agreement and associated surety.*

Those have been submitted.

[1:49:23] P. Howe asked for clarification on how the lack of parking and impacts to traffic had been handled. Mr. Ross responded that they had originally done a traffic study to include offsite parking and have a valet service, but the plans had since changed and now no parking is required due to the current configuration and number of residential units. P. Stith stated that they do require parking but as they are in the Downtown Overlay District, they receive a 4-space credit and with three units, they would need 3.9 spaces or four, rounded up, which is covered by their credit.

PUBLIC HEARING

[1:52:17] Chairman Stith opened the public hearing. No one spoke. The public hearing was closed.

DISCUSSION AND DECISION OF THE BOARD

[1:52:28] D. Desfosses made a motion to move the application onto the Planning Board with the following conditions:

1. *Information on sustainable/green practices used for interior construction will be provided.*
2. *The development agreement from Juliet Walker will be provided.*
3. *Waiver requests for site review agreement and associated surety will be provided.*

P. Britz seconded the motion. The motion passed unanimously.

IV. ADJOURNMENT

The meeting adjourned at 3:53 p.m.

Respectfully submitted,

Kate E. Homet
Secretary for the Technical Advisory Committee

JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

April 22, 2024

Portsmouth Technical Review Advisory Committee
Attn: Board Members
1 Junkins Avenue, Suite 3rd Floor
Portsmouth, NH 03801

**RE: Site Plan Application
Friends of Lafayette House
413 Lafayette Road, Portsmouth, NH
Tax Map 230, Lot 23A
JBE Project No. 23036**

Dear Board Members,

Jones & Beach Engineers, Inc., respectfully submits a Site Plan Application on behalf of the applicant and owner, Friends of Lafayette House. This structure houses 12 developmentally disabled residents with full-time inhouse care. The intent of this application is to add a 635 S.F. addition to the existing building for the use of the full-time caretaker onsite. This building was constructed in 1983 and the City Staff have looked for a previous site plan on file. No site plans were found, so we are applying for a site plan even though typically this would be an amended site plan.

Currently the caretaker has a unit inside the building and works 5 days a week all day. On weekends, they have a secondary caretaker that comes in and covers the weekend workload, but they must live with the full-time caretaker in the same unit. It is tight quarters, and they share a bathroom and kitchen and it's not an ideal living situation. The proposed addition is to give the full-time caretaker their own unit and then the weekend caretaker would use the existing space just on the weekends. There is no increase in staffing or residency proposed with this expansion.

There are no proposed changes to the utilities outside of the building. The addition will be plumbed internally from the existing building. There are no changes proposed for the parking area and there is a minimal increase in impervious coverage. We are removing the existing sheds on the property. Therefore, we would prefer not to provide a full drainage report for these small changes to the site. We are also not proposing any additional landscaping and the lighting modifications will be minimal. The owner would just have a small light above the doorway providing access to the caretaker unit.


We attended a pre-TAC meeting to discuss the level of detail needed for this minor building addition. From that discussion, we did reach out to TMD Utility Locating company and had them go to the site to determine the utility locations. We have added that information to the plans today. For other typical submission requirements, we are requesting waivers due to the small nature of the addition.

The following items are provided in support of this Application:

1. Completed Site Plan Application (submitted online).
2. Site Plan Checklist.
3. Waiver Request Letter
4. Letter of Authorization.
5. Current Deed.
6. One (1) Full Size Plan Set Folded.
7. One (1) Full Size set of architectural drawings

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.



Joseph A. Coronati
Vice President

cc: Melanie Merz, Friends of Lafayette House (via email)
John Bosen, Esq (via email)
Chris Mulligan, Esq (via email)

JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

April 22, 2024

Portsmouth Technical Review Advisory Committee
Attn: Board Members
1 Junkins Avenue, Suite 3rd Floor
Portsmouth, NH 03801

**RE: Waiver Request
Friends of Lafayette House
413 Lafayette Road, Portsmouth, NH
Tax Map 230, Lot 23A
JBE Project No. 23036**

Dear Board Members,

Jones & Beach Engineers, Inc. respectfully submits a Waiver Request for the above-referenced parcel on behalf of our client & owner, Friends of Lafayette House. Jones & Beach respectfully requests a waiver for the following Articles and sub-articles of the Site Plan Regulations.

Article 3 – Vehicular Circulation Standards and all sub articles.

Reasoning: There is no change to the number of residents or employees and no change to the traffic pattern or parking spaces that exist today.

Article 6 – Landscaping and Screening Standards and sub articles.

Reasoning: We are not proposing to add any additional landscaping to the site at this time. There is minimal amount of landscaping being removed.

Article 7 – Water Resources Standards and sub articles.

Reasoning: The proposed addition is 635 square feet and we are removing some old sheds and have a net increase in impervious area of 596 square feet on a 33,096 square foot lot, which is a 1.8% increase on the lot. We feel that this is such a minor increase that it does not warrant a stormwater study nor require erosion control design. The addition will have utilities provided from the existing building, so there is no trenching or sitework needed elsewhere on the property.

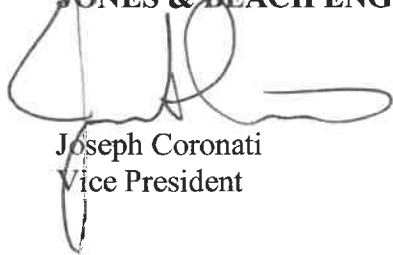
Article 10 – Outdoor Lighting and sub articles.

Reasoning: We are proposing any additional lighting other than small residential light at the new entrance door into the caretaker unit that is controlled by light switch within the unit.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,

JONES & BEACH ENGINEERS, INC.

A handwritten signature in black ink, appearing to read 'JC', with a long horizontal flourish extending to the right.

Joseph Coronati
Vice President



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: Friends of Lafayette House Date Submitted: April 22, 2024

Application # (in City's online permitting): _____

Site Address: 413 Lafayette Road Map: 230 Lot: 23A

Application Requirements			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Complete <u>application</u> form submitted via the City's web-based permitting program (2.5.2.1(2.5.2.3A))		N/A
<input checked="" type="checkbox"/>	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)		N/A

Site Plan Review Application Required Information			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Statement that lists and describes "green" building components and systems. (2.5.3.1B)		
<input checked="" type="checkbox"/>	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)		N/A
<input checked="" type="checkbox"/>	Tax map and lot number, and current zoning of all parcels under Site Plan Review. (2.5.3.1D)		N/A

Site Plan Review Application Required Information

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. (2.5.3.1E)		N/A
<input checked="" type="checkbox"/>	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)		N/A
<input checked="" type="checkbox"/>	Names, addresses and telephone numbers of all professionals involved in the site plan design. (2.5.3.1G)		N/A
<input checked="" type="checkbox"/>	List of reference plans. (2.5.3.1H)		N/A
<input type="checkbox"/>	List of names and contact information of all public or private utilities servicing the site. (2.5.3.1I)		N/A

Site Plan Specifications

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. (2.5.4.1C)		N/A
<input checked="" type="checkbox"/>	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
<input type="checkbox"/>	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. (2.5.4.1E)		N/A
<input checked="" type="checkbox"/>	Title (name of development project), north point, scale, legend. (2.5.4.2A)		N/A
<input checked="" type="checkbox"/>	Date plans first submitted, date and explanation of revisions. (2.5.4.2B)		N/A
<input checked="" type="checkbox"/>	Individual plan sheet title that clearly describes the information that is displayed. (2.5.4.2C)	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Source and date of data displayed on the plan. (2.5.4.2D)		N/A

Site Plan Specifications – Required Exhibits and Data

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	1. Existing Conditions: (2.5.4.3A) <ul style="list-style-type: none"> • 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. 	C1	
<input checked="" type="checkbox"/>	2. Buildings and Structures: (2.5.4.3B) <ul style="list-style-type: none"> • 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. 	C1 & C2	
<input type="checkbox"/>	3. Access and Circulation: (2.5.4.3C) <ul style="list-style-type: none"> • 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). 		Waiver
<input checked="" type="checkbox"/>	4. Parking and Loading: (2.5.4.3D) <ul style="list-style-type: none"> • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided). 	C2	
<input checked="" type="checkbox"/>	5. Water Infrastructure: (2.5.4.3E) <ul style="list-style-type: none"> • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii). 	C1	
<input checked="" type="checkbox"/>	6. Sewer Infrastructure: (2.5.4.3F) <ul style="list-style-type: none"> • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period. 	C1	

<input checked="" type="checkbox"/>	7. Utilities: (2.5.4.3G) <ul style="list-style-type: none"> The size, type and location of all above & below ground utilities; Size type and location of generator pads, transformers and other fixtures. 	C1	
<input checked="" type="checkbox"/>	8. Solid Waste Facilities: (2.5.4.3H) <ul style="list-style-type: none"> The size, type and location of solid waste facilities. 	C1	
<input type="checkbox"/>	9. Storm water Management: (2.5.4.3I) <ul style="list-style-type: none"> 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. 		Waiver
<input type="checkbox"/>	10. Outdoor Lighting: (2.5.4.3J) <ul style="list-style-type: none"> Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan. 		Waiver
<input type="checkbox"/>	11. Indicate where dark sky friendly lighting measures have been implemented. (10.1)		Waiver
<input type="checkbox"/>	12. Landscaping: (2.5.4.3K) <ul style="list-style-type: none"> Identify all undisturbed area, existing vegetation and that which is to be retained; Location of any irrigation system and water source. 		Waiver
<input checked="" type="checkbox"/>	13. Contours and Elevation: (2.5.4.3L) <ul style="list-style-type: none"> Existing/Proposed contours (2 foot minimum) and finished grade elevations. 	C1	
<input checked="" type="checkbox"/>	14. Open Space: (2.5.4.3M) <ul style="list-style-type: none"> Type, extent and location of all existing/proposed open space. 	C2, Note 4	
<input checked="" type="checkbox"/>	15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)	C1, Notes	
<input checked="" type="checkbox"/>	16. Character/Civic District (All following information shall be included): (2.5.4.3P) <ul style="list-style-type: none"> 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). 	Architect Plans	
<input checked="" type="checkbox"/>	17. Special Flood Hazard Areas (2.5.4.3Q) <ul style="list-style-type: none"> 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. 	C1, Note 3	

Other Required Information

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input type="checkbox"/>	Traffic Impact Study or Trip Generation Report, as required. (3.2.1-2)		N/A
<input type="checkbox"/>	Indicate where Low Impact Development Design practices have been incorporated. (7.1)		Waiver
<input checked="" type="checkbox"/>	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)		
<input type="checkbox"/>	Stormwater Management and Erosion Control Plan. (7.4)		Waiver
<input type="checkbox"/>	Inspection and Maintenance Plan (7.6.5)		

Final Site Plan Approval Required Information

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	All local approvals, permits, easements and licenses required, including but not limited to: <ul style="list-style-type: none"> • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. (2.5.3.2A)		
<input type="checkbox"/>	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: <ul style="list-style-type: none"> • 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)		Waiver
<input type="checkbox"/>	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)		N/A

Final Site Plan Approval Required Information

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input type="checkbox"/>	A list of any required state and federal permit applications required for the project and the status of same. (2.5.3.2E)		N/A
<input type="checkbox"/>	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)		N/A
<input type="checkbox"/>	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
<input type="checkbox"/>	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)		N/A

Applicant's Signature: _____



Date: _____

4/19/24

Letter of Authorization

Friends of Lafayette House, 400 Little Harbor Road, Suite 1104, Portsmouth, NH 03801, owner of property located in Portsmouth, NH, known as Tax Map 230, Lot 23A, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, and Bosen & Associates, 266 Middle Street, Portsmouth, NH 03801, to act on my behalf concerning the previously mentioned property. The parcel is located at 413 Lafayette Road in Portsmouth, NH.

We hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

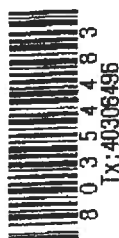
Witness

Melanie May

Friends of Lafayette House

12/20/23

Date



Ganz Law Office

Box 62

LCHIP	ROA474216	25.00
TRANSFER TAX	RO093549	2,884.00
RECORDING		14.00
SURCHARGE		2.00

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS that **Community Home Solutions, Inc.**, a New Hampshire corporation, of 14 New Zealand Road, Seabrook, New Hampshire 03874, for consideration paid, grant to **Friends of Lafayette House**, a New Hampshire non-profit corporation, with a mailing address of PO Box 4545, Portsmouth, New Hampshire 03802, with warranty covenants, the following:

A certain parcel of land, together with the buildings and improvements thereon, situate in Portsmouth, County of Rockingham and State of New Hampshire, identified as Lot 2 on subdivision plan entitled "Plan of Land of J. Philip McCaffery for Great Bay School and Training Center, by Richard P. Millette & Associates", dated December 1981, with Revision I dated January 7, 1982, and recorded in the Rockingham County Registry of Deeds as Plan No. D- 10590 (the "Premises"), as more particularly bounded and described as follows:

Beginning at a point which is 155 feet distant from the Southwest corner of land now or formerly of Lester A. and Priscilla M. Pettis, on a bearing S 79° 23' 39" E from Lafayette Road and from said point of beginning, and being at the Southerly side of Lot 3 on aforesaid plan; thence running S 79° 23' 39" E a distance of 154.32 feet to a point at land now or formerly of Church of Jesus Christ of Latter Day Saints; thence running South by said Church land S 22° 05' 21" W a distance of 179.22 feet to land now or formerly of the City of Portsmouth; thence running S 88° 21' 21"W a distance of 183.14 feet to Lot 1 on said Plan; thence running N 21° 15' 21" E a distance of 187.72 feet to a point at a right of way in common of fifty (50) feet in width; thence running S 79° 23' 39" E a distance of twenty (20) feet to a point; thence running N 21° 15' 21" E, a distance of 30.53 feet to the point of beginning.

There is granted herewith a fifty (50) foot easement right of way as shown on said Plan, extending from Lot 2 to Lafayette Road. This right of way shall run with the land, for all purposes of vehicular and pedestrian passage, for the benefit of Lot 1, Lot 2 and Lot 3 on said Plan, and also for the benefit of land abutting this right of way to the North, now or formerly owned by Lester A. Pettis and Priscilla M. Pettis.

Premises are conveyed subject to the terms of an Option Agreement, a Notice of which is recorded in Rockingham County Registry of Deeds at Book 5879, Page 1258.

Said conveyance is subject to the mortgage to the Newburyport Five Cents Savings Bank dated December 14, 2017 and recorded at Book 5879, Page 120, the Assignment of Rents to the Newburyport Five Cents Savings Bank dated December 14, 2017 and recorded at Book 5879, Page 1247 and a UCC-1 Financing Statement dated December 14, 2017 and recorded at Book 5888, Page 630.

The grantee herein has assumed the financial obligations to Newburyport Five Cents Savings Bank.

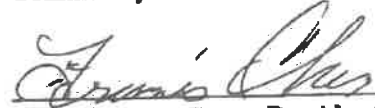
Subject to all rights, restrictions and easements of record.

This is not homestead property of Grantor.

Meaning and intending to describe the same premises conveyed to Grantor by deed of Great Bay Services, Inc. dated December 14, 2017 and recorded in the Rockingham County Registry of Deeds at Book 5879, Page 1225.

Executed this 10th day of December, 2019.

Community Home Solutions, Inc.



By Francis G. Chase, President

Witness

**STATE OF NEW HAMPSHIRE
ROCKINGHAM, SS.**

December 10, 2019

Then appeared the above-named **Francis G. Chase**, duly authorized **President of Community Home Solutions, Inc.**, known to me or satisfactorily proven through proof of identification (i.e. his driver's license) to be the individual who executed the foregoing instrument, and acknowledged same to be his voluntary act and deed.

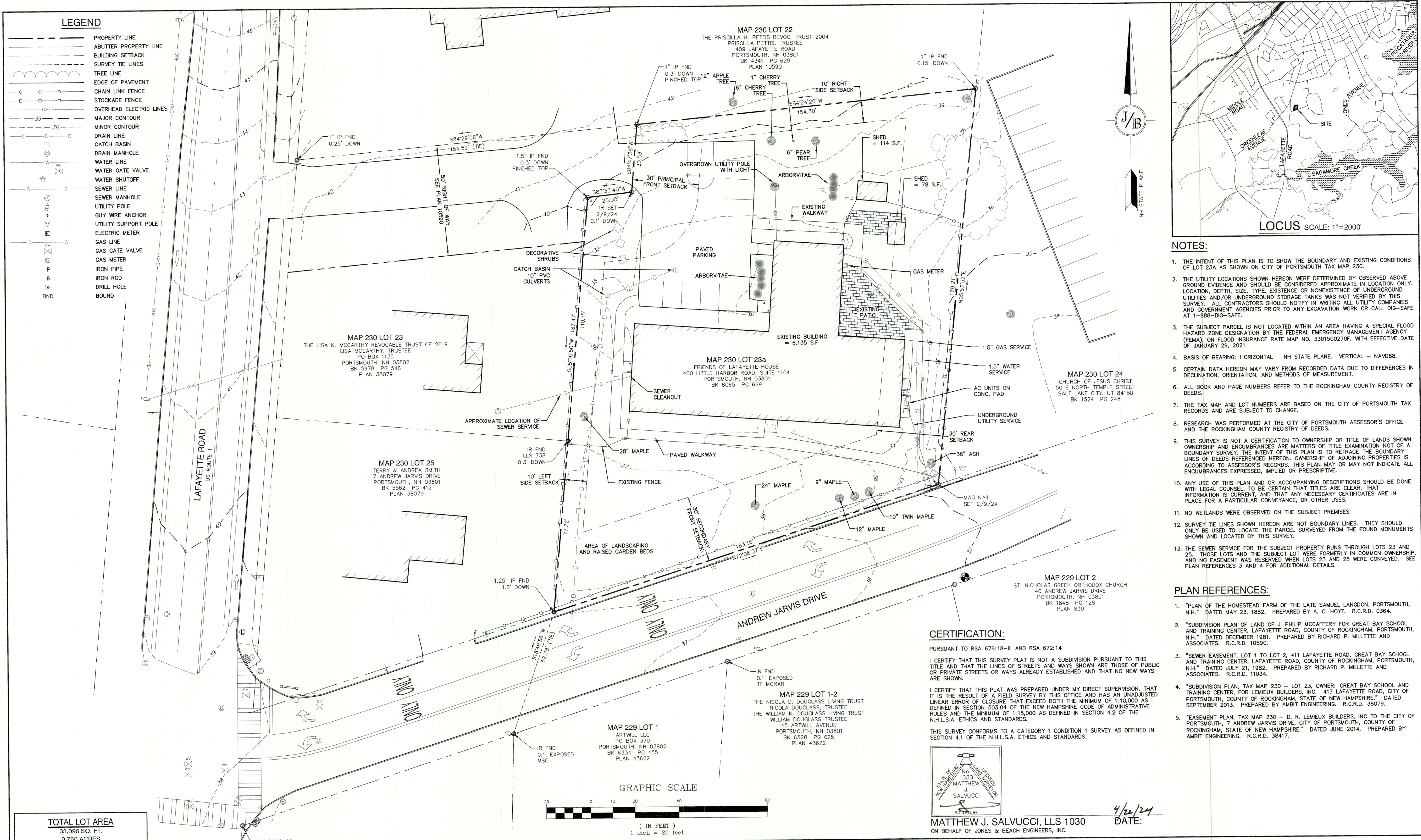
Before me,

**Mary Keohan Ganz, Justice of the Peace
State of New Hampshire
My Commission Expires: August 28, 2024**



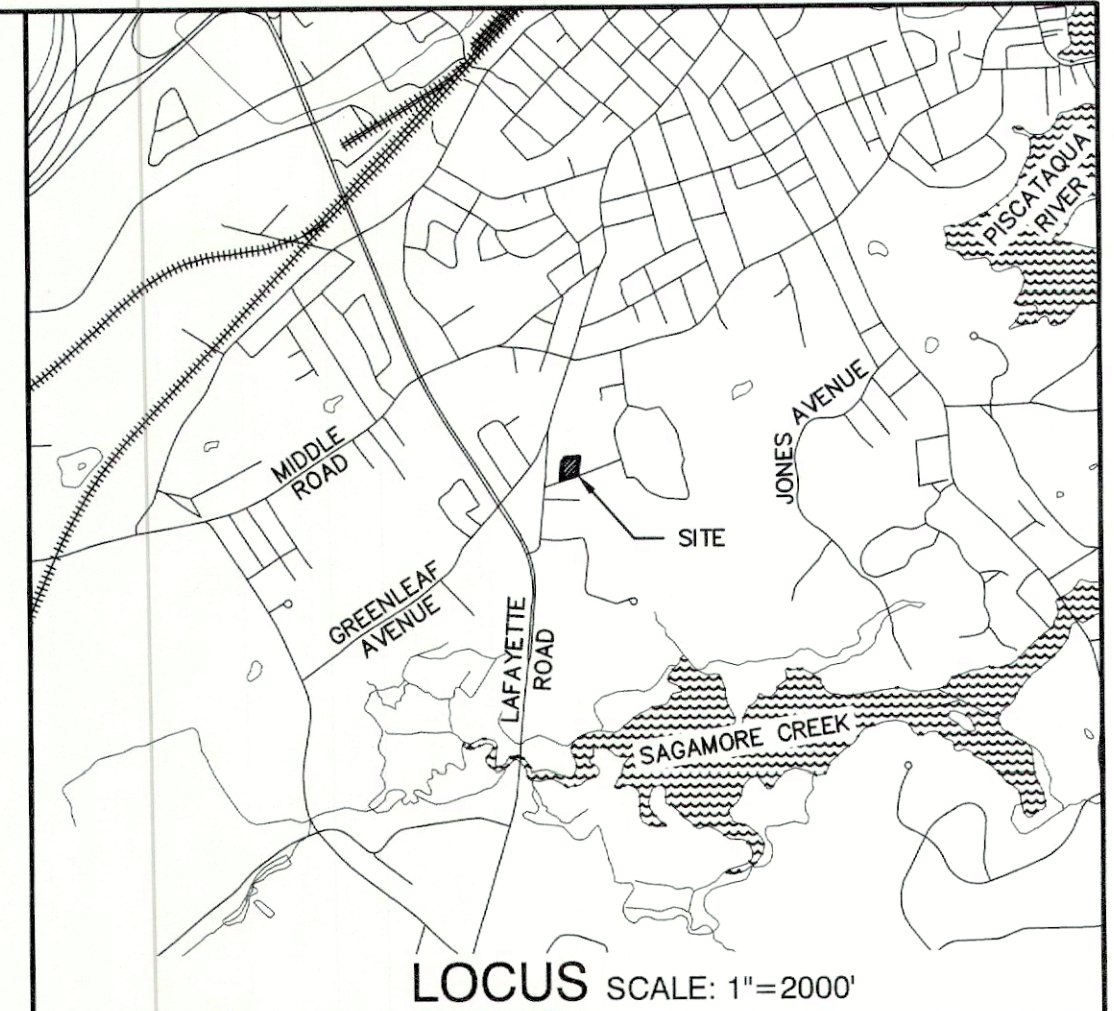
**Mary Keohan Ganz - Justice of the Peace
My Commission Expires: 08/28/2024**

#8784-A/BF



LEGEND

---	PROPERTY LINE
---	ABUTTER PROPERTY LINE
---	BUILDING SETBACK
---	SURVEY TIE LINES
---	TREE LINE
---	EDGE OF PAVEMENT
---	CHAIN LINK FENCE
---	STOCKADE FENCE
---	OVERHEAD ELECTRIC LINES
---	MAJOR CONTOUR
---	MINOR CONTOUR
---	DRAIN LINE
---	CATCH BASIN
---	DRAIN MANHOLE
---	WATER LINE
---	WATER GATE VALVE
---	WATER SHUTOFF
---	SEWER LINE
---	SEWER MANHOLE
---	UTILITY POLE
---	GUY WIRE ANCHOR
---	UTILITY SUPPORT POLE
---	ELECTRIC METER
---	GAS LINE
---	GAS GATE VALVE
---	GAS METER
---	IRON PIPE
---	IRON ROD
---	DRILL HOLE
---	BOUND



- NOTES:**
- THE INTENT OF THIS PLAN IS TO SHOW THE BOUNDARY AND EXISTING CONDITIONS OF LOT 23a AS SHOWN ON CITY OF PORTSMOUTH TAX MAP 230.
 - THE UTILITY LOCATIONS SHOWN HEREON WERE DETERMINED BY OBSERVED ABOVE GROUND EVIDENCE AND SHOULD BE CONSIDERED APPROXIMATE IN LOCATION ONLY. LOCATION, DEPTH, SIZE, TYPE, EXISTENCE OR NONEXISTENCE OF UNDERGROUND UTILITIES AND/OR UNDERGROUND STORAGE TANKS WAS NOT VERIFIED BY THIS SURVEY. ALL CONTRACTORS SHOULD NOTIFY WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO ANY EXCAVATION WORK OR CALL DIG-SAFE AT 1-888-DIG-SAFE.
 - THE SUBJECT PARCEL IS NOT LOCATED WITHIN AN AREA HAVING A SPECIAL FLOOD HAZARD ZONE DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0270F, WITH EFFECTIVE DATE OF JANUARY 29, 2021.
 - BASIS OF BEARING: HORIZONTAL - NH STATE PLANE. VERTICAL - NAVD88.
 - CERTAIN DATA HEREON MAY VARY FROM RECORDED DATA DUE TO DIFFERENCES IN DECLINATION, ORIENTATION, AND METHODS OF MEASUREMENT.
 - ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
 - THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
 - RESEARCH WAS PERFORMED AT THE CITY OF PORTSMOUTH ASSESSOR'S OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
 - THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESCRIPTIVE.
 - ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.
 - NO WETLANDS WERE OBSERVED ON THE SUBJECT PREMISES.
 - SURVEY TIE LINES SHOWN HEREON ARE NOT BOUNDARY LINES. THEY SHOULD ONLY BE USED TO LOCATE THE PARCEL SURVEYED FROM THE FOUND MONUMENTS SHOWN AND LOCATED BY THIS SURVEY.
 - THE SEWER SERVICE FOR THE SUBJECT PROPERTY RUNS THROUGH LOTS 23 AND 25. THOSE LOTS AND THE SUBJECT LOT WERE FORMERLY IN COMMON OWNERSHIP, AND NO EASEMENT WAS RESERVED WHEN LOTS 23 AND 25 WERE CONVEYED. SEE PLAN REFERENCES 3 AND 4 FOR ADDITIONAL DETAILS.

- PLAN REFERENCES:**
- "PLAN OF THE HOMESTEAD FARM OF THE LATE SAMUEL LANGDON, PORTSMOUTH, N.H." DATED MAY 23, 1882. PREPARED BY A. C. HOYT. R.C.R.D. 0364.
 - "SUBDIVISION PLAN OF LAND OF J. PHILIP MCCAFFERY FOR GREAT BAY SCHOOL AND TRAINING CENTER, LAFAYETTE ROAD, COUNTY OF ROCKINGHAM, PORTSMOUTH, N.H." DATED DECEMBER 1981. PREPARED BY RICHARD P. MILLETTE AND ASSOCIATES. R.C.R.D. 10590.
 - "SEWER EASEMENT, LOT 1 TO LOT 2, 411 LAFAYETTE ROAD, GREAT BAY SCHOOL AND TRAINING CENTER, FOR LEMIEUX BUILDERS, INC., 417 LAFAYETTE ROAD, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE," DATED SEPTEMBER 2013. PREPARED BY AMBIT ENGINEERING. R.C.R.D. 38079.
 - "EASEMENT PLAN, TAX MAP 230 - D. R. LEMIEUX BUILDERS, INC TO THE CITY OF PORTSMOUTH, 7 ANDREW JARVIS DRIVE, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE," DATED JUNE 2014. PREPARED BY AMBIT ENGINEERING. R.C.R.D. 38417.

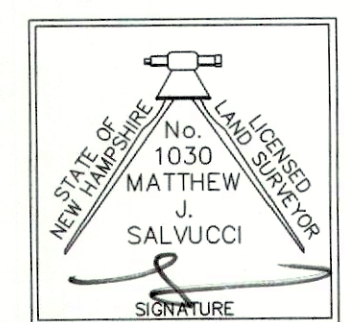
CERTIFICATION:

PURSUANT TO RSA 676:18-III AND RSA 672:14

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.

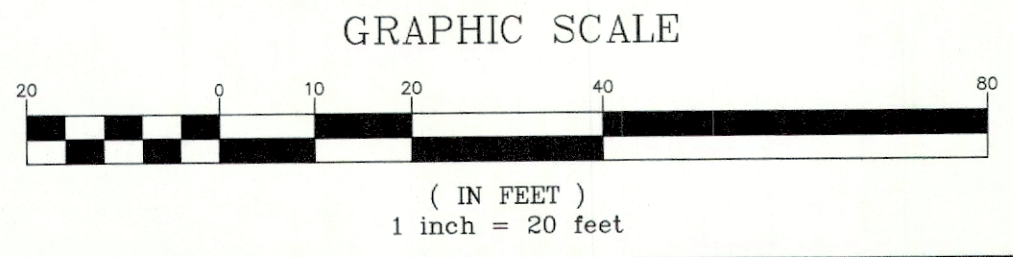
I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEEDS BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.



MATTHEW J. SALVUCCI, LLS 1030
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

4/22/24
DATE:



TOTAL LOT AREA
33,096 SQ. FT.
0.760 ACRES

Design:	JAC	Draft:	KDR	Date:	2/28/24
Checked:	JAC	Scale:	1" = 20'	Project No.:	23036
Drawing Name:	23036-PLAN.dwg				
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.					

REV.	DATE	REVISION	BY
0	2/28/24	ADDING BUILDING SETBACKS	KDR

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.
Civil Engineering Services

85 Portsmouth Ave. PO Box 219 Stratham, NH 03885

603-772-4746
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	BUILDING ADDITION 413 LAFAYETTE ROAD, PORTSMOUTH, NH
Owner of Record:	FRIENDS OF LAFAYETTE HOUSE 400 LITTLE HARBOR ROAD, SUITE 1104, PORTSMOUTH, NH 03801

DRAWING No.
C1
SHEET 1 OF 2
JBE PROJECT NO. 23036

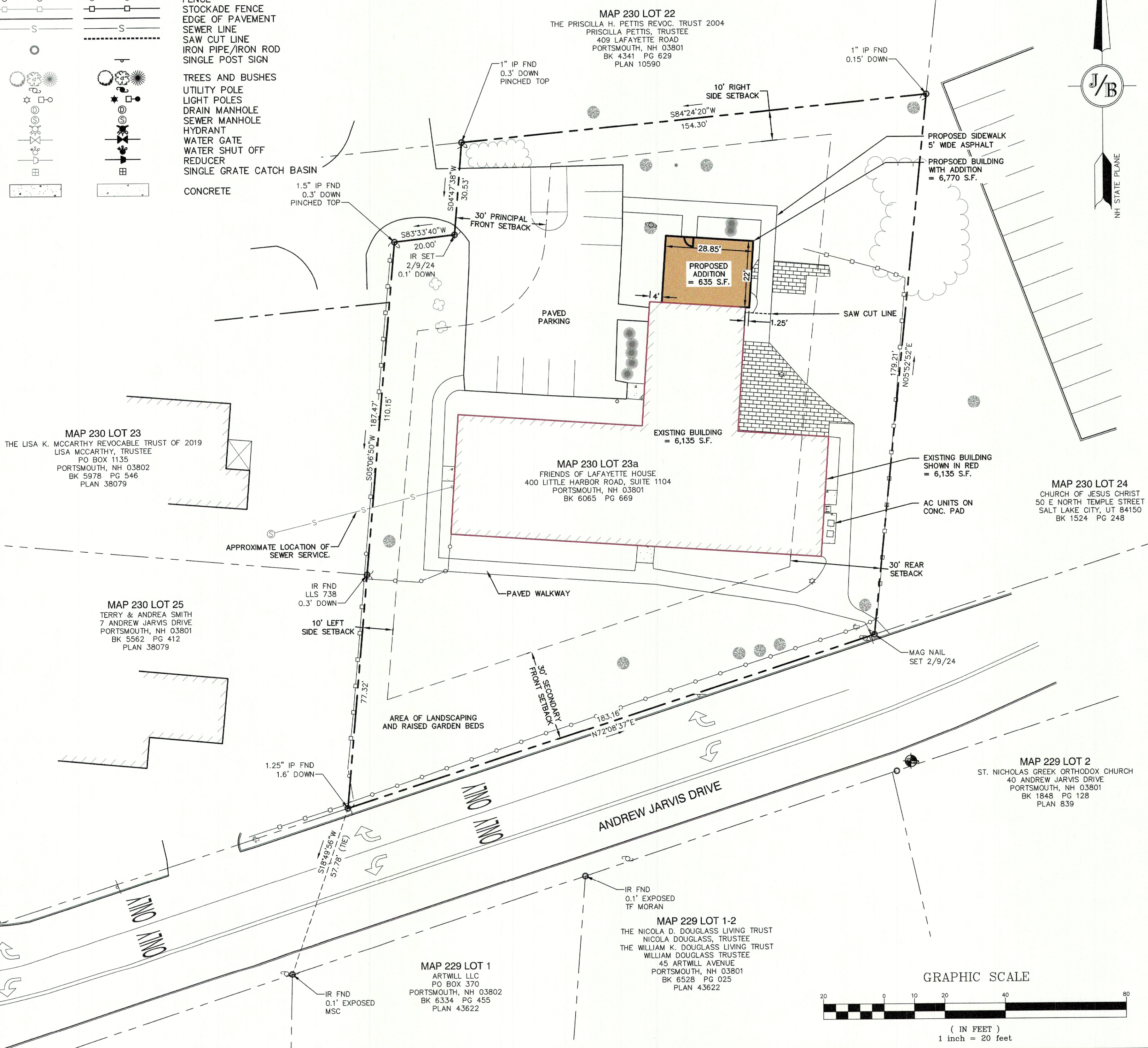
GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		STREAM CHANNEL
		TREE LINE
		FENCE
		STOCKADE FENCE
		EDGE OF PAVEMENT
		SEWER LINE
		SAW CUT LINE
		IRON PIPE/IRON ROD
		SINGLE POST SIGN
		TREES AND BUSHES
		UTILITY POLE
		LIGHT POLES
		DRAIN MANHOLE
		SEWER MANHOLE
		HYDRANT
		WATER GATE
		WATER SHUT OFF
		REDUCER
		SINGLE GRATE CATCH BASIN
		CONCRETE

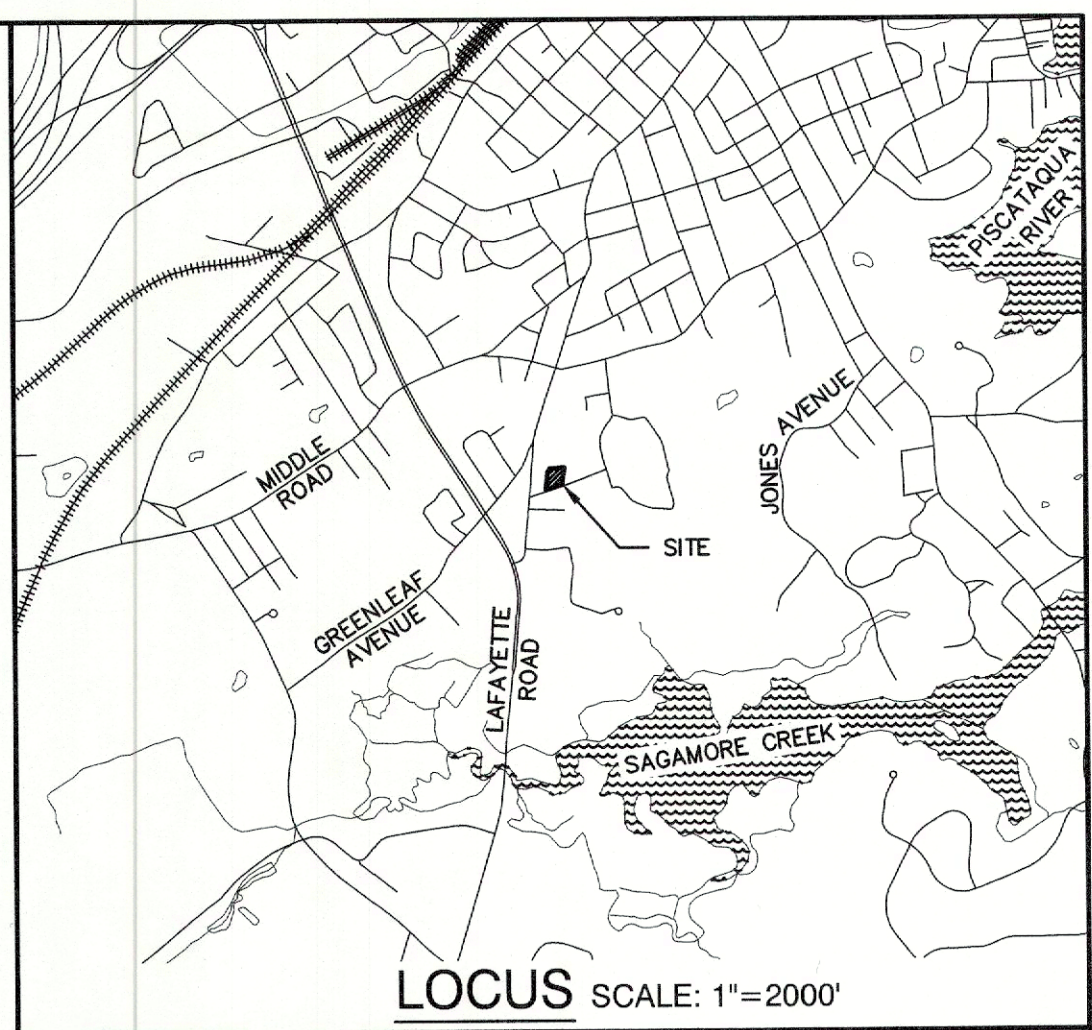
PROPERTY LINES
SETBACK LINES
STREAM CHANNEL
TREE LINE
FENCE
STOCKADE FENCE
EDGE OF PAVEMENT
SEWER LINE
SAW CUT LINE
IRON PIPE/IRON ROD
SINGLE POST SIGN

TREES AND BUSHES
UTILITY POLE
LIGHT POLES
DRAIN MANHOLE
SEWER MANHOLE
HYDRANT
WATER GATE
WATER SHUT OFF
REDUCER
SINGLE GRATE CATCH BASIN

CONCRETE



EXISTING & PROPOSED CONDITIONS (ZONE-SRB)			
LAND USE	EXISTING	PROPOSED	PERMITTED/REQUIRED
LOT AREA (S.F.)	33,096	33,096	15,000 MIN.
STREET FRONTAGE (ANDREW JARVIS DRIVE)(FT.)	183	183	100 MIN.
LOT DEPTH (FT.)	173	173	100 MIN.
PRINCIPAL FRONT YARD (FT.)	59'	59'	30 MIN.
SECONDARY FRONT YARD (FT.)	30'	30'	30' MIN.
LEFT YARD (FT.)	58.7'	37.6'	10 MIN.
RIGHT YARD (FT.)	25.7'	25.7'	10 MIN.
REAR YARD (FT.)	19.9'	19.9'	30 MIN.
HEIGHT (FT.)	18	18	35 MAX.
BUILDING COVERAGE (%)	19	20.4	20 MAX.
OPEN SPACE COVERAGE (%)	61	58.9	40 MIN.
PARKING	8	8	7 MIN.



SITE NOTES:

- THE INTENT OF THIS PLAN IS TO ADD AN ADDITION FOR A CARETAKER UNIT.
- PARKING CALCULATIONS (ARTICLE 11, SECTION 10.1112.321.2 - ASSISTED LIVING FACILITY/RESIDENTIAL CARE FACILITY):
REQUIREMENT: 5 PARKING SPACES PER BED OR RESIDENT
13 TOTAL ROOMS EXISTING * .5 SPACES PER BED = 6.5 ≈ 7
7 PARKING SPACES REQUIRED
8 PARKING SPACES PROVIDED
- THE FOLLOWING VARIANCES HAVE BEEN APPROVED BY THE ZONING BOARD OF ADJUSTMENT ON: MARCH 19, 2024
A) SECTION 10.331 - TO EXTEND, ENLARGE, OR CHANGE THE LAWFUL NONCONFORMING USE WITHOUT CONFORMING TO THE ORDINANCE.
B) SECTION 10.334 - TO EXTEND THE NONCONFORMING USE TO A REMAINING PORTION OF THE LAND.
- EXISTING IMPERVIOUS CALCULATIONS:
EXISTING BUILDING = 6,135 S.F. (18.5%)
PATIO, WALKWAY, CONCRETE = 2,746 S.F. (8.3%)
PAVED SURFACES = 3,939 S.F. (11.9%)
SHEDS = 192 S.F.
TOTAL = 13,011 S.F. (39.3%)
PROPOSED IMPERVIOUS CALCULATIONS:
PROPOSED BUILDING FOOTPRINT = 6,770 S.F. (20.4%)
PATIO, WALKWAY, CONCRETE = 2,898 S.F. (8.8%)
PAVED SURFACES = 3,939 S.F. (11.9%)
TOTAL = 13,607 S.F. (41.1%)
- THE FACILITY SHALL BE LIMITED TO 12 CARE RESIDENTS OR RESIDENTS UNDER CARE.
- ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
- THE SITE IS NOT LOCATED WITHIN A WELLHEAD PROTECTION AREA OR AQUIFER PROTECTION AREA.
- THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC. FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED. CONTRACTOR TO ALWAYS CONTACT DIG SAFE PRIOR TO DIGGING ONSITE OR OFFSITE TO ENSURE SAFETY AND OBEY THE LAW.
- ALL CONSTRUCTION SHALL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
- SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0270FB, DATED JANUARY 29, 2021.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.
- ALL BUILDING DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PROVIDED BY THE OWNER. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO THE START OF CONSTRUCTION. BUILDING DIMENSIONS AND AREAS TO BE TO OUTSIDE OF MASONRY, UNLESS OTHERWISE NOTED.
- SNOW TO BE STORED AT EDGE OF PAVEMENT AND IN AREAS SHOWN ON THE PLANS, OR TRUCKED OFFSITE TO AN APPROVED SNOW DUMPING LOCATION.
- ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.

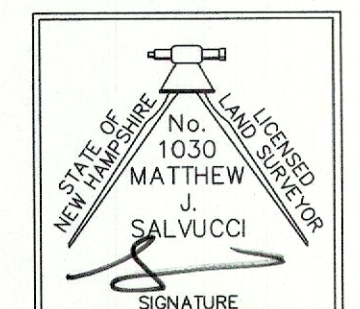
CERTIFICATION:

PURSUANT TO RSA 676:18-III AND RSA 672:14

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.

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEEDS BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.



MATTHEW J. SALVUCCI, LLS 1030
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

4/22/24
DATE:

CITY OF PORTSMOUTH PLANNING BOARD

CHAIRPERSON _____ DATE _____

TOTAL LOT AREA
33,096 SQ. FT.
0.760 ACRES

Design: JAC	Draft: KDR	Date: 2/28/24
Checked: JAC	Scale: 1" = 20'	Project No.: 23036
Drawing Name: 23036-PLAN.dwg		
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.		

REV.	DATE	REVISION	BY
0	2/28/24	ADDING BUILDING SETBACKS	KDR

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.
Civil Engineering Services

85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SITE PLAN MAP 230, LOT 23A
Project:	BUILDING ADDITION 413 LAFAYETTE ROAD, PORTSMOUTH, NH
Owner of Record:	FRIENDS OF LAFAYETTE HOUSE 400 LITTLE HARBOR ROAD, SUITE 1104, PORTSMOUTH, NH 03801

DRAWING No.
C2
SHEET 2 OF 2
JBE PROJECT NO. 23036

ELECTRICAL SYMBOL LEGEND

- ALL ITEMS SHOWN MAY NOT APPEAR ON DRAWINGS. PER ADA REQUIREMENTS, ALL CONTROL DEVICES MUST BE A MINIMUM OF 15" AFF. TO WITHIN 48" AFF. FOR REACHING ACCESSIBILITY. HEIGHTS ARE GIVEN FROM THE FINISHED FLOOR. VERIFY THICKNESS OF FLOORING ASSEMBLY WITH ARCHITECTURAL PLANS PRIOR TO ROUGH-IN. JUNCTION BOX, +15" AFF. TO THE BOTTOM OF BOX. JUNCTION BOX, ABOVE IN CEILING. JUNCTION BOX, FLUSH IN FLOOR. DUPLEX CONVENIENCE OUTLET, +15" AFF. TO THE CENTER OF THE BOTTOM OUTLET. DUPLEX CONVENIENCE OUTLET, MOUNT 8" ABOVE TOP OF COUNTER OR +46" AFF. TO THE CENTER OF THE TOP OUTLET, WHERE SHOWN UNDER A COUNTER TOP OVERHANG OF LESS THAN 6"; OUTLET NOT TO BE MORE THAN 12" BELOW COUNTER TO CENTER OF OUTLET. FOR A COUNTER TOP OVERHANG OF GREATER THAN 6", MOUNT RECEPTACLE AT 15" AFF. TO CENTER OF THE BOTTOM OUTLET. LEVITON 15832 TAMPER-PROOF COMBINATION USB/DUPLEX RECEPTACLE MOUNTED +15" AFF. TO THE CENTER OF BOTTOM OUTLET. OR AS NOTED. DUPLEX CONVENIENCE OUTLET, HALF HOT, HALF SWITCHED, +15" AFF. TO THE CENTER OF BOTTOM OUTLET. OR AS NOTED. SINGLE OUTLET WITH PLUG CONFIGURATION AS INDICATED ON PLANS, +15" AFF. TO THE CENTER OF OUTLET OR AS NOTED. QUADPLEX CONVENIENCE OUTLET, +15" AFF. TO THE CENTER OF THE BOTTOM OUTLET OR AS NOTED. DUPLEX FLUSH MOUNTED POP-UP, SPILL-PROOF COUNTERTOP RECEPTACLE AS MANUFACTURED BY LEV ELECTRIC (SPUR20 FINISH) TO BE SELECTED BY OWNER/ARCHITECT. DEVICE REQUIRED AN UNDER COUNTER RECEPTACLE FOR A PLUG-IN CONNECTION. DUPLEX OUTLET FLOOR BOX, PEDESTAL MOUNTED. DUPLEX OUTLET CEILING MOUNTED. DUPLEX FLUSH FLOOR BOX WITH 3/4" CONDUIT TO NEAREST WALL. CABLE TV OUTLET, +15" AFF. TO MIDDLE OF BOX OR AS NOTED. COMBINATION VOICE/DATA/CABLE TV OUTLET UNDER ONE COVER PLATE AND SINGLE GANG BOX, +15" AFF. TO MIDDLE OF BOX OR AS NOTED. MOTOR STARTER. CONTROL DEVICE AS INDICATED. CM = CARBON MONOXIDE DETECTOR WITH INTEGRAL ALARM CR = ENTRY SYSTEM CARD READER IC = TENANT INTERCOM SYSTEM DISCONNECT SWITCH- 30/3 INDICATES 30 AMP RATED 3-POLE DISCONNECT SWITCH- 100/3/70 INDICATES 100 AMP RATED 3-POLE SWITCH WITH 70 AMP FUSES. MOTOR, HP, AS INDICATED. DATA OUTLET WITH 1" TO NEAREST ACCESSIBLE CEILING, +15" AFF. TO MIDDLE OF BOX OR AS NOTED FOR COMPUTER WIRING BY OTHERS. VOICE/DATA OUTLET WITH 1" TO NEAREST ACCESSIBLE CEILING, +15" AFF. TO MIDDLE OF BOX OR AS NOTED. VOICE/DATA OUTLET WITH 1" TO NEAREST ACCESSIBLE CEILING, +48" AFF. TO TOP OF BOX OR AS NOTED. VOICE/DATA FLUSH FLOOR OUTLET WITH 1" EMPTY CONDUIT TO NEAREST WALL. PANEL BOARD SURFACE MOUNTED (RECESS WHENEVER POSSIBLE). LETTERS INDICATE PANEL BOARD DESIGNATION WHERE REQUIRED FOR ACCESSIBILITY, TOP BREAKER NOT TO EXCEED 48" AFF. PUSH-BUTTON STATION-SINGLE BUTTON, +46" AFF. TO THE CENTER OF THE BUTTON OR AS NOTED. START/STOP PUSH-BUTTON, +46" AFF. TO THE CENTER OF THE TOP BUTTON OR AS NOTED. BUZZER OUTLET, +84" OR AS NOTED. 2'X4' LIGHTING FIXTURE RECESSED WHEN POSSIBLE. LIGHTING FIXTURE SURFACE STRIP (C) TUBE. LIGHTING FIXTURE SURFACE STRIP (D) TUBE. LIGHT FIXTURE RECESSED MOUNTED WHEN POSSIBLE. 2'X2' SHOWN. SURFACE MOUNTED CEILING LIGHT. WALL MOUNTED LIGHT, IF FIXTURE MOUNTING PROTRUDES MORE THAN 4" IN DEPTH FROM WALL, MOUNT AT 80" AFF. TO BOTTOM OF FIXTURE. DECORATIVE CHANDELIER/PENDANT. RECESSED DOWNLIGHT LIGHT W/FRAME-IN KIT TO MATCH CEILING RATINGS. EXIT LIGHT FIXTURE, SHADED PORTION INDICATES FACE WITH DIRECTIONAL ARROWS AS INDICATED. EMERGENCY LIGHTING UNIT. EMERGENCY LIGHTING REMOTE HEADS. SINGLE POLE TOGGLE SWITCH +46" AFF. TO THE CENTER OF THE CONTROL OR AS NOTED. SUBSCRIPTS INDICATE THE FOLLOWING: 2 - DOUBLE POLE P - PILOT LIGHT, RED 3 - THREE WAY R - REMOTE CONTROL SWITCH 4 - FOR WAY M - MOTOR SWITCH K - KEY OPERATED I - ILLUMINATED T - ROTARY TIMER 0-2 HR DIMMER SLID STATE +46" AFF. TO THE CENTER OF THE CONTROL OR AS NOTED. CONDUIT & WIRE CONCEALED UNDERGROUND OR IN CONCRETE SLAB OR UNDER FLOOR - 3/4" C. 2 # 12 DR AS NOTED. CONDUIT & WIRE CONCEALED IN WALL PARTITIONS OR CEILING SPACE ABOVE - 3/4" C. 2 # 12 DR AS NOTED. STRIKES INDICATE QUANTITY OF #12 A.W.G. LINE VOLTAGE THERMOSTAT SUPPLIED AND INSTALLED BY HVAC CONTRACTOR. WIRED BY ELECTRICIAN. THERMOSTAT TO BE MOUNTED AT A MAXIMUM OF 48" AFF. TO TOP OF CONTROLS. SUBSCRIPTS AT SIDE OF OUTLET WP - WEATHER PROOF RT - RAIN TIGHT GF - GROUND FAULT PROTECTION DE - BIJAL ELEMENT IG - ISOLATED GROUND TD - TIME DELAY HOCR - HVAC & REFRIGERATION EQUIP RATED CKT BRKR #12 THE NUMBER 12 INDICATES THE CIRCUIT NUMBER THAT POWERS THE ELECTRICAL DEVICE, IT MAY NOT REQUIRE A HOME RUN. #12 THE "P" IS THE PANEL DESIGNATION AND THE NUMBER "12" IS THE CIRCUIT ON PANEL "P" - IF THE PANEL DESIGNATION IS ABSENT IT IS WIRED TO THE LOCAL PANEL IN THE DWELLING. DWELLING UNIT SMOKE DETECTOR 120V WITH BATTERY BACK-UP- SINGLE STATION UNIT- ALL IN EACH SEPARATE DWELLING TO BE WIRED TOGETHER TO SOUND ONE ALARM. DO NOT WIRE TO BUILDING ADDRESSABLE FIRE ALARM SYSTEM. DWELLING UNIT COMBINATION SMOKE/CARBON MONOXIDE DETECTOR 120V WITH BATTERY BACK-UP- SINGLE STATION UNIT, ALL IN EACH SEPARATE DWELLING TO BE WIRED TOGETHER TO SOUND ONE ALARM. DO NOT WIRE TO BUILDING ADDRESSABLE FIRE ALARM SYSTEM.

ELECTRICAL NOTES:

- 1. ALL ELECTRICAL WORK TO BE INSTALLED IN ACCORDANCE WITH THE GOVERNING EDITION OF THE NATIONAL ELECTRICAL CODE AND ANY OTHER LOCAL AUTHORITIES HAVING JURISDICTION. 2. ALL ELECTRICAL MATERIALS AND EQUIPMENT FOR THE PROJECT SHALL BE NEW AND U.L. OR EQUALLY APPROVED. 3. PROVIDE ALL NECESSARY PERMITS, INSPECTIONS AND LICENSES AND PAY ALL REQUIRED FEES. 4. SUBMIT TO THE OWNER CERTIFICATES OF INSPECTION IN DUPLICATE FROM APPROVED INSPECTION AGENCY UPON COMPLETION. 5. ON COMPLETION OF THE WORK, THE ENTIRE WIRING SYSTEM SHALL BE ENTIRELY FREE FROM GROUNDS, SHORT CIRCUITS, OPEN, OVERLOADS, AND IMPROPER VOLTAGES AND THOROUGH TESTS SHALL BE MADE. FURNISH ALL LABOR, MATERIAL AND INSTRUMENTS. 6. PRIOR TO FINAL ACCEPTANCE OF THE WORK, THE WRITTEN STATEMENT TO THE OWNER GUARANTEEING ALL EQUIPMENT AND SYSTEMS AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR ONE (1) YEAR FROM THE DATE OF ACCEPTANCE. UPON WRITTEN NOTICE AND AT NO EXPENSE TO THE OWNER, PROMPTLY REPAIR ALL DEFECTIVE MATERIAL. 7. PROVIDE NEATLY TYPED SCHEDULES OUTLINING CIRCUIT CONTROL FOR ALL PANEL BOARDS. 8. CONTRACT DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC, THEREFORE, THE CONTRACTOR SHALL APPLY FOR DETAILED INFORMATION REGARDING THE LOCATION OF ALL EQUIPMENT BEFORE ROUGH-IN AS THE FINAL LOCATION MAY DIFFER FROM THAT SHOWN ON THE DRAWINGS. OUTLETS, ETC., IMPROPERLY PLACED BECAUSE OF FAILURE TO OBTAIN THIS INFORMATION SHALL BE RELOCATED AND REINSTALLED WITHOUT ADDITIONAL CHARGE. 9. WIRE ALL FIXTURES, DEVICES, ETC., TO RESPECTIVE PANELS AND CONTROLS AS SHOWN ON THE PLANS. IN SYMBOL FORM, BRANCH CIRCUIT WIRING IS NOT COMPLETELY SHOWN ON DRAWINGS. CONTRACTOR IS RESPONSIBLE TO WIRE ALL DEVICES AS CIRCUITED SYMBOLICALLY. 10. ALL WIRE AND CABLE SHALL BE COPPER 75% RATED, 600 VOLT INSULATION, TYPE THW, THHN OR THWN, WIRE SIZE #10 AND SMALLER SHALL BE SOLID, #8 AND LARGER SHALL BE STRANDED. MINIMUM SIZE WIRE FOR 20A GROUND AND POWER CIRCUITS SHALL BE #12 AWG ON CIRCUIT LENGTHS OF UP TO 100 FEET, ON CIRCUIT LENGTHS 100 TO 200 FEET, #10 AWG SHALL BE INSTALLED TO THE CENTER CIRCUIT LOAD AND #12 TO THE OTHER CIRCUIT. CIRCUIT BREAKERS REQUIRED DUE TO VOLTAGE DROP, FOR 15A LIGHTING AND POWER CIRCUITS, #14 AWG WIRE MAY BE INSTALLED. CONTRACTOR MAY USE ALUMINUM WIRE AND CABLE ON THE SECONDARY SIDE OF THE UTILITY COMPANY TRANSFORMERS AND ON THE PRIMARY SIDE OF PANEL BOARDS IF 75% LUGS ARE USED, IMPACT IS 60A OR GREATER, AND INSTALLED IN COMPLIANCE WITH THE N.E.C. ALUMINUM WIRE SIZES ARE INDICATED ON PLANS WHERE ALLOWABLE. 11. IN REFERENCE TO NOTE #10, ELECTRICAL CONTRACTOR MAY USE ARMORED CLAD CABLE TYPE "AC" AND METAL CLAD CABLE TYPE "MC" WITH BUILDING CONSTRUCTION TYPE I AND TYPE II WHERE ALLOWABLE BY NOTE #1. NONMETALLIC SHEATHED CABLE TYPE "NM-C" MAY BE USED WITH BUILDING CONSTRUCTION TYPE V WHERE ALLOWABLE BY NOTE #1. 12. VERIFY ALL DOOR SWINGS PRIOR TO SWITCH ROUGH-IN. 13. VERIFY ALL CEILING CONSTRUCTION INCLUDING METHOD AND TYPE OF BUILDING INSULATION BEFORE ORDERING FIXTURES AND PROVIDE FIXTURES COMPATIBLE WITH CEILING CONSTRUCTION, INCLUDING BUILDING INSULATION METHODS (I/C OR NON I/C RATED) AS REQUIRED. 14. PROVIDE ALL LIGHTING FIXTURES RECESSED IN A CEILING WHICH HAVE A FIRE RESISTIVE RATING OF ONE HOUR OR MORE WITH A BOX ENCLOSURE WHICH HAS A FIRE RATING EQUAL TO THAT OF THE CEILING, THE SPACE FROM THE FIXTURE TO THE ENCLOSURE SHALL BE A MINIMUM OF 1" FOR FLUORESCENT AND 3" FOR INCANDESCENT FIXTURES. 15. ELECTRICAL CONTRACTOR TO SECURE SHOP DRAWINGS FROM OTHER SUBCONTRACTORS AND VERIFY EXACT ELECTRICAL CHARACTERISTICS OF EQUIPMENT TO BE WIRED. THIS IS TO BE DONE BEFORE ELECTRICAL CONTRACTOR ROUGH-IN FOR SUBJECT EQUIPMENT. IF DISCREPANCIES ARE NOTED BETWEEN THE ELECTRICAL CONTRACTOR DRAWINGS AND OTHER CONTRACTOR SHOP DRAWINGS, ELECTRICAL CONTRACTOR IS TO NOTIFY ENGINEER AT ONCE. FAILURE BY THE ELECTRICAL CONTRACTOR TO PERFORM THIS DUTY WILL NOT RELIEVE HIM OF THE RESPONSIBILITY TO CORRECT WRITING DEFICIENCIES AT HIS EXPENSE. 16. PROVIDE ALL WIRING, CONNECTIONS AND DEVICES, ETC., NECESSARY TO COMPLY WITH THE GROUNDING REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND AS SHOWN ON THE DRAWINGS. ALL EXPOSED NON-CURRENT CARRYING METALLIC PARTS OF THE ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS, GROUNDING CONDUCTORS OF NONMETALLIC COVERED CABLE AND NEUTRAL CONDUCTOR OF THE WIRING SYSTEM SHALL BE GROUNDED. 17. ALL WIRING, UNLESS SPECIFICALLY SPECIFIED OTHERWISE, IS TO BE INSTALLED IN THE CONSTRUCTION IN A CONCEALED MANNER. 18. CONTRACTOR TO PROPERLY SEAL ALL FIRE RATED WALL/CEILING PENETRATIONS.

GENERAL CONSTRUCTION NOTES:

- 1. THE PLANS REPRESENT A COMPLETE OPERATIONAL SYSTEM, WHEREIN ALL WIRING, EQUIPMENT, FIXTURES, FITTINGS, CONTROLS, AND ALL REQUIRED ACCESSORIES ARE FURNISHED, INSTALLED, STARTED, AND TESTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, LABOR, AND SUPERVISION TO DELIVER A COMPLETE SYSTEM. THE FIRE PROTECTION ALARM/SPRINKLER SYSTEM, IF REQUIRED, IS NOT A COMPONENT OF THIS SYSTEM UNLESS SPECIFICALLY DEPICTED; AND IT IS PROVIDED BY A DESIGN AND BUILD FIRE PROTECTION CONTRACTOR. 2. THE PLANS ARE DIAGRAMMATIC IN NATURE. THE WORK REQUIRED TO PROPERLY INTERFACE WITH OTHER TRADES, WHICH MAY REPRESENT CHANGES TO THE DRAWINGS TO ACCOMMODATE THE INSTALLATION OF THIS WORK, IS PERFORMED WITHOUT ADDITIONAL COST TO THE OWNER; THIS INCLUDES BUT IS NOT LIMITED TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, FIRE PROTECTION, AND OTHER CONSIDERATIONS. 3. ALL WORK MUST BE EXECUTED IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AND ORDINANCES. ALL WORK MUST BE EXECUTED IN A NEAT AND WORKMANLIKE MANNER. THE SUBCONTRACTORS AND GENERAL CONTRACTOR MUST COORDINATE WITH ALL TRADES DURING THE CONSTRUCTION PROCESS. THIS CONTRACTOR MUST REVIEW ALL ASPECTS OF THEIR WORK PRIOR TO INSTALLATION TO ENSURE PROPER CLEARANCES AND CAPACITIES EXIST. 4. THE CONTRACTOR MUST BE LICENSED AND ENSURED IN THE COUNTY AND STATE AS APPLICABLE. SUBMIT TO THE OWNER AS DIRECTED PROOF OF INSURANCE INCLUSIVE OF LIMITS OF LIABILITY AND DEDUCTIBLE INFORMATION. ALL SUBCONTRACTORS OF SUBCONTRACTORS MUST BE LICENSED AND ENSURED TO. 5. SINCE THE PLANS ARE DIAGRAMMATIC IN NATURE FOR CLARITY PURPOSES, THE CONTRACTOR MUST SUBMIT A SHOP DRAWING WHERE THE CONTRACTOR INTENDS TO INSTALL WORK THAT INCLUDES SUBSTANTIAL DIFFERENCES FROM THE PLANS, INCLUSIVE OF CALCULATIONS AND OTHER ITEMS TO THE OWNER PRIOR TO COMMENCING WORK. THE SHOP DRAWINGS MUST INCLUDE EXACT LOCATIONS, SPECIAL FITTINGS, AND VERIFICATION THAT THIS INFORMATION IS ACCURATE. 6. THE CONTRACTOR AND ALL SUBCONTRACTORS WARRANT THAT THEY HAVE VISITED THE PROJECT SITE, REVIEWED ALL OF THE CONTRACT DOCUMENTS, AND ARE OTHERWISE FAMILIAR WITH THE REQUIREMENTS NECESSARY TO COMPLETELY EXECUTE THE WORK REQUIRED TO COMPLY WITH THE DIAGRAMMATIC DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN AND POSSESS A THOROUGH KNOWLEDGE OF THE CODE AND INDUSTRY STANDARD CONSTRUCTION PRACTICES. THE BID FOR PERFORMING THE WORK WILL CONTAIN ALLOWANCES FOR NORMAL DIFFICULTIES EXPERIENCED DURING THE CONSTRUCTION OF A BUILDING OF THIS TYPE. MODIFICATIONS TO THE CONTRACT, WHICH DO NOT ADD VALUE TO THE PROJECT, WILL NOT BE CONSIDERED VALID. 7. THIS DESIGN IS NON TRANSFERABLE. IT IS INTELLECTUAL PROPERTY WITH TRADE SECURITIES TO BE UTILIZED ON THIS PROJECT ONLY. 8. WHERE THE CONTRACTOR FURNISHES CERTAIN MODELS OR PROTOTYPES OF DESIGN SPECIFIED ON THE DRAWINGS, SPECIFICATED DATA IS NOT NECESSARY. SIMPLY NOTIFY THE OWNER IN WRITING THAT THE SPECIFIED ITEM WILL BE USED AND PROCEED WITH THE WORK. IF EQUAL DEVIATIONS FROM THE SPECIFIED PRODUCT ARE UTILIZED, THE PRODUCT MUST BE SUBMITTED TO THE OWNER FOR APPROVAL. IT IS THE INTENT OF THE DESIGN TO MAKE A COMPETITIVE BID. EQUAL PRODUCTS WILL BE CONSIDERED AS SUBMITTED. 9. ALL SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH INDUSTRY ACCEPTED STANDARDS AND CODE REQUIREMENTS. ALL ELECTRICAL PHASES FOR THREE PHASE SERVICE SHALL BE BALANCED. AIR DISTRIBUTION SYSTEMS SHALL BE BALANCED, AND ALL OTHER APPLICABLE MEP SYSTEMS SHALL BE PROPERLY COMMISSIONED AND BALANCED. 10. ALL MEP SYSTEMS SHALL PROVIDE FOR NO POOLING OF WATER TO THE EXTENT POSSIBLE. THE SAFE PANS, TRAY PANS AND CONDENSER PANS SHALL ALL SLOPE TO AVOID POOLING OF WATER. IT IS ACCEPTABLE TO HAVE A 1/8" DEPTH POOL OF WATER IN CONDENSATE PANS DURING COOLING OPERATION. 11. ALL ACCESS PANELS SHALL BE LABELED BY THE TRADE THAT RECEIVES THE BENEFIT OF THE ACCESS PANEL. THE BUILDER PROVIDES MANY ACCESS DOORS FOR PLUMBING CLEANSOUTS OR FIRE BARRIERS. THE BUILDER OR HVAC CONTRACTOR SHALL PROVIDE THE LABEL. THE LABEL SHALL BE WITH 3/8" HEIGHT LETTERS IN NON CARBONAD OR PAPER TYPE MATERIAL, PERMANENTLY AFFIXED TO THE ACCESS DOOR. DUCT ACCESS DOORS INSTALLED IN DUCTWORK SHALL BE MADE AND LABELED BY THE HVAC CONTRACTOR. 12. THE FIRE DAMPERS THAT PENETRATE THE CEILING ON THE DISCHARGE OF THE AIR HANDLER SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS PUBLISHED BY THE MANUFACTURER. SUBMIT THE ILLUSTRATION OF THE INSTALLATION OF THE INSTRUCTIONS PRIOR TO CONSTRUCTION AND THAT WILL SUFFICE AS THE DETAIL. THE DAMPER SHALL BE INSTALLED IN A SLEEVE WITH SIX INCHES OF THE PLANE OF THE CEILING AT A MINIMUM, COMPLETE WITH A DUCT ACCESS DOOR. 13. THE PLANS INDICATE QUANTITIES ON THE PLANS TO ENHANCE THE UNDERSTANDING OF THE DESIGN CONCEPT. THE QUANTITIES ARE RELIABLE, BUT NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE TO INSTALL THE CORRECT QUANTITIES OF ITEMS REQUIRED TO DELIVER A COMPLETE FUNCTIONING BUILDING. 14. THIS PROJECT HAS AN UNUSUAL INTENSE MEP COORDINATION REQUIREMENT, AND IT IS THE RESPONSIBILITY OF THE MEP TRADES TO ENSURE THAT ALL ASPECTS OF THE WORK ARE PROVIDED TO DELIVER A COMPLETE AND FUNCTIONING MEP SYSTEM. 15. WHERE THERE EXISTS A DISCREPANCY BETWEEN THE PLANS, DOCUMENTS, OR CODE THE CONTRACTOR SHALL PROVIDE FOR THE MOST EXPENSIVE METHOD AND ADVISE THE ARCHITECT IN WRITING PRIOR TO PERFORMING ANY WORK.

RESPONSIBILITY OF DESIGN AND CONSTRUCTION TEAMS FOR MEP:

AMICABLE COOPERATION OF THE DESIGN AND CONSTRUCTION TEAMS GENERALLY PRODUCES THE BEST RESULTS FOR THE OWNER. INVESTMENT IN THE DESIGN BY THE INSTALLING CONTRACTORS IS ALSO USUALLY BENEFICIAL FOR THE PROJECT. ANY REASONABLE CONTRACTOR SUGGESTIONS IN ADVANCE OF CONSTRUCTION WHICH ARE NOT AS-BUILT DRAWINGS, WHICH ARE CONSIDERED NECESSARY FOR PERMIT OR CODE OFFICIAL INSPECTION PURPOSES, NOT FOR AS-BUILT PURPOSES) CONSTRUCTION PLAN CHANGES THAT THE OWNER AND ARCHITECT APPROVE SUGGESTED BY THE INSTALLING CONTRACTOR SHALL BE EXECUTED BY THE MEP DESIGN TEAM WITHOUT BUT ADDITIONAL CHARGE PROVIDED THEY ARE NOT EXTENSIVE.

THE MEP DESIGN IS PROVIDED PRIMARILY TO OBTAIN THE BUILDING PERMIT. IF THE JURISDICTION DID NOT REQUIRE PROFESSIONALLY ENGINEERED MEP PLANS, THE PROJECT WOULD LIKELY BE CONSTRUCTED AS A DESIGN AND BUILD PROJECT. ACCORDINGLY THE PLANS ARE NOT SHOP DRAWINGS. THE PLANS ARE NOT AS-BUILT DRAWINGS. THE PLANS DO NOT SHOW EVERY DIFFICULTY AND NUANCE ASSOCIATED WITH WHAT IS REQUIRED TO INSTALL A COMPLETE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A COMPLETE SYSTEM AS DIAGRAMMATICALLY DEPICTED ON THE PLANS. THIS WILL LIKELY INCLUDE PROVIDING ITEMS THAT ARE NOT SHOWN ON THE PLANS BUT REQUIRED TO DELIVER A COMPLETE SYSTEM. THE PLANS MAY BE CONSIDERED A PERFORMANCE BASED SPECIFICATION.

THE MEP CONTRACTORS MUST ANTICIPATE IN ADVANCE OF THE BID AND CONSTRUCTION THE REQUIREMENTS NECESSARY TO DELIVER A COMPLETE SYSTEM SO THAT THERE ARE NO REQUESTS FOR CHANGE ORDERS BASED ON ALLEGED PLAN OMISSIONS/ERRORS LATER IN THE PROJECT TO PROVIDE THE SYSTEMS ALREADY SPECIFIED ON THE PLANS. FOR EXAMPLE IF AN ELECTRICAL SWITCHGEAR ROOM IS CROWDED AND REQUIRES MORE COMPACT EQUIPMENT, LARGER SPACES, AND/OR OTHER CIRCUMSTANCES THE ELECTRICAL SWITCHGEAR CAPACITY SPECIFIED MUST BE INSTALLED WITHOUT ADDITIONAL CHARGE. FURTHER TO THIS EXAMPLE THE RESOLUTION MAY INVOLVE ENLARGING A ROOM BY DESIGN IN ADVANCE OF CONSTRUCTION, CONSIDERING REVIEW OF DIFFERENT EQUIPMENT OR OTHER SOLUTIONS. THE DESIGN TEAM WILL COOPERATE TO THE EXTENT REASONABLY POSSIBLE TO MITIGATE ANY UNANTICIPATED CIRCUMSTANCES TO PROVIDE A COMPLETE MEP SYSTEM. HOWEVER, AGAIN, NO CHANGE ORDERS SHALL BE APPROVED UNLESS IT IS ADDITIONAL SCOPE ITEMS THE OWNER AGREES TO FUND.

IT IS THE INSTALLING CONTRACTOR RESPONSIBILITY TO NOTIFY THE DESIGN TEAM IN ADVANCE OF ALL CONSTRUCTION WITH TIME TO REACT WHENEVER THERE COULD BE AN ISSUE THAT REQUIRES RESOLUTION TO INSTALL A COMPLETE CODE COMPLIANT MEP SYSTEM. THERE ARE FURTHER REQUIREMENTS SPECIFIED IN THE CONSTRUCTION DOCUMENTS AND THIS NARRATIVE IS BY NO MEANS LIMITING.

UNDER NO CIRCUMSTANCES WILL RE-ROUTING OF DUCTWORK OR PLUMBING PIPES BE CONSIDERED A CHANGE ORDER DUE TO UNANTICIPATED STRUCTURAL INTERFERENCES. THE ROUTING OF THE PIPES AND DUCTWORK SHOWN ON THE PLANS IS INTENDED TO ANTICIPATE THE MAJORITY OF STRUCTURAL INTERFERENCES BUT IT WILL NOT INCLUDE ALL OF THEM. THE ENTIRE DUCT OR PIPE SYSTEM MUST BE PLANNED IN ADVANCE TO AVOID RE-WORKING OR RE-ROUTING OF THIS WORK. COORDINATION WITH OTHER TRADES TO ACCOMMODATE THEIR WORK UNDER NO CIRCUMSTANCES WILL RE-INSTALLATION OF INCORRECT MATERIALS FOR THE APPLICATION BE CONSIDERED CHANGE ORDER, FOR EXAMPLE ALL EXPOSED WIRING IN THE GARAGE MUST UTILIZED METAL CONDUIT ENCASED UNDER THE FIRST FLOOR SLAB PLUMBING RISERS TURNING THAT REQUIRE DROPPED FEETINGS AND THE LIKE IN ADVANCE OF THE BID AND CONSTRUCTION TO MINIMIZE UNANTICIPATED CONSTRUCTION REQUIREMENTS TO DELIVER A COMPLETE SYSTEM.

IT IS RECOMMENDED BUT NOT REQUIRED THAT THE MEP TRADES PROVIDE SHOP DRAWINGS IN ADVANCE OF CONSTRUCTION, ESPECIALLY IN THE SERVICE ENTRANCE ROOMS, UTILITY ROOMS, DWELLING HVAC CLOSETS AND OTHER AREAS TRADITIONALLY DESIGNED WITH CONFINED SPACES IN WOOD FRAME MULTI-FAMILY DWELLING STRUCTURES. IT IS THE RESPONSIBILITY OF THE MEP CONTRACTORS TO NOTIFY THE PRIME CONTRACTOR WHERE INSTALLATION OF THEIR TRADE WORK MAY REQUIRE INTENSE COOPERATION WITH OTHER TRADES SUCH AS CONCRETE ENCASED CONDUCTORS UNDER THE FIRST FLOOR SLAB PLUMBING RISERS TURNING THAT REQUIRE DROPPED FEETINGS AND THE LIKE IN ADVANCE OF THE BID AND CONSTRUCTION TO MINIMIZE UNANTICIPATED CONSTRUCTION REQUIREMENTS TO DELIVER A COMPLETE SYSTEM.

AGAIN, COOPERATION, ADVANCE PLANNING, ANTICIPATION OF DIFFICULTIES, SUGGESTIONS, AND THE LIKE WILL PRODUCE THE BEST RESULT FOR ALL CONCERNED PARTIES.

ELECTRICAL DEMOLITION AND ALTERATIONS

- 1. THE ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE ALL ELECTRICAL EQUIPMENT AND WIRING NO LONGER REQUIRED. HE SHALL CUT ALL EXISTING CONDUIT WHICH WILL NOT BE COVERED OR HIDDEN BY THE NEW CONSTRUCTION BACK TO THE CONCRETE CEILING AND FLOOR SLABS. THIS CONTRACTOR, IF FEASIBLE MAY UTILIZE ANY EXISTING CONDUIT, OUTLET BOXES OR JUNCTION BOXES THAT DO NOT INTERFERE WITH THE NEW CONSTRUCTION. ALL EXISTING WIRING ON NOT BEING UTILIZED SHALL BE REMOVED BACK TO THE POINTS OF CONNECTION. 2. ANY WIRING THAT IS TO REMAIN, WHICH RUNS THROUGH AREAS OF WORK SHALL REMAIN OPERATIONAL. IF ANY WORK INTERFERES WITH THE CONSTRUCTION, IT SHALL BE REROUTED AND REWORKED AS REQUIRED TO SATISFY THE NEW CONDITIONS. 3. IF ANY EXISTING ELECTRICAL EQUIPMENT IS TO REMAIN FOR THE OPERATION OF SYSTEMS IN OTHER AREAS OF THE BUILDING, IT SHALL BE RELOCATED AS REQUIRED TO THE SATISFACTION OF THE ARCHITECT. 4. ANY INTERRUPTION OF BUILDING SERVICES TO ANY SECTION OF THE BUILDING SUCH AS ELECTRIC LIGHT AND POWER, FIRE ALARM SYSTEM, TELEPHONE SYSTEM AND THE LIKE SHALL BE SCHEDULED. THE ARCHITECT SHALL APPROVE ALL SCHEDULES BEFORE ANY INTERRUPTIONS ARE PERMITTED. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OVERTIME WORK NECESSARY TO MEET THIS REQUIREMENT. IF INTERRUPTIONS MUST OCCUR DURING NORMAL HOURS AT THE BUILDING, THE ELECTRICAL CONTRACTOR SHALL, AT HIS EXPENSE, PROVIDE TEMPORARY SERVICES AS REQUIRED TO PERMIT THE NORMAL FUNCTIONING OF ALL FACILITIES DURING INTERRUPTION. 5. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE OF WORK AND BECOME THOROUGHLY FAMILIAR WITH ALL CONDITIONS BEFORE SUBMITTING BID. NO EXTRA COMPENSATION WILL BE PAID FOR EXTRA WORK, WHICH MAY ARISE BECAUSE OF FAILURE TO DO SO. 6. IT SHOULD BE NOTED THAT THE NEW CONSTRUCTION IS TO BE CONNECTED TO AND INSTALLED IN EXISTING FACILITIES AND THE DRAWINGS GENERALLY SHOW ONLY THE NEW WORK THAT IS REQUIRED. UNLESS SPECIFICALLY INDICATED, AS TO OVERCOME ALL OBSTRUCTIONS AND DIFFICULTIES AT THE SITE, ALL SUCH WORK SHALL BE DONE IN FULL COOPERATION WITH THE ARCHITECT, WHO SHALL DECIDE AT THE SITE HOW SUCH WORK SHALL BE DONE. 7. CONTRACTOR SHALL CHECK THE CONDITION OF ALL PANELBOARDS, CIRCUIT BREAKERS, AND WIRING TO REMAIN AND INFORM ARCHITECT OF ANY FAULTY EQUIPMENT. CONTRACTOR TO PROVIDE NEATLY TYPED PANEL SCHEDULE LISTING ALL NEW AND USED CIRCUITS.

NEC LOAD CALCULATIONS

Lafayette House Renovations Existing Service: 400A, 120/240V 1-phase 3-wire

EXISTING LOADS: GENERAL LOADS LIGHTING & RECEIPTS (6200R2 @ 3W/R2) 18,600 VA EXISTING GENERAL LOADS SUBTOTAL 18,600 VA

SPECIAL LOADS ELECTRIC RANGES/OVENS (2@9000W) 18,000 VA ELECTRIC CLOTHES DRYER 5,000 VA SMALL APPLIANCE (2@1500W) 3,000 VA REFRIGERATOR (3@1100W) 3,300 VA CLOTHES WASHER 1,500 VA DISHWASHER 1,200 VA EXISTING SPECIAL LOADS SUBTOTAL 30,000 VA

HVAC LOADS 5.0 TON AC COMPRESSOR (1.9kW/ton) 9,500 VA 5.0 TON AC COMPRESSOR (1.9kW/ton) 9,500 VA AIR HANDLERS (2@1100W) 2,200 VA EXISTING HVAC LOADS SUBTOTAL 21,200 VA

NEW LOADS: GENERAL LOADS LIGHTING & RECEIPTS (570R2 @ 3W/R2) 1,710 VA NEW GENERAL LOADS SUBTOTAL 1,710 VA

SPECIAL LOADS ELECTRIC RANGE/OVEN 8,000 VA ELECTRIC CLOTHES DRYER 5,000 VA SMALL APPLIANCE (2@1500W) 3,000 VA CLOTHES WASHER 1,500 VA DISHWASHER 1,200 VA REFRIGERATOR 3,300 VA DISPOSAL 1,000 VA NEW SPECIAL LOADS SUBTOTAL 20,800 VA

HVAC LOADS 2.0 TON DUCTLESS MINI SPLIT (1.9kW/ton) 3,800 VA NEW HVAC LOADS SUBTOTAL 3,800 VA

COMBINED DWELLING LOAD PER NEC TABLE 220-30(4) First 10KW@100% + Remaining @40% + HVAC @100% + Backup Heat @65% 47,510 VA CURRENT @240V/1 = 198.0 A

COMBINED DWELLING LOAD PER NEC TABLE 220-30(4) First 10KW@100% + Remaining @40% + HVAC @100% + Backup Heat @65% 47,510 VA CURRENT @240V/1 = 198.0 A

COMBINED DWELLING LOAD PER NEC TABLE 220-30(4) First 10KW@100% + Remaining @40% + HVAC @100% + Backup Heat @65% 47,510 VA CURRENT @240V/1 = 198.0 A

COMBINED DWELLING LOAD PER NEC TABLE 220-30(4) First 10KW@100% + Remaining @40% + HVAC @100% + Backup Heat @65% 47,510 VA CURRENT @240V/1 = 198.0 A

COMBINED DWELLING LOAD PER NEC TABLE 220-30(4) First 10KW@100% + Remaining @40% + HVAC @100% + Backup Heat @65% 47,510 VA CURRENT @240V/1 = 198.0 A

Therefore the existing 400A service is sufficient.

PANEL DEMAND LOAD CALCULATIONS

Lafayette House Renovations Existing Panel "PP1" - 200A, 120/240V 1-phase with new dwelling sub-panel "A"

EXISTING PANEL "PP1" LOADS: 5.0 TON AC COMPRESSOR (1.9kW/ton) 9,500 VA 5.0 TON AC COMPRESSOR (1.9kW/ton) 9,500 VA AIR HANDLERS (2@1100W) 2,200 VA TOTAL EXISTING PANEL LOAD 21,200 VA

NEW DWELLING SUB-PANEL "A" LOADS: LIGHTING & RECEIPTS (570R2 @ 3W/R2) 1,710 VA NEW GENERAL LOADS SUBTOTAL 1,710 VA

SPECIAL LOADS ELECTRIC RANGE/OVEN 8,000 VA ELECTRIC CLOTHES DRYER 5,000 VA SMALL APPLIANCE (2@1500W) 3,000 VA CLOTHES WASHER 1,500 VA DISHWASHER 1,200 VA REFRIGERATOR 3,300 VA DISPOSAL 1,000 VA NEW SPECIAL LOADS SUBTOTAL 20,800 VA

HVAC LOADS 2.0 TON DUCTLESS MINI SPLIT (1.9kW/ton) 3,800 VA NEW HVAC LOADS SUBTOTAL 3,800 VA

NEW DWELLING LOAD PER NEC TABLE 220-30(4) First 10KW@100% + Remaining @40% + HVAC @100% + Backup Heat @65% 47,510 VA CURRENT @240V/1 = 198.0 A

COMBINED PANEL LOAD EXISTING PANEL "PP1" LOAD 21,200 VA NEW DWELLING SUB-PANEL "A" LOAD 26,310 VA TOTAL NEW DWELLING SUB-PANEL "A" LOAD 47,510 VA CURRENT @240V/1 = 198.0 A

COMBINED PANEL LOAD EXISTING PANEL "PP1" LOAD 21,200 VA NEW DWELLING SUB-PANEL "A" LOAD 26,310 VA TOTAL NEW DWELLING SUB-PANEL "A" LOAD 47,510 VA CURRENT @240V/1 = 198.0 A

COMBINED PANEL LOAD EXISTING PANEL "PP1" LOAD 21,200 VA NEW DWELLING SUB-PANEL "A" LOAD 26,310 VA TOTAL NEW DWELLING SUB-PANEL "A" LOAD 47,510 VA CURRENT @240V/1 = 198.0 A

COMBINED PANEL LOAD EXISTING PANEL "PP1" LOAD 21,200 VA NEW DWELLING SUB-PANEL "A" LOAD 26,310 VA TOTAL NEW DWELLING SUB-PANEL "A" LOAD 47,510 VA CURRENT @240V/1 = 198.0 A

COMBINED PANEL LOAD EXISTING PANEL "PP1" LOAD 21,200 VA NEW DWELLING SUB-PANEL "A" LOAD 26,310 VA TOTAL NEW DWELLING SUB-PANEL "A" LOAD 47,510 VA CURRENT @240V/1 = 198.0 A

COMBINED PANEL LOAD EXISTING PANEL "PP1" LOAD 21,200 VA NEW DWELLING SUB-PANEL "A" LOAD 26,310 VA TOTAL NEW DWELLING SUB-PANEL "A" LOAD 47,510 VA CURRENT @240V/1 = 198.0 A

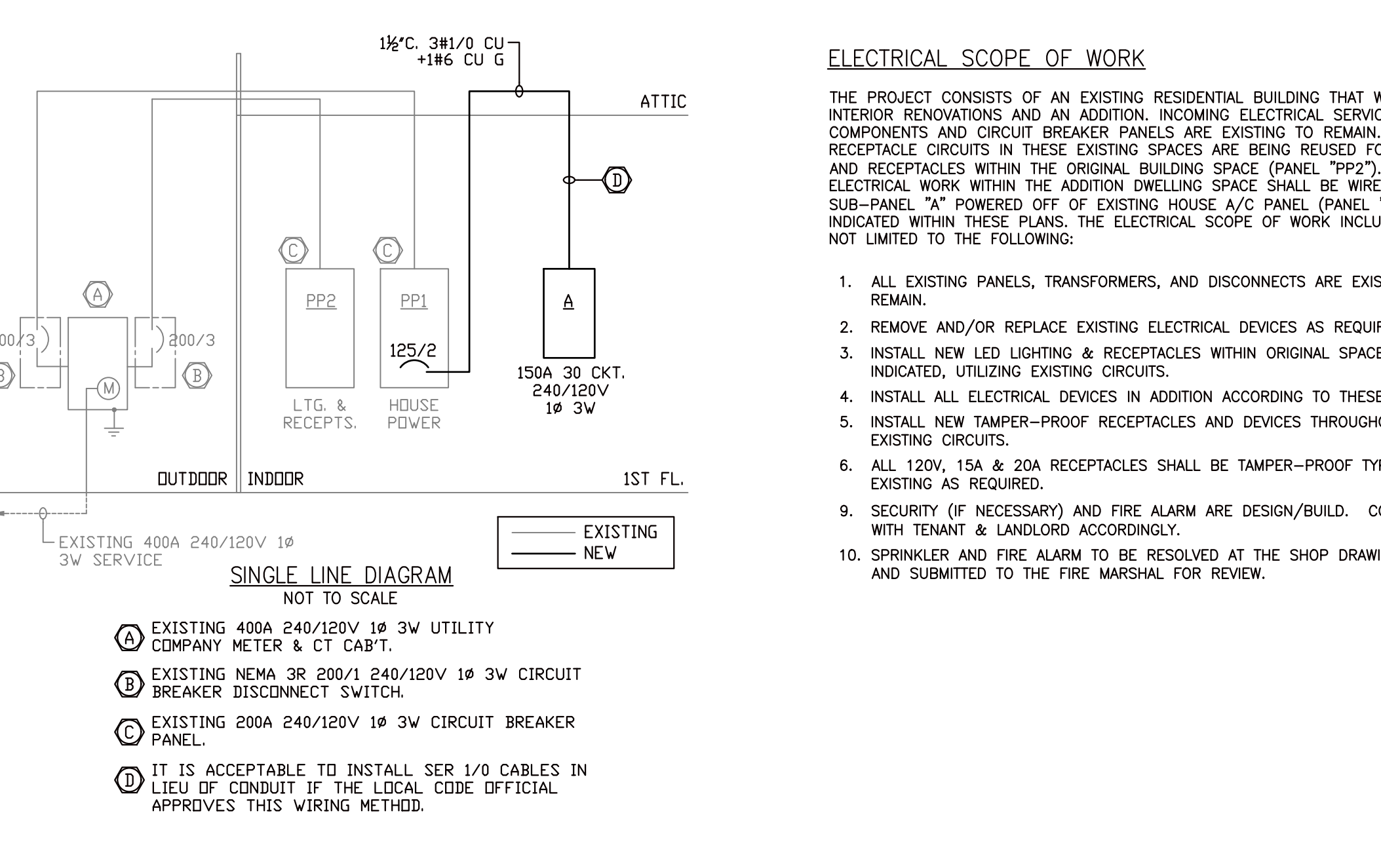
Therefore the existing 200A panel "PP1" can be used.

PANEL PP1 - HOUSE POWER PANEL. Table with columns: LOCATION, A, B, LTG, REC, MIS, WIRE, CKT, BRKR, PHASE, BRKR, CKT, WIRE, MIS, REC, LTG, A, B, LOCATION. Includes items like AC COMPRESSOR, EXISTING EQUIPT, and CONN LOAD.

PANEL PP2 - HOUSE LIGHTING & RECEIPTS PANEL. Table with columns: LOCATION, A, B, LTG, REC, MIS, WIRE, CKT, BRKR, PHASE, BRKR, CKT, WIRE, MIS, REC, LTG, A, B, LOCATION. Includes items like ELEC RANGE/OVEN, EXISTING EQUIPT, and CONN LOAD.

PANEL A - APARTMENT SUB-PANEL. Table with columns: LOCATION, A, B, LTG, REC, MIS, WIRE, CKT, BRKR, PHASE, BRKR, CKT, WIRE, MIS, REC, LTG, A, B, LOCATION. Includes items like LIGHTING, BEDROOM RECEIPTS, LIVING RECEIPTS, and CONN LOAD.

MEP LIGHT FIXTURE SCHEDULE. Table with columns: TYPE, MFR, CATALOG NO., LAMPS, REMARKS. Lists fixtures like HALO, WAC LIGHTING, SEAGULL, and HALO with their specifications.



- 1. ALL EXISTING PANELS, TRANSFORMERS, AND DISCONNECTS ARE EXISTING TO REMAIN. 2. REMOVE AND/OR REPLACE EXISTING ELECTRICAL DEVICES AS REQUIRED. 3. INSTALL NEW LED LIGHTING & RECEPTABLES WITHIN ORIGINAL SPACE AS INDICATED, UTILIZING EXISTING CIRCUITS. 4. INSTALL ALL ELECTRICAL DEVICES IN ADDITION ACCORDING TO THESE PLANS. 5. INSTALL NEW TAMPER-PROOF RECEPTABLES AND DEVICES THROUGHOUT, UTILIZING EXISTING CIRCUITS. 6. ALL 120V, 15A & 20A RECEPTABLES SHALL BE TAMPER-PROOF TYPE. REPLACE EXISTING AS REQUIRED. 7. SECURITY (IF NECESSARY) AND FIRE ALARM ARE DESIGN/BUILD. COORDINATE WITH TENANT & LANDLORD ACCORDINGLY. 8. SPRINKLER AND FIRE ALARM TO BE RESOLVED AT THE SHOP DRAWING SCALE AND SUBMITTED TO THE FIRE MARSHAL FOR REVIEW.

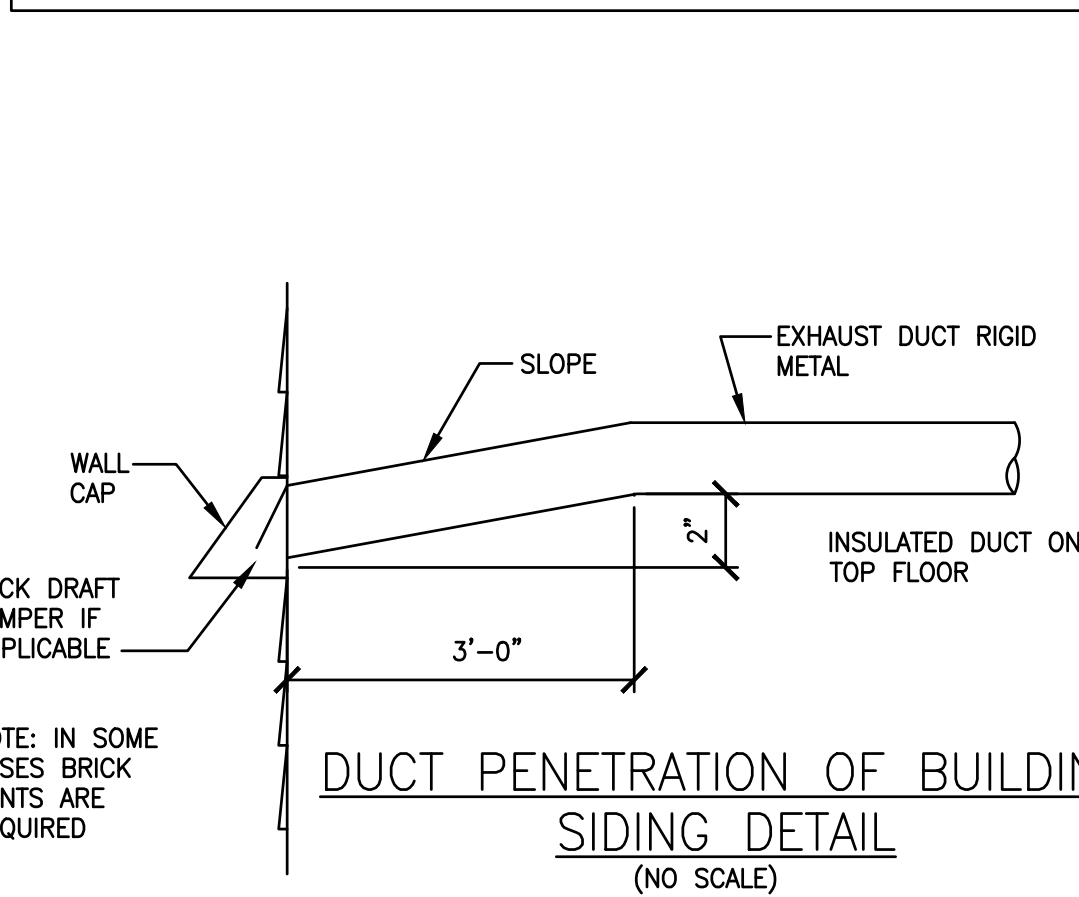
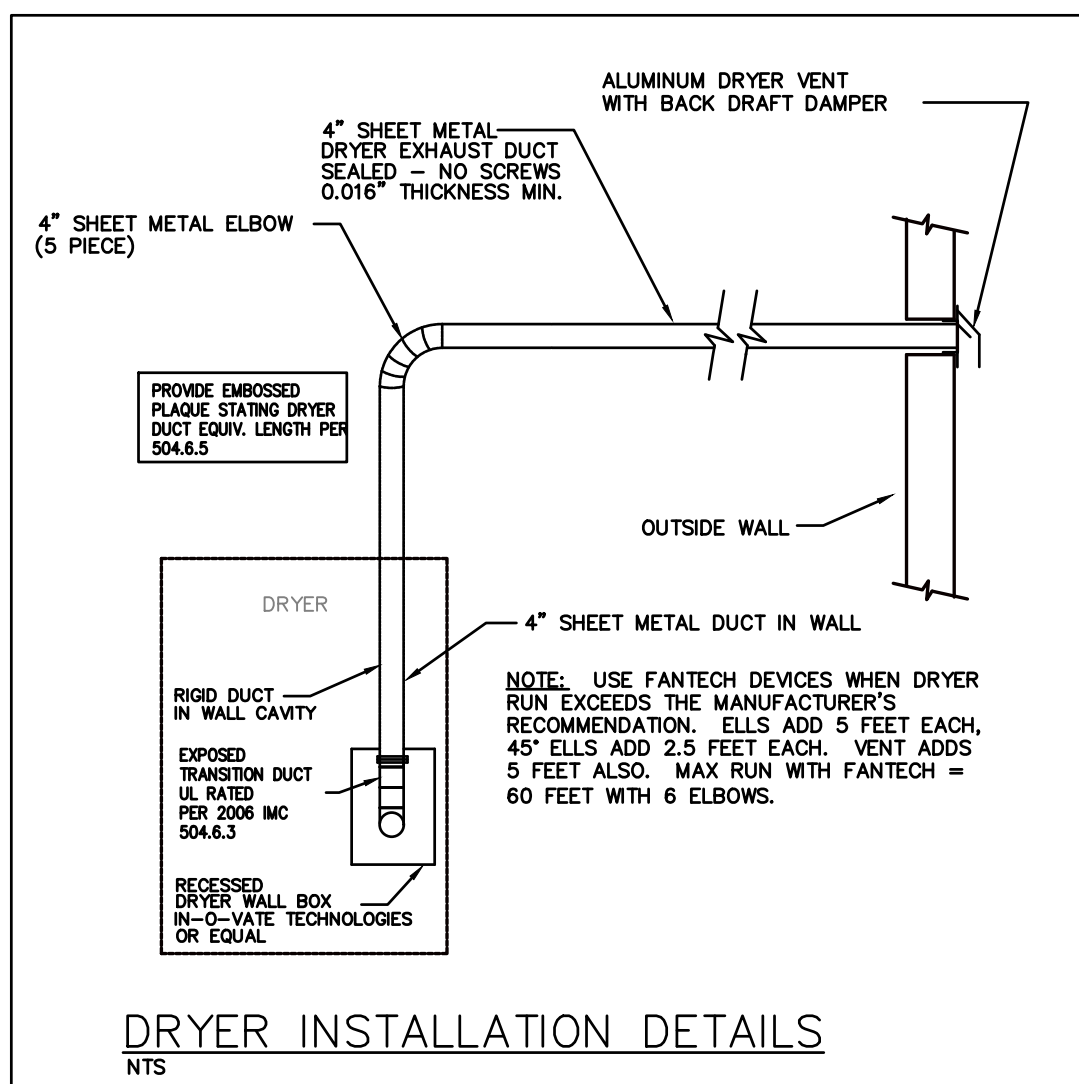
Vertical sidebar containing logos for QEE, IGSHPA, SCOT ENGINEERING, and various professional seals for electrical and mechanical engineers. Includes project title 'LAFAYETTE HOUSE' and drawing information.

LEGENDS	ABBREVIATION
IN RETURN DUCT	AD ACCESS DOOR
⊙ CARBON DIOXIDE SENSOR, W/ RELAY	AFF ABOVE FINISHED FLOOR
⊙ SHOW IN GARAGE	AHU AIR HANDLING UNIT
⊙ CARBON MONOXIDE SENSOR W/ RELAY	ALU ALUMINUM
⊙ THERMOSTAT INSTALL 46" AFF	BD BALANCE DAMPER
⊙ CEILING REGISTER WITH RADIATION DAMPER	BDD BACK DRAFT DAMPER
⊙ SUPPLY AIR REGISTER ONE FOOT ABOVE FINISHED FLOOR	BE BOTTOM ELEVATION
⊙ EXHAUST FAN SEVEN FEET ABOVE FINISHED FLOOR	BS BIRD SCREEN
⊙ GAS FURNACE	CA COMBUSTION AIR
⊙ AIR HANDLER	CD CEILING DIFFUSER, LOUVERED FACE
⊙ IN-WALL MOUNTED AIR HANDLER	CG CEILING GRILLE
⊙ RETURN GRILLE WITH RADIATION DAMPER	CR CEILING REGISTER
⊙ FLOOR REGISTER WITH FIRE DAMPER	CSW DISCONNECT SWITCH
⊙ WALL HEATER 2.0 KW	EA EXHAUST AIR
⊙ SUPPLY AIR DUCT UP	ER ENERGY RECOVERY
⊙ RETURN OR EXHAUST DUCT UP	ER EXHAUST REGISTER
⊙ SUPPLY AIR DUCT DOWN	FOT FLAT ON TOP
⊙ RETURN OR EXHAUST DUCT DOWN	FR FLOOR REGISTER
⊙ MOTORIZED DAMPER 24VAC OR 115VAC	HP HEAT PUMP
⊙ FIRE DAMPER	IBJ INSTALL BETWEEN JOISTS
⊙ VOLUME DAMPER	INS INSULATION
⊙ FLEXIBLE DUCT UL181, CLAS 1 (SIZE IN CIRCLE IS DIAMETER), R-8-NO LENGTH LIMIT	IS INSECT SCREEN
⊙ RIGID METAL DUCT, ROUND (SIZE IN CIRCLE IS DIAMETER)	LSW LOW SIDE WALL
⊙ FLEXIBLE CONNECTOR DUCT MAXIMUM LENGTH 14' (ZIP-FLEX)	MUA MAKE UP AIR
	OA OUTSIDE AIR
	ODD OPPOSED BLADE DAMPER
	OC COOLING 0 CFMs
	OHO 0 HEATING 0 CFMs
	R-6 INSULATION R-6
	R-8 INSULATION R-8
	R/A RETURN AIR
	RC RETURN GRILLE
	RR RETURN REGISTER
	SR SUPPLY REGISTER
	TOP ELEVATION
	TG TRANSFER GRILLE
	VD VOLUME DAMPER
	W/C WALL CAP
	WMS WIRE MESH SCREEN
	W/RD WITH RADIATION DAMPER

NOTE: NOT ALL ITEMS SHOWN ARE USED ON THIS PROJECT

GENERAL HVAC CONSTRUCTION NOTES, NOT ALL APPLY

- The plans represent a complete operational system, wherein all wiring, equipment, fixtures, fittings, controls, and required accessories are furnished, installed, started, and tested by the sub-contractor. The sub-contractor shall provide all materials, equipment, labor, and supervision to deliver a complete system. The fire protection alarm/sprinkler system is not a component of this design (unless specifically depicted) and it is provided by a design and build fire protection contractor.
- The plans are diagrammatical in nature. The work required to properly interface with other trades, which may represent changes to the drawings to accommodate the installation of this work, is performed without additional cost to the builder. This includes but is not limited to architectural, structural, electrical, plumbing, mechanical, grading, fire protection, and other considerations.
- All work must be executed in strict accordance with all applicable national, state and local codes and ordinances. All work must be executed in a neat and workmanlike manner. The sub-contractors and builder must coordinate with all trades during the construction process. This sub-contractor must review all aspects of their work prior to installation to ensure proper clearances and capacities exist.
- All air conditioning equipment installed shall be minimum 15 SEER efficiency minimum. All air conditioning equipment must be AHRI matched and rated.
- The sub-contractor must be licensed and insured in the Township, County and State as applicable. Submit to the owner as directed proof of insurance.
- Since the plans are diagrammatical in nature for clarity purposes, the sub-contractor must submit a shop drawing where the contractor intends to install work that includes substantial differences from the plans, inclusive of calculations and other items to the owner prior to commencing work. The shop drawings must include exact locations, special fittings, and verification that this information is accurate.
- The sub-contractor warrants that they have visited the project site, reviewed all of the contract documents, and are otherwise familiar with the requirements necessary to completely execute the work required to comply with the diagrammatical work depicted herein. Further, the sub-contractor warrants that, in possessing a thorough knowledge of the code and industry standard construction practices, the bid for performing the work will contain allowances for normal difficulties experienced during the construction of a building of this type. Modifications to the contract, which do not add value to the project, will not be considered valid.
- The design conditions for this project are heating and cooling per ASHRAE 1% and 99% design temperature extremes minimum of 17°F and 91°F outdoor and 70°F indoor heating and 75°Fdb/50°F indoor cooling. The cooling and heating requirements were calculated according to ACCA Manual J with average construction, East/West Front/Back exposure, and blinds on some windows.
- Provide fire protection dampers whenever a rated assembly is penetrated by ductwork. It is the intent of this plan set to show all fire protection dampers. Inadvertently, a fire protection damper may be shown in a non-rated wall and not be required. Also a fire damper may not be shown in a rated wall but remain a requirement.
- All supply air, return air, and exhaust air duct work installed in an unconditioned space must be insulated with R-8 insulation wrap minimum, or per code if it is stricter. R-8 duct board with a tough guard interior water proof coating installed in strict accordance with the installation instructions published by the manufacturer is acceptable on insulated duct work for top floor dwellings only, in lieu of metal rectangular duct with an insulation wrap. Round ductwork installed in an unconditioned space shall be R-8 insulated class 1 flexible air duct, UL rated 181 or rigid metal duct wrapped with insulation. Flexible air duct shall be provided with a reflective outer casing, black colored flex duct outer casing is strictly prohibited. The HVAC contractor shall be responsible for installing air conveyance systems in unconditioned spaces which comply with this requirement, to the extent that higher than specified insulation values may be required. All ductwork shall be properly supported.
- All ductwork shall be G60 galvanized metal 26-gauge minimum for rectangular, and 28 gauge minimum for smaller round ductwork. Duct board is not acceptable, except for the top floor dwelling discharge plenums, air distribution manifolds and register boots. Where duct board is utilized it shall be "Toughguard" or equal with the moisture/erosion resistant black coating without exception. Duct board cannot be used for other purposes.
- Seal all duct building penetrations, especially floor register and ceiling register boots.
- All dryer exhaust duct shall be rigid round duct without protrusions (such as screws) into the air stream. The developed length shall not exceed twenty-five feet total, where 90° elbows count as five feet of length. Where the dryer proposed is capable of performing with dryer exhaust developed lengths in excess of 25', longer lengths are permitted where they are within the manufacturer's published requirements. Coordinate with the builder in advance of installation.
- Kitchen exhaust shall be ducted. Coordinate with the builder for installation requirements. Comply with the written installation instructions published by the kitchen hood manufacturer.
- All ductwork shall be leak tested by a third independent party (duct blaster test) for leakage. Leakage shall not exceed five percent @ 0.20" without exception. Seal the ductwork to prevent leaks with metal tape (no tape on round branch to rectangular trunk duct connections) or mastic. Duct sealing shall include the snap lock longitudinal seams, and the end boots, elbow boots and other riveted type manufactured fittings. All ductwork operates at less than 3.0" w.g.
- The plumber shall provide a PVC condensate drain within five feet of the mechanical equipment to drain the g/c condensate (not to the storm water management system or to the irrigation system). The HVAC contractor shall furnish a clean out tee and approximately five feet or less of PVC condensate drip pipe from the HVAC equipment to the plumber furnished drain within the closet. All furnaces and air handlers shall receive an emergency drain pan with a float switch wired to stop the equipment if moisture is detected. Coordinate equipment location with the builder.
- The plans indicate quantities of items to enhance the understanding of the design concept. The quantities are reliable, but not guaranteed. The contractor is responsible to install the correct quantities of items required to deliver a complete functioning building.
- This design is non-transferable. It is intellectual property with trade secrets to be utilized on this project only.
- The sub-contractor shall provide an air balance as a component of the HVAC system start-up for the residential systems. The HVAC sub-contractor shall provide adjustments as required to meet temperature uniformity throughout the dwellings, should a temperature disparity exist without additional cost to the builder.
- The thermostat shall comply with 503.2.4.1 where a humidity control is included with programmable operation.
- Provide a plaque adjacent to each clothes dryer, within site of dryer not further than 6' away, that specifies max exhaust duct length and dryer exhaust capacity minimum.
- Provide fire smoke dampers 115v-1 whenever a duct penetrates a shaft.
- Provide a water detection device for every AHU in the drain pan to stop equipment to prevent a pan overflow. HVAC systems shall utilize in-line sensors to detect moisture in drain pans, such as Goodman model AG 3175 or similar. Do not use "hockey puck" style drain pan switches.
- All MEP systems shall provide for no pooling of water to the extent possible. The safe pans, drain pans, and condenser pads shall all slope to avoid pools of water. It is acceptable to have a 1/8" depth pool of water in condensate pans during cooling operation.
- All access panels shall be labeled by the trade that receives the benefit of the access panel. The builder provides many access doors for plumbing cleanouts or fire dampers, but the plumber or hvac contractor shall provide the label. The label shall be with 3/8" height letters on non-cardboard or paper type material, permanently affixed to the access door. Duct access doors installed in ductwork shall be made and labeled by the hvac contractor.
- The fire dampers that penetrate the ceiling on the discharge of the air handler shall be installed in strict accordance with the installation instructions published by the manufacturer. Submit the illustration of the installation to the instructions prior to construction and that will suffice as the detail. The damper shall be installed in a sleeve within six inches of the plane of the ceiling at a minimum, complete with a duct access door.
- The registers and grilles shall be residential stamped steel type for dwellings and commercial as shown on the plans for public spaces. The supply devices shall include a manually operated volume damper. The size of the registers and grilles refers to duct connection size internal dimension, equipment of similar size and adequate performance are acceptable (for example if the contractor utilizes 12x8 or 12x4 supply registers as their standard they are acceptable if their performance is similar to the 10x8 size specified). The return air conveyance system shall not include any adjustable devices to restrict air volume. The return air grilles shall be installed such that the blades are positioned to minimize dust into the return air duct.
- Where there exists a discrepancy between the plans, documents, or code the sub-contractor shall provide for the most expensive method and advise the builder in writing prior to performing any work.



RESPONSIBILITY OF DESIGN AND CONSTRUCTION TEAMS FOR MEP:

Amicable cooperation of the design and construction teams generally produces the best results for the owner. Investment in the design by the installing contractors is also usually beneficial for the project. Any reasonable contractor suggestions in advance of construction will be considered and/or reviewed. Any resulting necessary (for permit or code official inspection purposes, not for as-built purposes) construction plan changes that the owner and architect approve suggested by the installing contractor shall be executed by the MEP design team without additional charge provided they are not extensive.

The MEP design is provided primarily to obtain the building permit. If the jurisdiction did not require professionally engineered MEP plans, the project would likely be constructed as a design and build project. Accordingly the plans are not shop drawings. The plans are not as-built drawings. The plans do not show every difficulty and nuance associated with what is required to install a complete system. The contractor is responsible for installing a complete system as diagrammatically depicted on the plans. This will likely include providing items that are not shown on the plans but required to deliver a complete system. The plans may be considered a performance based specification.

The MEP contractors must anticipate in advance of the bid and construction the requirements necessary to deliver a complete system so that there are no requests for change orders based on alleged plan omissions/errors later in the project to provide the systems already specified on the plans. For example if an electrical switchgear room is crowded and requires more compact equipment, larger spaces, and/or other circumstances the electrical switchgear capacity specified must be installed without additional charge. Further to this example the resolution may involve enlarging a room by design in advance of construction, considering review of different equipment or other solutions. The design team will cooperate to the extent reasonably possible to mitigate any unanticipated circumstances to provide a complete MEP system. However, again, no change orders shall be approved unless it is additional scope items the owner agrees to fund.

It is the installing contractors responsibility to notify the design team in advance of all construction with time to react whenever there could be an issue that requires resolution to install a complete code compliant MEP system. There are further restrictions specified in the construction documents and this narrative is by no means limiting.

Under no circumstances will re-routing of ductwork or plumbing pipes be considered a change order due to unanticipated structural interferences. The routing of the pipes and ductwork shown on the plans is intended to anticipate the majority of structural interferences but it will not include all of them. The entire duct or pipe system must be planned in advance to avoid re-working or re-routing of this work. Coordination with other trades to accommodate their work is also required. Under no circumstances will re-installation of incorrect materials for the application be considered change order, for example all exposed wiring in the garage must utilize metal conduit enclosed conductors and the use of NM conductors (Romex) by mistake (or even if inadvertently specified) will not be considered a change order to replace.

It is recommended but not required that the MEP trades provide shop drawings in advance of construction, especially in the service entrance rooms, utility rooms, dwelling HVAC closets and other areas traditionally designed with confined spaces in wood frame multi-family dwelling structures. It is the responsibility of the MEP contractors to notify the prime contractor where installation of their trade work may require intense cooperation with other trades such as concrete enclosed conductors under the first floor slab, plumbing risers turns that require dropped footings and the like in advance of the bid and construction to minimize unanticipated construction requirements to deliver a complete system.

Again, cooperation, advance planning, anticipation of difficulties, suggestions, and the like will produce the best result for all concerned parties.

EQUIPMENT NOTES, NOT ALL APPLY

All equipment includes ECM motors. All equipment is minimum 15 SEER AHRI rated without utilizing oversized air handlers (poor humidity removal).

Return air conditions are 75°Fdb/64°Fwb for cooling, and 70°Fdb for heating. ER ratings are based upon 95°Fdb/78°Fwb outside and return air conditions. For common areas and amenity areas, return air conditions are 80°Fdb/67°Fwb to account for outside air conditions mixing with return air.

All air distribution registers and grilles for common areas shall be commercial type, not stamped steel with manual exposed operating levers suitable for the dwellings. For all bathrooms, lockers, and mech. closets, provide 100% aluminum construction for the registers and grilles. The sizes and locations shown on plans accommodate occupant comfort, performance and trusses - do not vary sizes or locations based upon interior designer suggestions without EOR approval.

- All equipment includes high and low refrigerant compressor protection switches.
- All commercial equipment serving common areas includes auto change over thermostats with remote sensors, where the main control is locked in the mechanical closet to be set by management. The location of the thermostat shown on the plans is the sensor location; main controller is in mechanical closet and not shown on the plans.
- The thermostats shall be the type that when the heating load can be accomplished without operating the resistance heat (except during defrost) and just running the compressor, the thermostat shall control the heat pump accordingly. When the temperature set point is above the room temperature sensed, the compressor shall operate alone unless the sensed temperature falls 5°F below the set point. The thermostat shall gradually ramp up temperature using just the compressor during the end of a night set back temperature period. This is specified to meet code section 6.4.3.5. The thermostat also includes an outdoor temperature sensor to lock out the resistance heat at a point which above it the compressor is able to manage the heat load. Each dwelling will need to program the lockout temperature.
- Provide MERV 8 filters on AHU systems. Provide MERV 6 on all outdoor air inlets.
- All refrigeration pipe insulation shall be 1/2" thick minimum, with protection from both physical and UV damage.
- Provide a moisture detection (water level) switch that will shut off the equipment if the primary drain pan (or pan underneath the air handler) drain becomes blocked to prevent property damage. The device that senses water level rise shall conform to UL508.

Prototype of Design Models manufactured by Goodman and Carrier (OTHER MANUFACTURERS WILL BE REVIEWED):

Dwellings: Air handlers, variable speed with ECM motors capable AS NOTED PER THE HVAC SCHEDULE. ALL SYSTEMS SHALL BE AHRI or DOE MATCHED OF EQUAL OR BETTER SEER AND HSPF RATING AS LISTED.

Corridors and Common Areas: AHFC series air handlers matched with DS2C16 two stage series heat pumps for corridors.

Sequence of operation: General: The fan is always energized and the compressor is cycled to maintain humidity and temperature settings. On a call for heating the compressor cycles in concert with the back-up heat (defrost and extreme conditions) for heat pump operations.

- All dwelling heat pump split systems:
 - Programmable thermostat with humidity control cycles the HVAC equipment to maintain the thermostat setting.
 - The fan should remain in the on position during occupancy to insure maximum comfort and ventilation.
 - The outside air intake receives a gravity actuated automatic damper at the exterior wall in every case.
- Common area split system heat pumps:
 - The thermostat is a 7 day programmable unit (for AHREA 90.1, 6.4.3.3.2 set back controls and off hours controls ASHREA 90.1, 6.4.3.3), rather than daily for the dwellings. The programming shall include off hours scheduling as per ASHREA 90.1, 6.4.3.3. The programming shall include a battery back up in each thermostat to prevent each thermostat from having to be reprogrammed as per ASHREA 90.1, 6.4.3.3.1.
 - The thermostat is an auto change over type that switches automatically from heating to cooling as determined by the measured return air temperature (wall sensor adjacent to thermostat) and the heating and cooling set points for both occupied and unoccupied, (optimum start controls). The thermostats shall include a 5°F dead-band between heating and cooling as per ASHRAE 90.1, 6.4.3.1.2. Further, the heating and cooling set point can never overlap (hence the dead-band) as per ASHRAE 90.1, 6.4.3.2.
 - The thermostat is installed inside the mechanical closet for the control and operation by management. The remote sensor is installed where shown on the plans adjacent to the return air grille.
 - In some instances with large volumes of outside air as identified on the floor plans, the outside air is restricted partially by a motorized outside air damper that allows 25% of outside air through an opposed blade damper during unoccupied and full 100% outside air during full occupancy. Full occupancy is determined by a carbon dioxide sensor with an adjustable setting of 1,100ppm set point mounted in the return air duct with a relay option.
- All refrigeration pipe insulation shall be 1" thick minimum.

ALL DIMENSIONS, SIZES AND CAPACITIES MUST BE FIELD AND CODE VERIFIED.

PROJECT: LAFAYETTE HOUSE
PORTSMOUTH, NEW HAMPSHIRE

PROJECT ARCHITECT:
JOSHUA W. CHAPMAN PE, LEED AP, PRINCIPAL

PROJECT CONSULTING ENGINEER:
SCOT ENGINEERING

PROJECT ARCHITECT:
JOSHUA W. CHAPMAN PE, LEED AP, PRINCIPAL

PROJECT ARCHITECT:
JOSHUA W. CHAPMAN PE, LEED AP, PRINCIPAL

PROJECT ARCHITECT:
JOSHUA W. CHAPMAN PE, LEED AP, PRINCIPAL

PROJECT ARCHITECT:
JOSHUA W. CHAPMAN PE, LEED AP, PRINCIPAL

PROJECT ARCHITECT:
JOSHUA W. CHAPMAN PE, LEED AP, PRINCIPAL

PROJECT ARCHITECT:
JOSHUA W. CHAPMAN PE, LEED AP, PRINCIPAL

MECHANICAL NOTES & DETAILS

REVISIONS

OWNER: ...

DESIGNED BY: RSM/JWC DATE: 10/10/2022

DRAWN BY: DPG/DMC CHECKED BY: RSM/JWC

SCALE: AS NOTED

SHEET IDENTIFICATION

M-1

IGSHPA International Ground Source Heat Pump Association

SCOT ENGINEERING

100 BANKERS BUILDING SUITE 100 NEWARK, NJ 07102

PH: 973-992-7777 FAX: 973-992-7778

WWW.SCOTENGINEERING.COM

JOSHUA W. CHAPMAN PE, LEED AP, PRINCIPAL

1. SECTION 15100 - BASIC MECHANICAL REQUIREMENTS

A. THE WORK OF EACH OF THE MECHANICAL SECTIONS INCLUDES FURNISHING AND INSTALLING THE MATERIAL, EQUIPMENT, AND SYSTEMS COMPLETE AS SPECIFIED AND/OR INDICATED ON THE DRAWINGS. THE MECHANICAL INSTALLATIONS, WHEN FINISHED, SHALL BE COMPLETE AND COORDINATED, READY FOR SATISFACTORY SERVICE.

B. ALL WORK UNDER THIS CONTRACT SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE MUNICIPAL, STATE, COUNTY, NFPA AND 2009 ICC CODES THAT GOVERN EACH PARTICULAR TRADE.

C. THE CONTRACTOR SHALL MAKE APPLICATIONS AND PAY ALL CHARGES FOR ALL NECESSARY PERMITS, LICENSES AND INSPECTIONS AS REQUIRED UNDER THE ABOVE CODES. UPON COMPLETION OF THE WORK, THE CUSTOMARY CERTIFICATIONS OF APPROVAL SHALL BE FURNISHED.

D. NO MATERIALS OR EQUIPMENT SHALL BE USED IN THE WORK UNTIL APPROVED. BEFORE SUBMISSION OF THE SHOP DRAWINGS, AND NOT MORE THAN THIRTY (30) DAYS AFTER AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A COMPLETE LIST OF MATERIALS AND EQUIPMENT WHICH HE INTENDS TO FURNISH, GIVING MANUFACTURER AND CATALOG NUMBERS. A COMPLETE LIST OF PROPOSED SUBCONTRACTORS SHALL ALSO BE SUBMITTED.

E. THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND SPECIFICATIONS AND SHALL INSPECT THE EXISTING CONDITIONS OF THE SITE. FAILURE TO COMPLY WITH THIS REQUIREMENT WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLYING WITH THE INTENT OF THE CONTRACT DOCUMENTS.

F. THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF THE PLUMBING INSTALLATIONS. DETAILS OF PROPOSED REPAIRS DUE TO ACTUAL FIELD CONDITIONS OR OTHER CAUSES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION. REWORKING OF COMPLETED ITEMS DUE TO IMPROPER FIELD COORDINATION SHALL BE AT THE CONTRACTOR'S EXPENSE.

G. PROVIDE SUFFICIENT ACCESS AND CLEARANCE FOR ALL ITEMS OF EQUIPMENT REQUIRING SERVICING AND MAINTENANCE, SUCH AS VALVES, CONTROLS, DRAINS, VENTS, SWITCHES, FILTERS, TRAPS, AND MAJOR ITEMS OF EQUIPMENT.

H. THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A RECORD AND INFORMATION BOOKLET. THE BOOKLET SHALL BE BOUND IN A THREE-RING LOOSE-LEAF BINDER. PROVIDE THE FOLLOWING DATA IN THE BOOKLET:

- CATALOG DATA ON EACH PIECE OF EQUIPMENT FURNISHED.
- APPROVED SHOP DRAWINGS ON EACH PIECE OF EQUIPMENT FURNISHED.
- MAINTENANCE, OPERATION AND LUBRICATION INSTRUCTION ON EACH PIECE OF EQUIPMENT FURNISHED.
- MANUFACTURER'S AND CONTRACTOR'S WARRANTIES.
- COMMISSIONING REPORTS.
- SCHEDULE/DESCRIPTION OF ALL SERVICE WORK/MAINTENANCE INSPECTIONS REQUIRED BY PARAGRAPHS D.P AND Q OF THIS SECTION.

I. THE ENTIRE NEW PLUMBING SYSTEM SHALL BE TESTED HYDROSTATICALLY BEFORE INSULATION COVERING IS APPLIED AND PROVIDED TIGHT UNDER THE FOLLOWING GAUGE PRESSURES:

SANITARY AND STORM WATER PIPING.....AS SPECIFIED BELOW
DOMESTIC WATER.....100 PSI
FIRE PROTECTION.....100 PSI

J. ALL SOIL, WASTE AND VENT PIPING SHALL BE TESTED BY THE CONTRACTOR. THE ENTIRE NEW DRAINAGE SYSTEM AND VENTING SYSTEM SHALL HAVE ALL NECESSARY OPENINGS PLUGGED AND FILLED WITH WATER TO THE LEVEL OF TEN (10) FEET ABOVE THE MAIN OR BRANCH BEING TESTED. THE TEST SHALL BE PERFORMED FOR THIRTY (30) MINUTES WITHOUT SHOWING A DROP GREATER THAN FOUR (4) INCHES.

NOTE: IF ANY CODE OR AUTHORITY REQUIRES TESTING WHICH IS DIFFERENT THAN THE TEST LISTED ABOVE, THE MORE STRINGENT TEST SHALL BE PERFORMED.

K. UPON COMPLETION OF THE PLUMBING INSTALLATIONS, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS OF THE PLUMBING CONTRACT DRAWINGS WHICH SHALL BE LEGIBLY MARKED IN RED PENCIL TO SHOW ANY CHANGES AND REPAIRS OF THE INSTALLATION AS COMPARED WITH THE ORIGINAL DESIGN. THEY SHALL BE SUITABLE FOR USE IN PREPARATION OF RECORD DRAWINGS.

L. ALL PIPING AND VALVE SYSTEMS SHALL BE IDENTIFIED WITH LABELS AND TAGS. MATERIALS SHALL BE MANUFACTURED BY SETON NAME PLATE CORPORATION.

M. ALL NEW PLUMBING INSTALLATIONS, INCLUDING ALL MATERIALS AND LABOR SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF OWNER ACCEPTANCE. THE ABOVE SHALL NOT IN ANY WAY VOID OR ABROGATE EQUIPMENT MANUFACTURER'S GUARANTEE OR WARRANTY. CERTIFICATES OF GUARANTEE SHALL BE DELIVERED TO THE OWNER.

N. CONTRACTOR SHALL ALSO PROVIDE ONE (1) YEAR FREE SERVICE TO KEEP THE EQUIPMENT IN OPERATING CONDITION. THIS SERVICE SHALL BE PROVIDED PER THE FOLLOWING SCHEDULE AND RENDERED UPON REQUEST WHEN NOTIFIED OF ANY EQUIPMENT MALFUNCTION.

O. IN ADDITION TO THE FIRST YEAR WARRANTY PERIOD, THE CONTRACTOR SHALL PROVIDE, AT NO ADDITIONAL COST TO THE OWNER, A MINIMUM OF FOUR (4) SERVICE CALLS AND MAINTENANCE INSPECTIONS PER BUILDING. A COMPLETE OUTLINE OF THE REQUIRED MAINTENANCE AND THE PREPARED SCHEDULE SHALL BE INCLUDED IN THE RECORD AND INFORMATION BOOKLET DETAILED IN SECTION 15100. BASIC MECHANICAL REQUIREMENTS, PARAGRAPH I, FOR REVIEW AND ACCEPTANCE BY THE OWNER/REPRESENTATIVE AND ENGINEER. THE INSPECTIONS ARE TO BE PERFORMED AT THREE (3) MONTH INTERVALS FOR A TOTAL OF FOUR (4) SERVICE CALLS AND INSPECTIONS DURING THE FIRST YEAR WARRANTY PERIOD (THREE (3) TIMES DURING THE YEAR PLUS THE ORIGINAL SYSTEM STARTUP COMMISSIONING).

P. THE SERVICE WORK AND INSPECTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

- CLEAN DRAIN PANS AND DRAIN LINES;
- CHECK AND TIGHTEN ALL ELECTRICAL CONNECTIONS;
- INSPECT AND CLEAN ALL WATER STRAINERS;
- CHECK OPERATING PRESSURES;
- INSPECT ALL CONTROLS FOR CORRECT OPERATION AND CALIBRATE AS REQUIRED;
- PERFORM ALL MAINTENANCE AS OUTLINED IN THE EQUIPMENT MANUFACTURERS OPERATION AND MAINTENANCE MANUALS.

UPON COMPLETION OF EACH SCHEDULED INSPECTION, THE CONTRACTOR SHALL DELIVER TO THE BUILDING OWNER/OWNER'S REPRESENTATIVE WITHIN FORTY-EIGHT (48) HOURS OF COMPLETION, TWO (2) COPIES OF THE COMPLETED INSPECTION REPORT FOR RECORD PURPOSES.

Q. THE PLUMBING OR SERVICE CONTRACTOR SHALL, AT THE NINTH MONTH, ADVISE THE OWNER OF THE TERMINATION DATE OF THE ABOVE SERVICE. THIS CONTRACTOR SHALL ALSO PROVIDE THE OWNER WITH A DETAILED PROPOSAL, REFLECTING ANNUAL ESCALATION, FOR THE CONTINUATION OF THE SERVICE AND INSPECTIONS DESCRIBED ABOVE.

2. SECTION 15050 - BASIC MECHANICAL PIPING MATERIAL & METHODS

A. PROVIDE ALL LABOR AND MATERIALS NECESSARY TO FURNISH AND INSTALL ALL PIPING SYSTEMS ON THE PROJECT, INCLUDING INTERIOR STORM, SANITARY, SANITARY VENT, DOMESTIC WATER, CONDENSATE DRAINAGE, HEATING WATER AND NATURAL GAS PIPING SYSTEMS.

B. PROVIDE DIELECTRIC COUPLINGS WHERE NON-FERROUS METAL PIPING IS JOINED TO FERROUS METAL PIPING. THE GASKET MATERIAL SHALL BE CAPABLE OF WITHSTANDING THE TEMPERATURES AND PRESSURES WITHIN THE PIPING SYSTEM IN WHICH INSTALLED. SUBMIT DIELECTRIC COUPLING AND GASKET MATERIAL FOR APPROVAL.

SECTION 15250 - MECHANICAL INSULATION

A. ALL DOMESTIC WATER PIPING SYSTEMS SHALL BE INSULATED WITH CLOSED CELL FOAM INSULATION FOR HOT WATER HEATING APPLICATIONS PER IECC AND AS REQUIRED TO PREVENT CONDENSATION.

B. ALL HYDRON/MECHANICAL PIPING WITH FLUID TEMPS ABOVE 105F OR BELOW 55F MUST BE INSULATED WITH R-4 MINIMUM.

3. SECTION 15300 - FIRE PROTECTION

PROVIDE INTUMESCENT FITTINGS WHERE PVC PIPING PENETRATES FIRE RATED PARTITIONS. FIRE PROTECTION SYSTEM BY DESIGN AND BUILD SPRINKLER CONTRACTOR.

4. SECTION 15400 - PLUMBING

C. All hangers for copper piping shall be copper clad, split ring swivel type, having rods with machine threads and threaded copper clad ceiling flange. Cast iron and steel piping supports shall be similar without copper clad and prime paint finish. Hangers for plastic piping shall be plastic.

D. Provide dielectric couplings where non-ferrous metal piping is joined to ferrous metal piping. The gasket material shall be capable of withstanding the temperatures and pressures within the piping system in which installed. Submit dielectric coupling and gasket material for approval.

PLUMBING SPECIFICATIONS Section 15400 - Plumbing

A. The work covered by this section of the specifications consists of furnishing all labor, equipment and materials in connection with the rough-in, final setting and connections to all plumbing fixtures. The contractor shall carefully review the conditions at the site and all of the contract drawings to determine the extent of the plumbing work required.

B. All plumbing fixtures shall be complete in every detail with all trimmings and connections. All fixtures shall be designed to prevent the back flow of polluted water or waste into the water supply system.

C. The dwelling water heaters shall be manufactured by BRADFORD WHITE, GAS FIRED, 40 GPM INPUT, 40 GALLON MODEL, REGENT 4055A. A pressure relief valve shall be rated as indicated on drawings and be listed by Underwriters' Laboratories. Heater shall have integral heat traps. Tank shall be factory fired with glass lining with 150 psi working pressure and equipped with extruded high density magnesium anode at 8 p relief valve. The controls shall include a thermostat and a high temperature cutoff. The jacket shall provide full size control compartments for performance of service and maintenance thru front panel openings and enclose the tank with insulation. The drain valve shall be baked enamel finish. Heater shall have a three (3) year limited warranty for commercial installation, as outlined in the written warranty. Fully illustrated instruction manual shall be included. Refer to drawings for size, capacity and voltage.

D. Potable water systems shall be disinfect prior to use. The method to be followed shall be that prescribed by the Health Authority and code requirements.

GENERAL CONSTRUCTION NOTES

1. THE PLANS REPRESENT A COMPLETE OPERATIONAL SYSTEM, WHEREIN ALL WIRING, EQUIPMENT, FIXTURES, FITTINGS, CONTROLS, AND ALL REQUIRED ACCESSORIES ARE FURNISHED, INSTALLED, STARTED, AND TESTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, LABOR, AND SUPERVISION TO DELIVER A COMPLETE SYSTEM. THE FIRE PROTECTION ALARM/SPRINKLER SYSTEM, IF REQUIRED, IS NOT A COMPONENT OF THIS DESIGN UNLESS SPECIFICALLY DEPICTED AND IT IS PROVIDED BY A DESIGN AND BUILD FIRE PROTECTION CONTRACTOR.

2. THE PLANS ARE DIAGRAMMATICAL IN NATURE. THE WORK REQUIRED TO PROPERLY INTERFACE WITH OTHER TRADES, WHICH MAY REPRESENT CHANGES TO THE DRAWINGS TO ACCOMMODATE THE INSTALLATION OF THIS WORK, IS THE RESPONSIBILITY OF THE CONTRACTOR. THIS INCLUDES BUT IS NOT LIMITED TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, FIRE PROTECTION, AND OTHER CONSIDERATIONS.

3. ALL WORK MUST BE EXECUTED IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AND ORDINANCES. ALL WORK EXECUTED IN A NEW AND WORKMANLIKE MANNER. THE SUBCONTRACTORS AND GENERAL CONTRACTOR MUST COORDINATE WITH ALL TRADES DURING THE CONSTRUCTION PROCESS. THIS CONTRACTOR MUST REVIEW ALL ASPECTS OF THEIR WORK PRIOR TO INSTALLATION TO INSURE PROPER CLEARANCES AND CAPACITIES EXIST.

4. THE CONTRACTOR MUST BE LICENSED AND INSURED IN THE COUNTY AND STATE AS APPLICABLE. SUBMIT TO THE OWNER AS DIRECTED PROOF OF INSURANCE INCLUSIVE OF LIMITS OF LIABILITY AND DEDUCTIBLE INFORMATION. ALL SUBCONTRACTORS OF SUBCONTRACTORS MUST BE LICENSED AND INSURED TOID.

5. SINCE THE PLANS ARE DIAGRAMMATICAL IN NATURE FOR CLARITY PURPOSES, THE CONTRACTOR MUST SUBMIT A SHOP DRAWING WHERE THE CONTRACTOR INTENDS TO INSTALL WORK THAT INCLUDES SUBSTANTIAL DIFFERENCES FROM THE PLANS, INCLUSIVE OF CALCULATIONS AND OTHER ITEMS TO THE OWNER PRIOR TO COMMENCING WORK. THE SHOP DRAWINGS MUST INCLUDE EXACT LOCATIONS, SPECIAL FITTINGS, AND VERIFICATION THAT THIS INFORMATION IS ACCURATE.

6. THE CONTRACTOR AND ALL SUBCONTRACTORS WARRANT THAT THEY HAVE VISITED THE PROJECT SITE, REVIEWED ALL OF THE CONTRACT DOCUMENTS, AND ARE OTHERWISE FAMILIAR WITH THE REQUIREMENTS NECESSARY TO COMPLETELY EXECUTE THE WORK REQUIRED TO COMPLY WITH THE DIAGRAMMATICAL WORK DEPICTED HEREIN. FURTHER, THE CONTRACTOR WARRANTS THAT, IN POSSESSING A THOROUGH KNOWLEDGE OF THE CODE AND INDUSTRY STANDARD CONSTRUCTION PRACTICES, THE BID FOR PERFORMING THE WORK WILL CONTAIN ALLOWANCES FOR NORMAL DIFFICULTIES EXPERIENCED DURING THE CONSTRUCTION OF A BUILDING OF THIS TYPE. MODIFICATIONS TO THE CONTRACT, WHICH DO NOT ADD VALUE TO THE PROJECT, WILL NOT BE CONSIDERED VALID.

7. THIS DESIGN IS NON TRANSFERABLE. IT IS INTELLECTUAL PROPERTY WITH TRADE SECRETS TO BE UTILIZED IN THIS PROJECT ONLY.

8. WHERE THE CONTRACTOR FURNISHES CERTAIN MODELS OR PROTOTYPES OF DESIGN SPECIFIED ON THE DRAWINGS, SUBMITTAL DATA IS NOT NECESSARY. SIMPLY NOTIFY THE OWNER IN WRITING THAT THE SPECIFIED ITEM WILL BE USED AND PROCEED WITH THE WORK. IF EQUAL DEVIATIONS FROM THE SPECIFIED PRODUCT ARE UTILIZED, THE PRODUCT DATA MUST BE SUBMITTED TO THE OWNER FOR APPROVAL. IT IS THE INTENT OF THE DESIGN TO MAKE A COMPETITIVE BID. EQUAL PRODUCTS WILL BE CONSIDERED AS SUBMITTER.

9. WHERE THERE EXISTS A DISCREPANCY BETWEEN THE PLANS, DOCUMENTS, OR CODE THE CONTRACTOR SHALL PROVIDE FOR THE MOST EXPENSIVE METHOD AND ADVISE THE ARCHITECT IN WRITING PRIOR TO PERFORMING ANY WORK.

RESPONSIBILITY OF DESIGN AND CONSTRUCTION TEAMS FOR MEP

AMICABLE COOPERATION OF THE DESIGN AND CONSTRUCTION TEAMS GENERALLY PRODUCES THE BEST RESULTS FOR THE OWNER. INVESTMENT IN THE DESIGN BY THE INSTALLING CONTRACTORS IS ALSO USUALLY BENEFICIAL FOR THE PROJECT. ANY REASONABLE CONTRACTOR SUGGESTIONS IN ADVANCE OF CONSTRUCTION WILL BE CONSIDERED AND/OR REVIEWED. ANY RESULTING NECESSARY FOR PERMIT OR CODE OFFICIAL INSPECTION PURPOSES, NOT FOR AS-BUILT PURPOSES) CONSTRUCTION PLAN CHANGES THAT THE OWNER AND ARCHITECT APPROVE SUGGESTED BY THE INSTALLING CONTRACTOR SHALL BE EXECUTED BY THE MEP DESIGN TEAM AS NECESSARY.

THE MEP DESIGN IS PROVIDED PRIMARILY TO OBTAIN THE BUILDING PERMIT. THE PLANS ARE NOT SHOP DRAWINGS. THE PLANS ARE NOT AS-BUILT DRAWINGS. THE PLANS DO NOT SHOW EVERY DIFFICULTY AND NUANCE ASSOCIATED WITH WHAT IS REQUIRED TO INSTALL A COMPLETE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A COMPLETE SYSTEM AS DIAGRAMMATICALY DEPICTED ON THE PLANS. THIS WILL INCLUDE PROVIDING ITEMS THAT ARE NOT SHOWN ON THE PLANS BUT REQUIRED TO DELIVER A COMPLETE SYSTEM. THE PLANS MAY BE CONSIDERED A PERFORMANCE BASED SPECIFICATION.

THIS PROJECT IS DESIGN BUILD. THE MEP CONTRACTORS MUST ANTICIPATE IN ADVANCE OF THE BID AND CONSTRUCTION THE REQUIREMENTS NECESSARY TO DELIVER A COMPLETE SYSTEM. THE DESIGN TEAM WILL COOPERATE TO THE EXTENT REASONABLY POSSIBLE TO MITIGATE ANY UNANTICIPATED CIRCUMSTANCES TO PROVIDE A COMPLETE MEP SYSTEM. HOWEVER, NO CHANGE ORDERS SHALL BE APPROVED UNLESS IT IS ADDITIONAL SCOPE ITEMS THE OWNER AGREES TO FUND.

IT IS THE INSTALLING CONTRACTOR RESPONSIBILITY TO NOTIFY THE DESIGN TEAM IN ADVANCE OF ALL CONSTRUCTION WITH TIME TO REACT WHENEVER THERE COULD BE AN ISSUE THAT REQUIRES RESOLUTION TO INSTALL A COMPLETE CODE COMPLIANT MEP SYSTEM. THERE ARE FURTHER RESTRICTIONS SPECIFIED IN THE CONSTRUCTION DOCUMENTS AND THIS NARRATIVE IS BY NO MEANS LIMITING.

UNDER NO CIRCUMSTANCES WILL RE-ROUTING OF DUCTWORK OR PLUMBING PIPES BE CONSIDERED A CHANGE ORDER DUE TO UNANTICIPATED STRUCTURAL INTERFERENCES. THE ROUTING OF THE PIPES AND DUCTWORK SHOWN ON THE PLANS IS INTENDED TO ANTICIPATE THE MAJORITY OF STRUCTURAL INTERFERENCES BUT IT WILL NOT INCLUDE ALL OF THEM. THE ENTIRE DUCT OR PIPE SYSTEM MUST BE PLANNED IN ADVANCE TO AVOID RE-WORKING OR RE-ROUTING OF THIS WORK. COORDINATION WITH OTHER TRADES TO ACCOMMODATE THEIR WORK IS ALSO REQUIRED. UNDER NO CIRCUMSTANCES WILL RE-INSTALLATION OF INCORRECT MATERIALS FOR THE APPLICATION BE CONSIDERED CHANGE ORDER, FOR EXAMPLE ALL EXPOSED PIPING IN THE GARAGE MUST UTILIZED METAL CONDUIT ENCASED CONDUCTORS AND THE USE OF NM CONDUCTORS (ROMEX) BY MISTAKE OR EVEN IF INADVERTENTLY SPECIFIED WILL NOT BE CONSIDERED A CHANGE ORDER TO REPLACE.

IT IS RECOMMENDED BUT NOT REQUIRED THAT THE MEP TRADES PROVIDE SHOP DRAWINGS IN ADVANCE OF CONSTRUCTION, ESPECIALLY IN THE SERVICE ENTRANCE ROOMS, UTILITY ROOMS, DWELLING HVAC CLOSETS AND OTHER AREAS TRADITIONALLY DESIGNED WITH CONFINED SPACES IN WOOD FRAME MULTI-FAMILY DWELLING STRUCTURES. IT IS THE RESPONSIBILITY OF THE MEP CONTRACTORS TO NOTIFY THE PRIME CONTRACTOR WHERE INSTALLATION OF THEIR TRADE WORK MAY REQUIRE INTENSE COOPERATION WITH OTHER TRADES SUCH AS CONCRETE ENCASED CONDUCTORS UNDER THE FIRST FLOOR SLAB. PLUMBING RISERS TURNS THAT REQUIRE DROPPED FOOTINGS AND THE LIKE IN ADVANCE OF THE BID AND CONSTRUCTION TO MINIMIZE UNANTICIPATED CONSTRUCTION REQUIREMENTS TO DELIVER A COMPLETE SYSTEM.

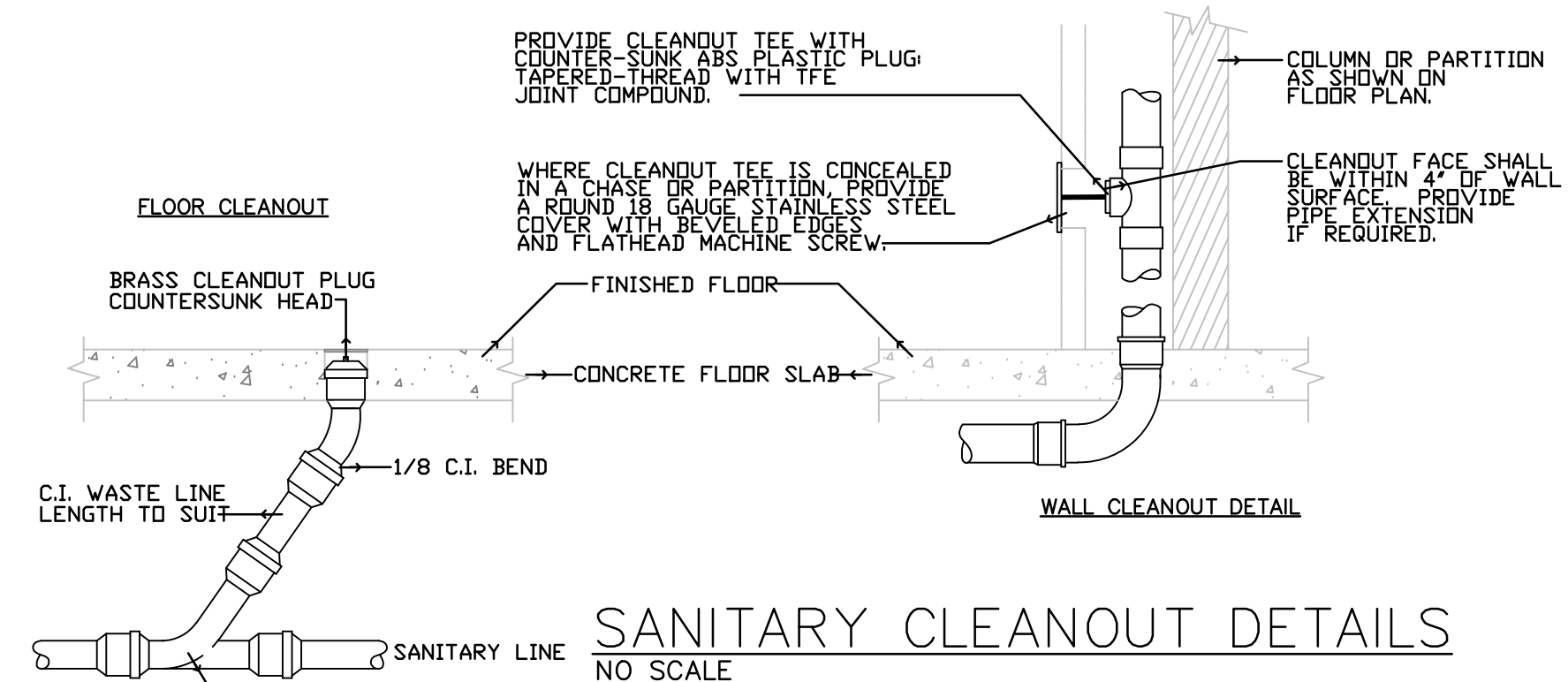
AGAIN, COOPERATION, ADVANCE PLANNING, ANTICIPATION OF DIFFICULTIES, SUGGESTIONS, AND THE LIKE WILL PRODUCE THE BEST RESULT FOR ALL CONCERNED PARTIES.

PLUMBING FIXTURE SCHEDULE						
ITEM	FIXTURE	ROUGH-IN PIPE SIZES			TRAP TYPE	REMARKS
		C.W.	H.W.	SAN.		
WC	WATER CLOSET	1/2"	-	3"	1 1/2"	INTEGRAL FLOOR MOUNTED, TANK TYPE
LAV	COUNTERTOP LAVATORY	1/2"	1/2"	1 1/4"	1 1/4"	*P*
TUB	TUB/SHOWER	1/2"	1/2"	1 1/2"	1 1/4"	*P*
SHWR	SHOWER	1/2"	1/2"	1 1/2"	1 1/4"	*P*
KS	SINGLE COMPARTMENT SINK	1/2"	1/2"	1 1/2"	1 1/4"	*P* WITH GARBAGE DISPOSAL
KD	DOUBLE COMPARTMENT SINK	1/2"	1/2"	1 1/2"	1 1/4"	*P* WITH GARBAGE DISPOSAL
WA	WASHING MACHINE	1/2"	1/2"	2"	2"	*P* WITH DDU-CLOZ VALVE
LT	LAUNDRY TUB	1/2"	1/2"	1 1/2"	1 1/4"	*P*
TUB	SPA TUB	1/2"	1/2"	2"	1 1/2"	*P*
MR	JANITOR'S MOP SINK	3/4"	3/4"	3"	2"	*P*

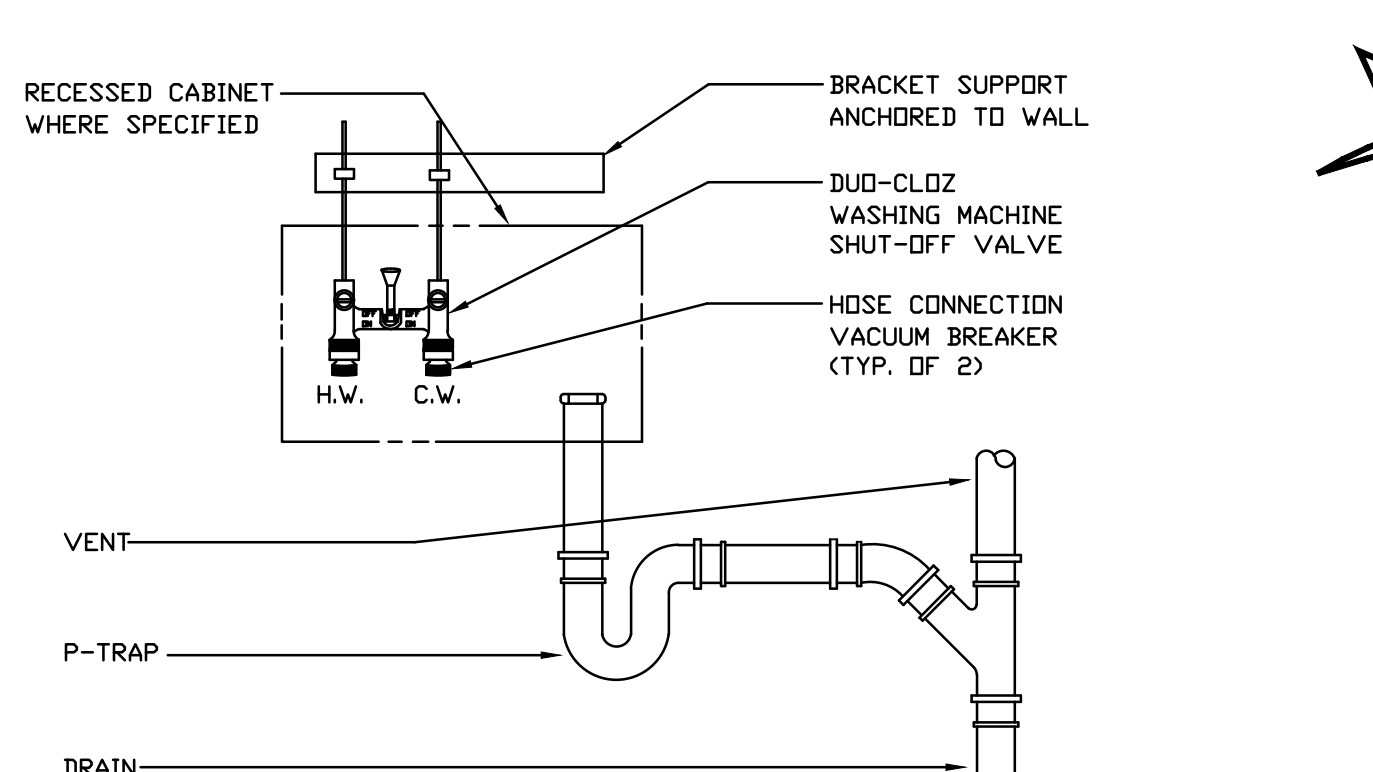
PLUMBING LEGEND & SYMBOL LIST			
(ALL ITEMS SHOWN MAY NOT APPEAR ON DRAWING)			
ACD ACCESS DOOR	LT LAUNDRY TUB	MC MECHANICAL CONTRACTOR	APR AIR PIPING
ADR AUTO DRAINER	MH MANHOLE	MR MOP RECEPTOR	AWH AIR W/HER
AP ACCESS PANEL	MR MOP RECEPTOR	PG PRESSURE GAUGE	DH DOMESTIC HOT WATER
BPS BED PAN SANITIZER	PRV PRESSURE REDUCING VALVE	RWC RAINWATER CONDUCTOR	DHW DOMESTIC HOT WATER REGR.
BT BATH TUB	RWC RAINWATER CONDUCTOR	SP SPRINKLER	FP FIRE PROTECTION
CB CATCH BASIN	SHWR SHOWER	SS SERVICE SINK	GA GAS
CD CAST IRON	SP SPRINKLER	STK STACK	NOX NITROUS OXIDE
CMP CORRUGATED METAL PIPE	SS SERVICE SINK	TMR THERMOMETER	OXYGEN
CO CLEANOUT	STK STACK	UR URINAL	SS SANITARY SEWER
CS CUP SINK	TMR THERMOMETER	V VENT	SSV STORM SEWER
CW COLD WATER	UR URINAL	VAC VACUUM	VAC VACUUM
DF DRINKING FOUNTAIN	V VENT	VBR VACUUM BREAKER	VAC VACUUM
DL DOOR LOUVER	VB VACUUM BREAKER	VTR VENT THRU ROOF	VAV VALVE
DN DOWN	VTR VENT THRU ROOF	W WIRE MESH SCREEN	VAV VALVE
DR DRYER	W WIRE MESH SCREEN	WC WATER CLOSET	VAV VALVE
EL ELECTRICAL CONTRACTOR	WC WATER CLOSET	WH WIRE MESH SCREEN	VAV VALVE
FAI FRESH AIR INTAKE	WH WIRE MESH SCREEN	FX FIRE HOSE CABINET	VAV VALVE
FD FLOOR DRAIN	FX FIRE HOSE CABINET	FHR FIRE HOSE REACK	VAV VALVE
FHC FIRE HOSE CABINET	FHR FIRE HOSE REACK	FE FIRE EXTINGUISHER	VAV VALVE
FHR FIRE HOSE REACK	FE FIRE EXTINGUISHER	GI GREASE INTERCEPTOR	VAV VALVE
FX FIRE EXTINGUISHER	GI GREASE INTERCEPTOR	HV HOT WATER	VAV VALVE
GI GREASE INTERCEPTOR	HV HOT WATER	HW HOT WATER REGR.	VAV VALVE
HV HOT WATER	HW HOT WATER REGR.	JC JANITOR'S CLOSET	VAV VALVE
HW HOT WATER REGR.	JC JANITOR'S CLOSET	LAV LAVATORY	VAV VALVE
JC JANITOR'S CLOSET	LAV LAVATORY		

PIPING MATERIAL SCHEDULE					
SYSTEM	SYMBOL	PIPE	FITTING	JOINT	REMARKS
SANITARY WASTE & VENT, (UNDERGROUND)	SAN SW	PVC FOAM CORE ASTM D 2665, ASTM F 1488, ASTM F 891	PVC, ASTM D 2665, ASTM F 1866	PVC SOLVENT SEALER, PURPLE PRIMER ASTM F 656, CEMENT ASTM D 2564, CSA B137.3 CSA B181.2 OR CSA B182.1	PVC PIPING SYSTEM: SOLID-WALL PVC PIPE ASTM D 2665, & FITTINGS MADE TO ASTM D3311 DRAIN, WASTE & VENT PATTERNS. VERTICAL STACK ALLOWED INSIDE DWELLING UNITS.
SANITARY WASTE & VENT, STORM DRAINAGE (ABOVE-GROUND)	SAN SW	PVC FOAM CORE ASTM D 2665, ASTM F 1488, ASTM F 891	PVC, ASTM D 2665, ASTM F 1866	PVC SOLVENT SEALER, PURPLE PRIMER ASTM F 656, CEMENT ASTM D 2564, CSA B137.3 CSA B181.2 OR CSA B182.1	PVC PIPING SYSTEM: SOLID-WALL PVC PIPE ASTM D 2665, & FITTINGS MADE TO ASTM D3311 DRAIN, WASTE & VENT PATTERNS. VERTICAL STACK ALLOWED INSIDE DWELLING UNITS.
DOMESTIC COLD WATER, HOT WATER SUPPLY & RETURN (ABOVE-GROUND)	CW HW	CPVC, ASTM D 2846, ASTM F 441, ASTM F 442 CSA B137.6	CPVC ASSE 1061, ASTM D2846, ASTM F 437, ASTM F 438, ASTM F 439, CSA B137.6	CPVC SOLVENT SEALER; ASTM F493	CPVC PIPING SYSTEM: ASTM D2846 SDR 11, PIPE AND SOCKET FITTINGS, ALLOWED INSIDE DWELLING UNITS.
NATURAL GAS (IF APPLICABLE)	G	BLACK STEEL PIPE, ASTM A53 GRADE B, TYPE S SEAMLESS SCHEDULE 40	BLACK MALLEABLE IRON THREADED FITTINGS	THREADED USING AMERICAN STANDARD FOR PIPE THREADS, ANSI B2.1 WITH THREAD SEALANT OR TEFLON TAPE MATERIAL, ESPECIALLY LISTED COMPATIBLE WITH SYSTEM CONTENTS, PIPE MATERIALS, AND OPERATING CONDITIONS.	SCHEDULE 40 BLACK STEEL PIPING;

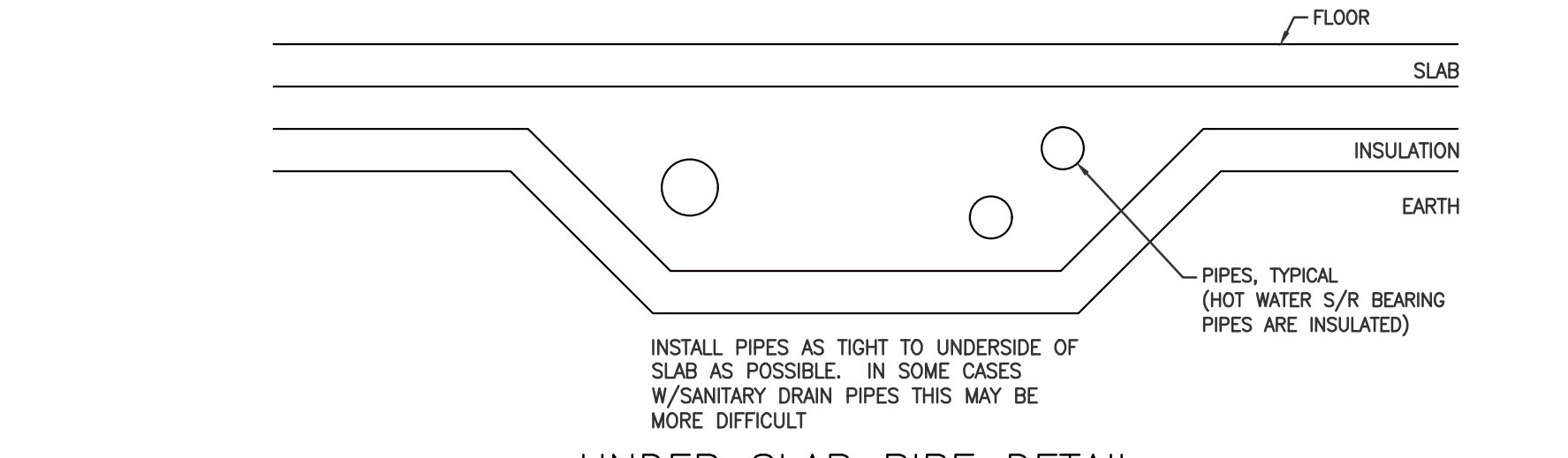
- NOTES:
- SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - CONTACT BETWEEN DISSIMILAR METALS SHALL BE MADE WITH DIELECTRIC COUPLINGS OR DIELECTRIC FLANGES. CONTACT BETWEEN FERROUS AND BOLTS AND BRONZE OR COPPER FLANGES SHALL BE ELECTRICALLY INSULATED WITH NON-METALLIC WASHERS. PROVIDE UNION CONNECTIONS TO ALL PNEUMATICALLY OPERATED EQUIPMENT.
 - INSTALLATION, INCLUDING SUPPORT SPACING, COMPENSATION FOR EXPANSION AND CONTRACTION, AND JOINING SHALL BE IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - JOINTS AND CONNECTIONS SHALL BE PERMANENT AND GAS AND WATER TIGHT. JOINTING SHALL BE TYPES SPECIFIED FOR SERVICE INDICATED. JOINTS AND CONNECTIONS SHALL MEET REQUIREMENTS OF MANUFACTURER'S BEST RECOMMENDED PRACTICE. ALL TRANSITIONS BETWEEN DIFFERENT PIPING MATERIALS SHALL BE USING APPROVED ADAPTERS. ADAPTERS FOR TRANSITIONS BETWEEN TWO TYPES OF PIPING MATERIALS SHALL BE MANUFACTURED FOR PURPOSE INTENDED.
 - ALL FLOOR DRAINS AND/OR PRODUCTS CONNECTED TO SPECIAL DRAINAGE SYSTEM MUST BE COORDINATED FOR CORROSION RESISTANCE, SIZE AND CONNECTION COMPATIBILITY PRIOR TO ORDERING ANY MATERIAL.



SANITARY CLEANOUT DETAILS
NO SCALE
NOTES:
1) FLOOR CLEANOUTS NOT TO BE LOCATED IN CARPETED AREA.
2) PROVIDE WALL CLEANOUTS (VCD) WHERE SHOWN ON PLANS AND IN SANITARY BRANCHES NOT SERVED BY A FLOOR CLEANOUT. CONSULT LOCAL CODES FOR OTHER VCD REQUIREMENTS.



WASHING MACHINE CONNECTION
NO SCALE
NOTE:
REFER TO FLOOR PLANS FOR PIPE SIZES.



UNDER SLAB PIPE DETAIL
SCALE: N.T.S.
INSTALL PIPES AS TIGHT TO UNDERSIDE OF SLAB AS POSSIBLE. IN SOME CASES W/SANITARY DRAIN PIPES THIS MAY BE MORE DIFFICULT.

CODES		PLUMBING SHEET INDEX	
2015 MC	P-1 PLUMBING NOTES & LEGEND	P-2	PLUMBING DETAILS & RISERS
2015 BC	P-2 PLUMBING DETAILS & RISERS	P-3	FLOOR PLAN
2015 BC			
2017 NEC			

ALL DIMENSIONS, SIZES AND CAPACITIES MUST BE FIELD AND CODE VERIFIED.

PROJECT: LAFAYETTE HOUSE
PORTSMOUTH, NEW HAMPSHIRE

ARCHITECT: [Logo]
ENGINEER: [Logo]

SCOT ENGINEERING
SINCE 1980
8000 BARNARD FCB COURSE SUITE 100 FARMERS ST. FARMER, VA 22039-2723
PH: 540-837-7777 FAX: 540-837-7778
WWW.SCOTENGINEERING.COM

JOSHUA W. CHAPMAN, P.E., LEED AP, PRINCIPAL

THE ASSOCIATION OF ENERGY ENGINEERS
IGSHPA
International Ground Source Heat Pump Association

NEW HAMPSHIRE PROFESSIONAL SEAL
JOSHUA W. CHAPMAN, P.E., LEED AP, No. 10214

VERMONT PROFESSIONAL SEAL
JOSHUA W. CHAPMAN, P.E., LEED AP, No. 10214

GEORGETOWN, VIRGINIA PROFESSIONAL SEAL
JOSHUA W. CHAPMAN, P.E., LEED AP, No. 10214

FLORIDA PROFESSIONAL SEAL
JOSHUA W. CHAPMAN, P.E., LEED AP, No. 10214

GEORGETOWN, VIRGINIA PROFESSIONAL SEAL
JOSHUA W. CHAPMAN, P.E., LEED AP, No. 10214

FLORIDA PROFESSIONAL SEAL
JOSHUA W. CHAPMAN, P.E., LEED AP, No. 10214

REVISIONS

PLUMBING NOTES & LEGEND

DRAWING TITLE: PLUMBING NOTES & LEGEND
OWNER: [Redacted]
DESIGNED BY: RSM/JWC
DRAWN BY: LFG/JDM/C
DATE: 10/10/2022
SCALE: AS NOTED
CHECKED BY: RSM/JWC

THIS DIAGRAMMATIC DESIGN IS NON TRANSFERABLE AND REPRESENTS A COMPLETE SYSTEM.

SHEET IDENTIFICATION

P-1

E5071-001
April 22, 2024

Mr. Peter Britz, Director of Planning & Sustainability
City of Portsmouth Planning & Sustainability Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Request for Site Plan Review & Conditional Use Permits Review
100 Durgin Lane – Proposed Redevelopment**

Dear Peter:

On behalf of 100 Durgin Lane Owner, LLC (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, Lot Line Revision Permit, Development Site Conditional Use Permit, Highway Noise Overlay District 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, dated April 22, 2024;
- Drainage Analysis, dated April 22, 2024;
- Long-Term Operation & Maintenance Plan, dated April 22, 2024;
- Wetland Delineation Report, dated February 28, 2024;
- Community Space Exhibit, dated April 19, 2024;
- Impervious Surface Exhibit; dated April 22, 2024;
- Wetland Buffer Exhibit, dated April 22, 2024;
- Wetland Buffer Comparison Exhibit, dated April 22, 2024;
- Grade Plane Exhibit, dated April 22, 2024;
- Fire Truck Turning Exhibit, dated April 22, 2024;
- Location of Motor Vehicle Parking Exhibit, dated April 22, 2024;
- Front Building Setback Exhibit, dated April 22, 2024;
- Lot Line Revision Exhibit, dated April 22, 2024;
- Trip Generation Memorandum, dated April 22, 2024;
- Water & Wastewater Demand Analysis, dated April 22, 2024;
- Green Building Statement, dated April 22, 2024;
- Highway Noise Overlay District Analysis, dated April 22, 2024;
- Site Review Checklist, dated April 22, 2024;
- Subdivision Review Checklist, dated April 22, 2024;
- Lighting Cut Sheets
- Application Fee Calculation Form;
- Authorization Form

PROJECT SUMMARY

Existing Conditions

The proposed project is located at 100 Durgin Lane and includes lots identified as Map 239 Lots 13-2, 16 & 18 on the City of Portsmouth Tax Maps. The site was previously home to



Christmas Tree Shops and Bed, Bath and Beyond locations which are no longer in operation. The properties are a combined 26.2 acres of land and are located in the Gateway District (G1) and also lies within the Highway Noise Overlay District. The property is bound to the west by Route 16, to the north by the Motel 6 property and Gosling Road, to the south by the Hampton Inn and Home Depot properties, and to the east by an Eversource easement, Pep Boys and Durgin Plaza.

Proposed Redevelopment

The proposed project consists of the demolition of the existing Christmas Tree Shops and Bed, Bath and Beyond building and the construction of approximately 360 rental housing units in a mix of 3-story and 4-story buildings. The proposed project will include a community building and associated site improvements such as parking, pedestrian access, community spaces, utilities, stormwater management, lighting, and landscaping. The proposed project also includes a reduction in overall impervious surface on the development lot.

The proposed project will be providing 10% community space as required under the Development Site Conditional Use Permit for having more than one principal building on a single lot. Based on the lot area the required community spaces will exceed 2 acres and includes a public dog park, recreation areas, community walking trails, and open/green space.

Open Space & Buffer Enhancement

The proposed project results in work within the 100-foot wetland buffer and therefore is a Conditional Use Permit is required for demolition and construction activities. The 100-foot wetland buffer within the development area includes impervious parking surfaces, drive aisles, and roadways. The project will provide an overall improvement by reducing impervious cover within the 100-foot wetland 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 project’s landscape design proposes to replace existing impervious areas removed from the wetland buffer with a native grass mix and native trees in an effort to enhance the previously disturbed wetlands buffer.

Table 1. 100 Durgin Lane, Wetland Buffer Impervious Surfaces

Buffer Segment	Existing Impervious (SF)	Final Impervious (SF)
0-25 feet	3,114	2,467
25-50 feet	12,156	9,010
50-100 feet	45,975	41,506
Total	61,245	52,983
Net Impervious Surface		-8,262

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 8,262 SF reduction in impervious surface.



LAND USE PERMIT APPLICATIONS

Local Permitting Timeline

The proposed project will require the following site related approvals from the Planning Board:

- Site Plan Review Permit
- Lot Line Revision Permit
- Development Site Conditional Use Permit
- Highway Noise Overlay District Conditional Use Permit
- Wetland Conditional Use Permit

To date the applicant has attended the following meetings with the local land-use boards related to the Site Plan:

- February 15, 2024 – Planning Board Conceptual Consultation
- March 12, 2024 – Technical Advisory Committee Work Session
- April 8, 2024 – Conservation Commission Site Walk
- April 10, 2024 – Conservation Commission Work Session

The project will also require the following approvals from the New Hampshire Department of Environmental Services (NHDES):

- Alteration of Terrain Permit
- Sewer Connection Permit

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) for work sessions.

Traffic Impact Study

A Traffic Impact Study is currently being prepared for the development project and is anticipated to be completed prior to the May 7, 2024, Technical Advisory Committee meeting. Enclosed in this package is a Trip Generation Memorandum showing the project as proposed has a reduction in trips over the existing retail uses on the property. The applicant plans to submit the completed Traffic Impact Study prior to the May 7th meeting.

Lot Line Revision

The proposed redevelopment parcels located at 100 Durgin Lane consist of properties identified as Map 239 Lots 13-2, 16 & 18. The existing internal lot lines separating these three lots, are proposed to be relocated to better align the parcels for the proposed building footprints.



CONDITIONAL USE PERMITS

Development Site Conditional Use Permit

Under Section 10.5B41.10 Development Site Standards are “allowed by Conditional Use Permit (CUP) 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.

Additionally, per Section 10.5B41.60 the “Planning Board may require landscaping, fencing, or an increase in the building setback from lot lines where adjacent land uses may be incompatible”. As the land uses along the boundary of the development site (wetland, wetland buffer & overhead utility easement) are incompatible with the required building setback from the lot line, the applicant is requesting the planning board to allow an increase of building setback from the front lot line to 225.1’ for an apartment building and 263.1’ for a community building.

Community Space

As required under the Development Site Conditional Use Permit the project is required to provide a minimum of 10% community space. Based on the total lot area of 26.2 acres the project is required to provide a minimum of 2.62 acres of community space. The enclosed Community Space exhibit depicts how the project is meeting this requirement. The community space will be located throughout the development and include a variety of community space types as permitted by the Zoning Ordinance. The community space calculation is depicted in the enclosed Community Space Exhibit.

Development Site 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 bicycle storage spaces as well as maintaining a sidewalk connection to the existing sidewalks along Durgin Lane.
- *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 adjacent Durgin Plaza and surrounding parcels.

(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 Woodbury Avenue and the removal of the retail uses from the property which are a high vehicle trip generator. The project will be an improvement to the traffic impacts in the Weekday PM, Saturday Midday, Weekday and Saturday time periods, and will have a negligible impact during the Weekday AM period.

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 minimal 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 and Goal 2.1.*

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.

Highway Noise Overlay District Conditional Use Permit

The project site is located within the Highway Noise Overlay District (HNOD) as defined in Section 10.613.60. The proposed residential land use qualifies as a "noise sensitive land use" and therefore requires a conditional use permit. A noise analysis prepared in compliance with Section 10.675 is included with this application for a conditional use permit.

Wetland Conditional Use Permit

Jurisdictional wetland areas, including forest, dense early successional shrub growth, and emergent wetland are present on site. A Conditional Use Permit for Wetland Buffer Impact will be required for the project for work within the 100 ft wetland buffer.

Wetland 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 was previously home to Christmas Tree Shops and Bed, Bath and Beyond 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 wetland

buffer area which has historically been used as a commercial area. The proposed project will result in impervious surface reduction in the buffer, buffer enhancement, and will provide public access to the site.

(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 were sited in a way to reduce the areas of impervious surface within the 25-, 50-, and 100-foot wetland buffers. The proposed project design reduces the impervious surface within the 25-, 50-, and 100' buffers and proposes to replace existing impacted areas with native plants including trees, shrubs, and grasses.

(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 consisting of parking areas, drive aisles, and accessways. There is no real functional wetland buffer area on the project site. The proposed project intends to reduce impervious surfaces from the wetland buffer area. The buffer will be enhanced by the removal of invasive species and enhance the existing vegetation with native vegetation. The proposed site and landscape designs site enhance the previously disturbed wetland buffer area from its existing condition and provide added value by creating public open space for recreation on the site and along the buffer.

(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. The areas impacted consist primarily of impervious surfaces and previously disturbed areas. Any temporary disturbances of the wetland buffer will be restored following construction.

(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 is not an adverse impact to the site as it would enhance the buffer by reducing overall impervious surface on the site, improve water quality through stormwater treatment and provide public access to the site. In addition, the proposed project will reduce the impervious surface within the 25, 50, and 100-foot wetland buffers.

(6) Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.

The proposed work within the vegetated buffer strip is limited to the removal of impervious areas and repaving of the existing access road to the north. The proposed project will collect and treat the onsite impervious surfaces prior to discharging to the onsite wetlands. Implementing these treatment measures will help improve the water quality discharged from the property. Areas temporarily disturbed for the removal of paved areas within the vegetated buffer strip will be restored following construction. 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 within the previously disturb buffer area.

CONCLUSION

As shown in the enclosed information, the proposed project is expected to create a vibrant, authentic, diverse, and connected development that provides high quality housing to a variety of income ranges and meaningful community spaces.

We respectfully request to be placed on the TAC meeting agenda for May 7, 2024, and the Conservation Commission agenda for May 8, 2024. If you have any questions or need any additional information, please contact me by phone at (603) 294-9213 or by email at NAHansen@tighebond.com.

Sincerely,

TIGHE & BOND, INC.



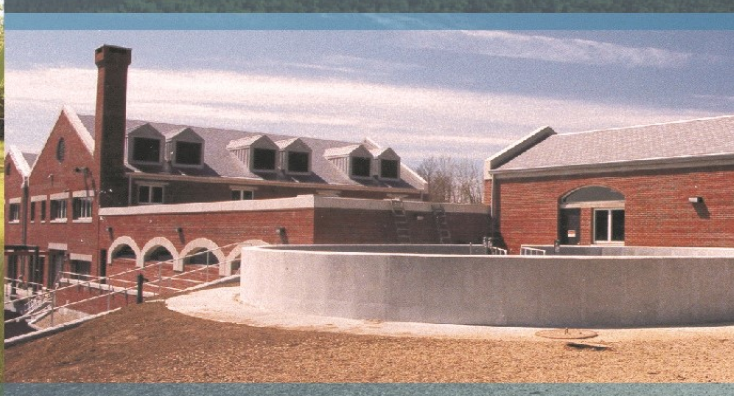
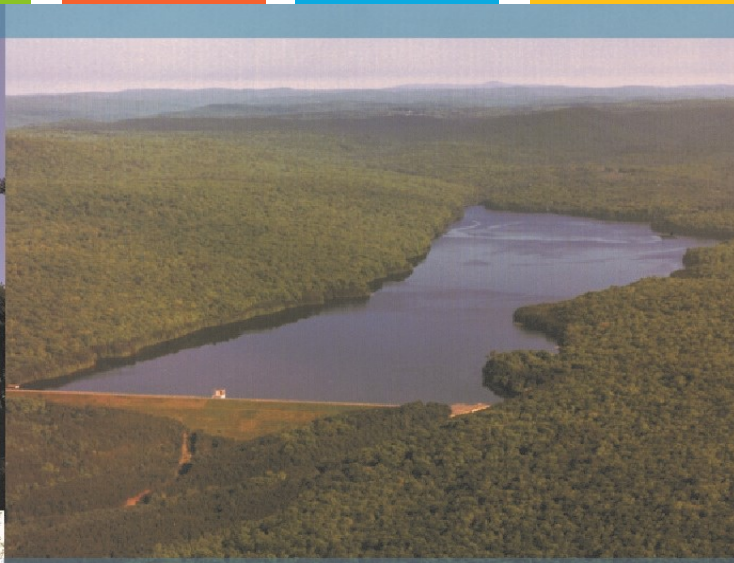
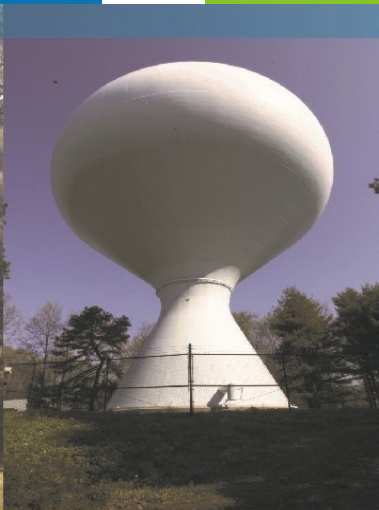
Patrick M. Crimmins, PE
Vice President



Neil A. Hansen, PE
Project Manager

Enclosures

Copy: 100 Durgin Lane Owner, LLC
John K. Bosen, Bosen & Associates
Utile, Inc Architects
Aceto Landscape Architecture

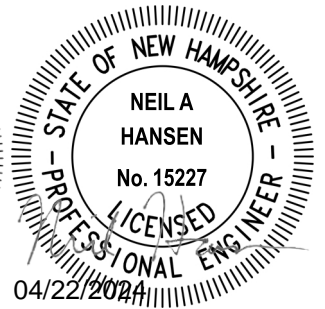
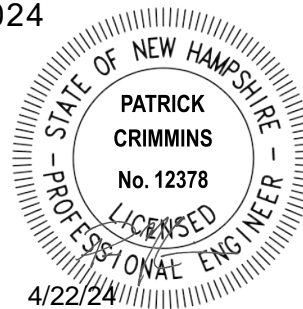


Proposed Multi-Family Development
100 Durgin Lane
Portsmouth, NH

Drainage Analysis

100 Durgin Lane Owner, LLC

April 22, 2024



Tighe & Bond

Section 1 Project Description

1.1 On-Site Soil Description1-1
1.2 Pre- and Post-Development Comparison1-2
1.3 Calculation Methods.....1-3

Section 2 Pre-Development Conditions

2.1 Pre-Development Calculations.....2-1
2.2 Pre-Development Watershed Plan2-1

Section 3 Post-Development Conditions

3.1 Post-Development Calculations3-1
3.2 Post-Development Watershed Plan3-1

Section 4 Peak Rate Comparison

Section 5 Mitigation Description

5.1 Pre-Treatment Methods for Protecting Water Quality5-2
5.2 Treatment Methods for Protecting Water Quality.5-2

Section 6 BMP Worksheet

Appendices

A Web Soil Survey Report
B Extreme Precipitation Tables
C Coastal Precipitation Increase

Section 1

Project Description

The proposed project is located at 100 Durgin Lane and includes lots identified as Map 239 Lots 13-2, 16 & 18 on the City of Portsmouth Tax Maps. The site was previously home to Christmas Tree Shops and Bed, Bath and Beyond locations which are no longer in operation. The properties are a combined 26.1 acres of land and are bound to the west by Route 16, to the north by the Motel 6 property and Gosling Road, to the south by the Hampton Inn and Home Depot properties, and to the east by an Eversource easement, Pep Boys and Durgin Plaza.

The proposed project consists of the demolition of the existing Christmas Tree Shops and Bed, Bath and Beyond building and the construction of approximately 360 rental housing units in a mix of 3-story and 4-story buildings. The proposed project will include a community building and associated site improvements such as parking, pedestrian access, community spaces, utilities, stormwater management, lighting, and landscaping. The proposed project also includes a reduction in overall impervious surface on the development lot.

1.1 On-Site Soil Description

The soils on site are primarily drainage Class B soils with wetland areas of drainage Class C/D. The ground cover within the area of study consists mostly of paved surfaces, building, and landscaped islands. There are two (2) wetland systems that drain into two (2) separate unnamed brooks that eventually join together before flowing into the Piscataqua River. The site slopes generally from the center of the parcel to either the eastern or western wetlands.

1.2 Pre- and Post-Development Comparison

The pre-development and post-development watershed areas have been analyzed at five (5) distinct points of analysis (PA-1 through PA-5). While the points of analysis have 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 to the northwest end of the site. Under the existing condition, contributing watershed areas to this point of analysis consist of runoff from the existing retail store building, as well as a combination of impervious loading areas behind the building and grassed and wooded areas to the north. Runoff discharges from an existing 24" drainage outlet to an unnamed wetland after flowing through a water quality unit (pre-treatment only, by today's standard). Under the proposed condition, the contributing watershed(s) are proposed to convey runoff to an underground detention basin for detention prior to release out of the same existing outlet. Flows are proposed to be pre-treated by either offline catch-basins or a Contech CDS unit, and treated by a Contech Jellyfish Filter prior discharge.

PA-2 is located to the northeast end of the site. Under the existing condition, contributing watershed areas to this point of analysis consist of primarily impervious paved parking and access areas. There are both treated and untreated impervious areas that flow to this point of analysis. Existing treatment practices include a rain garden, as well as a separate water quality unit (pre-treatment only, by today's standard) for a portion of the contributing watersheds. The roadway extension off Durgin Lane and adjacent parking to the east are not treated. Under the proposed condition, the contributing watershed(s) are proposed to be treated by various rain gardens and bioretention areas. Pretreatment is included by a combination of offline catch basins, Rain Guardian Turrets, and a sediment forebay.

PA-3 is located along the eastern edge of the site. Under the existing condition, contributing watersheds to this point of analysis are characterized by primarily impervious areas, with a mix of both wooded and landscaped/lawn areas. A small rain garden treats a small portion of this watershed, and water quality unit pre-treats a portion of the remaining area prior to discharge through a 36" outlet to an unnamed wetland. Under the proposed condition, the contributing watershed(s) are proposed to be treated by a treatment train, including a Contech CDS unit and a Contech Jellyfish Filter unit prior to discharge through the same 36" outlet.

PA-4 is located at the southwestern corner of the site. Under the existing condition, the contributing watershed pitches runoff from primarily impervious parking areas off site without conveyance or treatment. Under the proposed condition, the watershed area associated with this point of analysis is instead captured on-site and conveyed to PA-3 for proper treatment.

PA-5 is located at the southern end of the site, a smaller point of analysis to assess flows exiting the property down the access road connecting to the neighboring abutter. In both the existing and proposed conditions, runoff to this point of analysis flow from a high point in the roadway down to a couple of off-site catch basins. Under the proposed condition, the contributing watershed area is reduced as to not increase runoff to the abutting property post-development.

The peak discharge rates at these points 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(I).

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(I).

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.

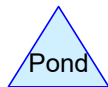
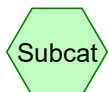
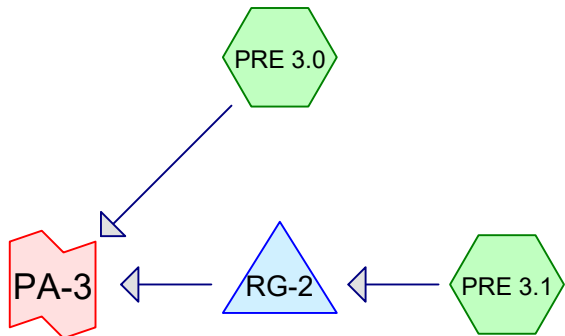
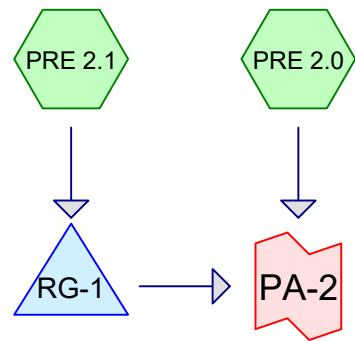
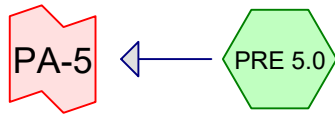
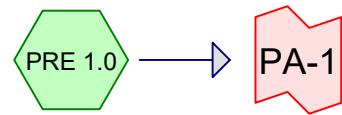
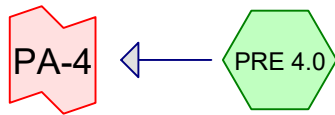
Section 2

Pre-Development Conditions

To analyze the pre-development condition, the site has been modeled utilizing the five (5) distinct points of analysis described in Section 1. These points of analysis and watersheds are depicted on the plan entitled "Pre-Development Watershed Plan", Sheet C-801.

2.1 Pre-Development Calculations

2.2 Pre-Development Watershed Plan



Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
148,803	61	>75% Grass cover, Good, HSG B (PRE 1.0, PRE 2.0, PRE 2.1, PRE 3.0, PRE 3.1, PRE 4.0)
1,271	74	>75% Grass cover, Good, HSG C (PRE 2.1)
18,071	80	>75% Grass cover, Good, HSG D (PRE 1.0, PRE 2.0, PRE 3.0, PRE 4.0)
353,404	98	Paved parking, HSG B (PRE 1.0, PRE 2.0, PRE 2.1, PRE 3.0, PRE 3.1, PRE 4.0, PRE 5.0)
10,273	98	Paved parking, HSG C (PRE 2.0)
5,406	98	Paved parking, HSG D (PRE 3.0, PRE 4.0, PRE 5.0)
79,133	98	Unconnected roofs, HSG B (PRE 1.0)
98,651	55	Woods, Good, HSG B (PRE 1.0, PRE 2.0, PRE 3.0)
513	70	Woods, Good, HSG C (PRE 1.0)
715,525	84	TOTAL AREA

E-5071-001_PRE

Prepared by Tighe & Bond Consulting

Printed 4/19/2024

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Page 3

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
679,991	HSG B	PRE 1.0, PRE 2.0, PRE 2.1, PRE 3.0, PRE 3.1, PRE 4.0, PRE 5.0
12,057	HSG C	PRE 1.0, PRE 2.0, PRE 2.1
23,477	HSG D	PRE 1.0, PRE 2.0, PRE 3.0, PRE 4.0, PRE 5.0
0	Other	
715,525		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

Subcatchment PRE 1.0: Runoff Area=207,580 sf 57.69% Impervious Runoff Depth>1.93"
Flow Length=999' Tc=6.8 min CN=82 Runoff=10.36 cfs 33,388 cf

Subcatchment PRE 2.0: Runoff Area=140,155 sf 70.79% Impervious Runoff Depth>2.43"
Flow Length=500' Tc=5.0 min CN=88 Runoff=9.15 cfs 28,403 cf

Subcatchment PRE 2.1: Runoff Area=58,944 sf 77.01% Impervious Runoff Depth>2.62"
Flow Length=360' Slope=0.0150 '/' Tc=5.0 min CN=90 Runoff=4.10 cfs 12,846 cf

Subcatchment PRE 3.0: Runoff Area=267,550 sf 57.12% Impervious Runoff Depth>1.85"
Flow Length=435' Tc=11.0 min CN=81 Runoff=11.20 cfs 41,284 cf

Subcatchment PRE 3.1: Runoff Area=16,036 sf 66.20% Impervious Runoff Depth>2.17"
Flow Length=155' Slope=0.0150 '/' Tc=5.0 min CN=85 Runoff=0.94 cfs 2,903 cf

Subcatchment PRE 4.0: Runoff Area=16,868 sf 71.28% Impervious Runoff Depth>2.52"
Flow Length=115' Tc=5.0 min CN=89 Runoff=1.14 cfs 3,546 cf

Subcatchment PRE 5.0: Runoff Area=8,392 sf 100.00% Impervious Runoff Depth>3.44"
Flow Length=145' Slope=0.0170 '/' Tc=5.0 min CN=98 Runoff=0.69 cfs 2,409 cf

Pond RG-1: Peak Elev=60.37' Storage=2,804 cf Inflow=4.10 cfs 12,846 cf
Outflow=1.49 cfs 12,737 cf

Pond RG-2: Peak Elev=62.29' Storage=449 cf Inflow=0.94 cfs 2,903 cf
Outflow=0.59 cfs 2,862 cf

Link PA-1: Inflow=10.36 cfs 33,388 cf
Primary=10.36 cfs 33,388 cf

Link PA-2: Inflow=10.46 cfs 41,140 cf
Primary=10.46 cfs 41,140 cf

Link PA-3: Inflow=11.80 cfs 44,145 cf
Primary=11.80 cfs 44,145 cf

Link PA-4: Inflow=1.14 cfs 3,546 cf
Primary=1.14 cfs 3,546 cf

Link PA-5: Inflow=0.69 cfs 2,409 cf
Primary=0.69 cfs 2,409 cf

Total Runoff Area = 715,525 sf Runoff Volume = 124,780 cf Average Runoff Depth = 2.09"
37.36% Pervious = 267,309 sf 62.64% Impervious = 448,216 sf

Summary for Subcatchment PRE 1.0:

[47] Hint: Peak is 703% of capacity of segment #3

Runoff = 19.19 cfs @ 12.10 hrs, Volume= 62,260 cf, Depth> 3.60"
 Routed to Link PA-1 :

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=5.58"

Area (sf)	CN	Description
57,422	61	>75% Grass cover, Good, HSG B
40,628	98	Paved parking, HSG B
27,467	55	Woods, Good, HSG B
79,133	98	Unconnected roofs, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	98	Roofs, HGC C
513	70	Woods, Good, HSG C
2,417	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
207,580	82	Weighted Average
87,819		42.31% Pervious Area
119,761		57.69% Impervious Area
79,133		66.08% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	100	0.0050	0.85		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.68"
1.5	220	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.3	679	0.0050	3.47	2.73	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
6.8	999	Total			

Summary for Subcatchment PRE 2.0:

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

[47] Hint: Peak is 617% of capacity of segment #3

Runoff = 15.55 cfs @ 12.07 hrs, Volume= 49,288 cf, Depth> 4.22"
 Routed to Link PA-2 :

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=5.58"

E-5071-001_PRE

Type III 24-hr 10-Yr Rainfall=5.58"

Prepared by Tighe & Bond Consulting

Printed 4/19/2024

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Page 6

Area (sf)	CN	Description
25,651	61	>75% Grass cover, Good, HSG B
88,940	98	Paved parking, HSG B
7,775	55	Woods, Good, HSG B
0	74	>75% Grass cover, Good, HSG C
10,273	98	Paved parking, HSG C
*	0	98 Roofs, HGC C
0	70	Woods, Good, HSG C
7,516	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
140,155	88	Weighted Average
40,942		29.21% Pervious Area
99,213		70.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0200	1.48		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.68"
1.2	200	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.0	200	0.0050	3.21	2.52	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
3.3	500	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PRE 2.1:

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

Runoff = 6.78 cfs @ 12.07 hrs, Volume= 21,785 cf, Depth> 4.44"
Routed to Pond RG-1 :

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=5.58"

Area (sf)	CN	Description
12,279	61	>75% Grass cover, Good, HSG B
45,394	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
1,271	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	0	98 Roofs, HGC C
0	70	Woods, Good, HSG C
0	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
58,944	90	Weighted Average
13,550		22.99% Pervious Area
45,394		77.01% Impervious Area

E-5071-001_PRE

Type III 24-hr 10-Yr Rainfall=5.58"

Prepared by Tighe & Bond Consulting

Printed 4/19/2024

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Page 7

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0150	1.31		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.68"
1.7	260	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.0	360	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PRE 3.0:

[47] Hint: Peak is 839% of capacity of segment #3

Runoff = 21.14 cfs @ 12.15 hrs, Volume= 77,964 cf, Depth> 3.50"
Routed to Link PA-3 :

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=5.58"

Area (sf)	CN	Description
44,666	61	>75% Grass cover, Good, HSG B
150,206	98	Paved parking, HSG B
63,409	55	Woods, Good, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	0	Roofs, HGC C
0	70	Woods, Good, HSG C
6,658	80	>75% Grass cover, Good, HSG D
2,611	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
267,550	81	Weighted Average
114,733		42.88% Pervious Area
152,817		57.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	25	0.1000	0.12		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.68"
5.2	315	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.3	55	0.0050	3.21	2.52	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
1.9	40	0.0050	0.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
11.0	435	Total			

Summary for Subcatchment PRE 3.1:

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

Runoff = 1.67 cfs @ 12.07 hrs, Volume= 5,219 cf, Depth> 3.91"
 Routed to Pond RG-2 :

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=5.58"

Area (sf)	CN	Description
5,420	61	>75% Grass cover, Good, HSG B
10,616	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	98	Roofs, HGC C
0	70	Woods, Good, HSG C
0	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
16,036	85	Weighted Average
5,420		33.80% Pervious Area
10,616		66.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0150	1.31		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.68"
0.4	55	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.7	155	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PRE 4.0:

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

Runoff = 1.91 cfs @ 12.07 hrs, Volume= 6,082 cf, Depth> 4.33"
 Routed to Link PA-4 :

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=5.58"

E-5071-001_PRE

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-Yr Rainfall=5.58"

Printed 4/19/2024

Page 9

Area (sf)	CN	Description
3,365	61	>75% Grass cover, Good, HSG B
11,270	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	98	Roofs, HGC C
0	70	Woods, Good, HSG C
1,480	80	>75% Grass cover, Good, HSG D
753	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
16,868	89	Weighted Average
4,845		28.72% Pervious Area
12,023		71.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0270	1.66		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.68"
0.1	15	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.1	115	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PRE 5.0:

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

Runoff = 1.06 cfs @ 12.07 hrs, Volume= 3,734 cf, Depth> 5.34"
Routed to Link PA-5 :

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=5.58"

Area (sf)	CN	Description
0	61	>75% Grass cover, Good, HSG B
6,350	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	98	Roofs, HGC C
0	70	Woods, Good, HSG C
0	80	>75% Grass cover, Good, HSG D
2,042	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
8,392	98	Weighted Average
8,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0170	1.38		Sheet Flow, SHEET Smooth surfaces n= 0.011 P2= 3.68"
0.3	45	0.0170	2.65		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	145	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond RG-1:

[92] Warning: Device #3 is above defined storage

[93] Warning: Storage range exceeded by 0.24'

[58] Hint: Peaked 0.81' above defined flood level

Inflow Area = 58,944 sf, 77.01% Impervious, Inflow Depth > 4.44" for 10-Yr event
 Inflow = 6.78 cfs @ 12.07 hrs, Volume= 21,785 cf
 Outflow = 4.08 cfs @ 12.25 hrs, Volume= 21,647 cf, Atten= 40%, Lag= 10.4 min
 Primary = 4.08 cfs @ 12.25 hrs, Volume= 21,647 cf
 Routed to Link PA-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 61.24' @ 12.23 hrs Surf.Area= 4,110 sf Storage= 5,022 cf
 Flood Elev= 60.43' Surf.Area= 3,078 sf Storage= 2,973 cf

Plug-Flow detention time= 28.3 min calculated for 21,647 cf (99% of inflow)
 Center-of-Mass det. time= 24.3 min (810.1 - 785.8)

Volume	Invert	Avail.Storage	Storage Description	
#1	57.65'	5,022 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
57.65	2,300	0.0	0	0
58.50	2,300	40.0	782	782
60.00	2,300	30.0	1,035	1,817
61.00	4,110	100.0	3,205	5,022

Device	Routing	Invert	Outlet Devices
#1	Primary	54.00'	24.0" Round Culvert L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 54.00' / 52.19' S= 0.0953 ' / Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	57.65'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	61.15'	4.5" x 2.5" Horiz. Orifice/Grate X 4.00 columns X 8 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.89 cfs @ 12.25 hrs HW=61.22' TW=0.00' (Dynamic Tailwater)

- 1=Culvert (Passes 3.89 cfs of 37.72 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 1.72 cfs @ 8.77 fps)
- 3=Orifice/Grate (Weir Controls 2.16 cfs @ 0.85 fps)

Summary for Pond RG-2:

Inflow Area = 16,036 sf, 66.20% Impervious, Inflow Depth > 3.91" for 10-Yr event
 Inflow = 1.67 cfs @ 12.07 hrs, Volume= 5,219 cf
 Outflow = 0.96 cfs @ 12.19 hrs, Volume= 5,166 cf, Atten= 43%, Lag= 7.2 min
 Primary = 0.96 cfs @ 12.19 hrs, Volume= 5,166 cf
 Routed to Link PA-3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 62.92' @ 12.19 hrs Surf.Area= 1,745 sf Storage= 815 cf
 Flood Elev= 64.25' Surf.Area= 2,000 sf Storage= 1,847 cf

Plug-Flow detention time= 21.2 min calculated for 5,155 cf (99% of inflow)
 Center-of-Mass det. time= 15.0 min (817.1 - 802.0)

Volume	Invert	Avail.Storage	Storage Description	
#1	61.65'	1,847 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.65	1,745	0.0	0	0
62.50	1,745	40.0	593	593
64.00	1,745	30.0	785	1,379
64.25	2,000	100.0	468	1,847

Device	Routing	Invert	Outlet Devices
#1	Primary	61.60'	12.0" Round Culvert L= 130.0' Ke= 0.500 Inlet / Outlet Invert= 61.60' / 61.00' S= 0.0046 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	61.65'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	63.95'	4.5" x 2.5" Horiz. Orifice/Grate X 4.00 columns X 8 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.96 cfs @ 12.19 hrs HW=62.92' TW=0.00' (Dynamic Tailwater)

- 1=Culvert (Passes 0.96 cfs of 2.80 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.96 cfs @ 4.86 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)

Summary for Link PA-1:

Inflow Area = 207,580 sf, 57.69% Impervious, Inflow Depth > 3.60" for 10-Yr event
 Inflow = 19.19 cfs @ 12.10 hrs, Volume= 62,260 cf
 Primary = 19.19 cfs @ 12.10 hrs, Volume= 62,260 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-2:

Inflow Area = 199,099 sf, 72.63% Impervious, Inflow Depth > 4.28" for 10-Yr event
Inflow = 17.09 cfs @ 12.07 hrs, Volume= 70,934 cf
Primary = 17.09 cfs @ 12.07 hrs, Volume= 70,934 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-3:

Inflow Area = 283,586 sf, 57.63% Impervious, Inflow Depth > 3.52" for 10-Yr event
Inflow = 22.09 cfs @ 12.15 hrs, Volume= 83,131 cf
Primary = 22.09 cfs @ 12.15 hrs, Volume= 83,131 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-4:

Inflow Area = 16,868 sf, 71.28% Impervious, Inflow Depth > 4.33" for 10-Yr event
Inflow = 1.91 cfs @ 12.07 hrs, Volume= 6,082 cf
Primary = 1.91 cfs @ 12.07 hrs, Volume= 6,082 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-5:

Inflow Area = 8,392 sf, 100.00% Impervious, Inflow Depth > 5.34" for 10-Yr event
Inflow = 1.06 cfs @ 12.07 hrs, Volume= 3,734 cf
Primary = 1.06 cfs @ 12.07 hrs, Volume= 3,734 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

Subcatchment PRE 1.0: Runoff Area=207,580 sf 57.69% Impervious Runoff Depth>4.98"
Flow Length=999' Tc=6.8 min CN=82 Runoff=26.26 cfs 86,098 cf

Subcatchment PRE 2.0: Runoff Area=140,155 sf 70.79% Impervious Runoff Depth>5.66"
Flow Length=500' Tc=5.0 min CN=88 Runoff=20.53 cfs 66,088 cf

Subcatchment PRE 2.1: Runoff Area=58,944 sf 77.01% Impervious Runoff Depth>5.89"
Flow Length=360' Slope=0.0150 '/' Tc=5.0 min CN=90 Runoff=8.87 cfs 28,925 cf

Subcatchment PRE 3.0: Runoff Area=267,550 sf 57.12% Impervious Runoff Depth>4.86"
Flow Length=435' Tc=11.0 min CN=81 Runoff=29.14 cfs 108,402 cf

Subcatchment PRE 3.1: Runoff Area=16,036 sf 66.20% Impervious Runoff Depth>5.32"
Flow Length=155' Slope=0.0150 '/' Tc=5.0 min CN=85 Runoff=2.24 cfs 7,105 cf

Subcatchment PRE 4.0: Runoff Area=16,868 sf 71.28% Impervious Runoff Depth>5.77"
Flow Length=115' Tc=5.0 min CN=89 Runoff=2.51 cfs 8,115 cf

Subcatchment PRE 5.0: Runoff Area=8,392 sf 100.00% Impervious Runoff Depth>6.83"
Flow Length=145' Slope=0.0170 '/' Tc=5.0 min CN=98 Runoff=1.35 cfs 4,775 cf

Pond RG-1: Peak Elev=61.43' Storage=5,022 cf Inflow=8.87 cfs 28,925 cf
Outflow=8.04 cfs 28,768 cf

Pond RG-2: Peak Elev=63.54' Storage=1,140 cf Inflow=2.24 cfs 7,105 cf
Outflow=1.21 cfs 7,044 cf

Link PA-1: Inflow=26.26 cfs 86,098 cf
Primary=26.26 cfs 86,098 cf

Link PA-2: Inflow=26.94 cfs 94,856 cf
Primary=26.94 cfs 94,856 cf

Link PA-3: Inflow=30.34 cfs 115,446 cf
Primary=30.34 cfs 115,446 cf

Link PA-4: Inflow=2.51 cfs 8,115 cf
Primary=2.51 cfs 8,115 cf

Link PA-5: Inflow=1.35 cfs 4,775 cf
Primary=1.35 cfs 4,775 cf

Total Runoff Area = 715,525 sf Runoff Volume = 309,508 cf Average Runoff Depth = 5.19"
37.36% Pervious = 267,309 sf 62.64% Impervious = 448,216 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

Subcatchment PRE 1.0: Runoff Area=207,580 sf 57.69% Impervious Runoff Depth>6.29"
Flow Length=999' Tc=6.8 min CN=82 Runoff=32.86 cfs 108,841 cf

Subcatchment PRE 2.0: Runoff Area=140,155 sf 70.79% Impervious Runoff Depth>7.01"
Flow Length=500' Tc=5.0 min CN=88 Runoff=25.15 cfs 81,928 cf

Subcatchment PRE 2.1: Runoff Area=58,944 sf 77.01% Impervious Runoff Depth>7.25"
Flow Length=360' Slope=0.0150 '/' Tc=5.0 min CN=90 Runoff=10.79 cfs 35,636 cf

Subcatchment PRE 3.0: Runoff Area=267,550 sf 57.12% Impervious Runoff Depth>6.17"
Flow Length=435' Tc=11.0 min CN=81 Runoff=36.64 cfs 137,509 cf

Subcatchment PRE 3.1: Runoff Area=16,036 sf 66.20% Impervious Runoff Depth>6.65"
Flow Length=155' Slope=0.0150 '/' Tc=5.0 min CN=85 Runoff=2.78 cfs 8,892 cf

Subcatchment PRE 4.0: Runoff Area=16,868 sf 71.28% Impervious Runoff Depth>7.13"
Flow Length=115' Tc=5.0 min CN=89 Runoff=3.06 cfs 10,029 cf

Subcatchment PRE 5.0: Runoff Area=8,392 sf 100.00% Impervious Runoff Depth>8.22"
Flow Length=145' Slope=0.0170 '/' Tc=5.0 min CN=98 Runoff=1.61 cfs 5,746 cf

Pond RG-1: Peak Elev=62.00' Storage=5,022 cf Inflow=10.79 cfs 35,636 cf
Outflow=13.07 cfs 35,463 cf

Pond RG-2: Peak Elev=64.00' Storage=1,382 cf Inflow=2.78 cfs 8,892 cf
Outflow=1.95 cfs 8,826 cf

Link PA-1: Inflow=32.86 cfs 108,841 cf
Primary=32.86 cfs 108,841 cf

Link PA-2: Inflow=37.55 cfs 117,390 cf
Primary=37.55 cfs 117,390 cf

Link PA-3: Inflow=38.59 cfs 146,335 cf
Primary=38.59 cfs 146,335 cf

Link PA-4: Inflow=3.06 cfs 10,029 cf
Primary=3.06 cfs 10,029 cf

Link PA-5: Inflow=1.61 cfs 5,746 cf
Primary=1.61 cfs 5,746 cf

Total Runoff Area = 715,525 sf Runoff Volume = 388,581 cf Average Runoff Depth = 6.52"
37.36% Pervious = 267,309 sf 62.64% Impervious = 448,216 sf

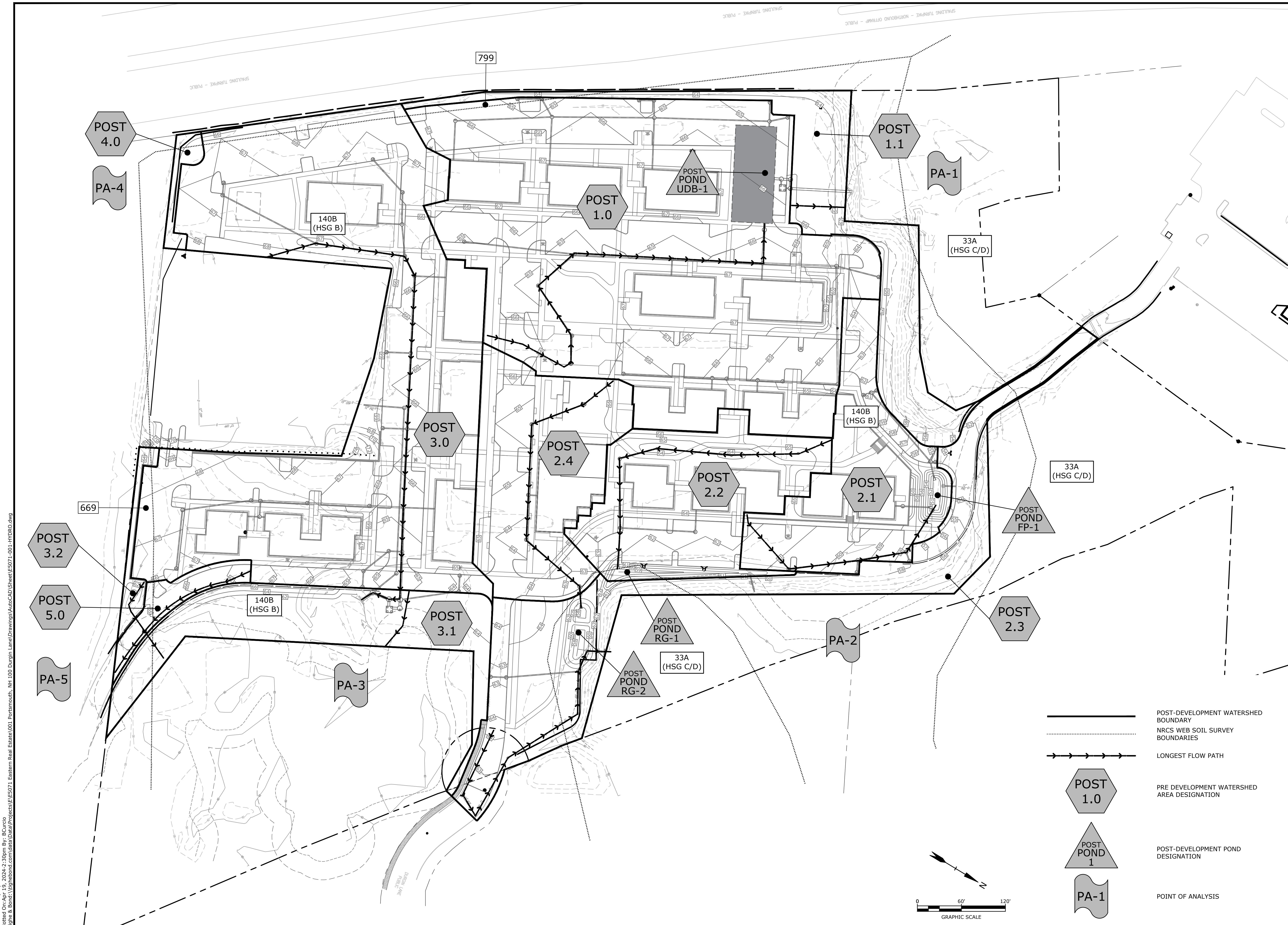
Section 3

Post-Development Conditions

To analyze the post-development condition, the site has been modeled utilizing the same five (5) distinct points of analysis as the Pre-Development condition with revised watershed areas to reflect the post-construction conditions. The points of analysis and their sub-catchment areas are depicted on the plan entitled "Post-Development Watershed Plan," Sheet C-802.

3.1 Post-Development Calculations





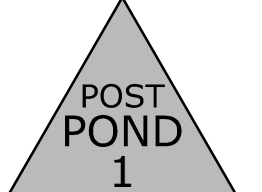
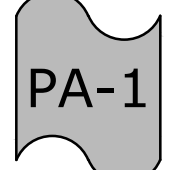
3.2 Post-Development Watershed Plan

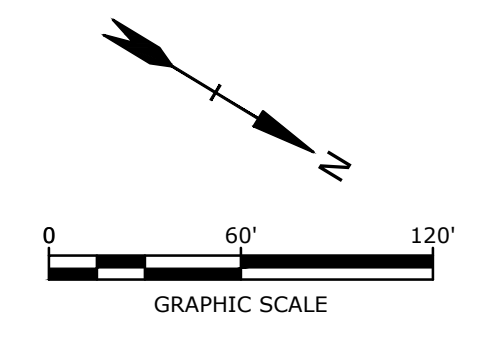


**PROPOSED
MULTI-FAMILY
DEVELOPMENT**

100 DURGIN
LANE OWNER,
LLC

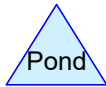
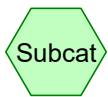
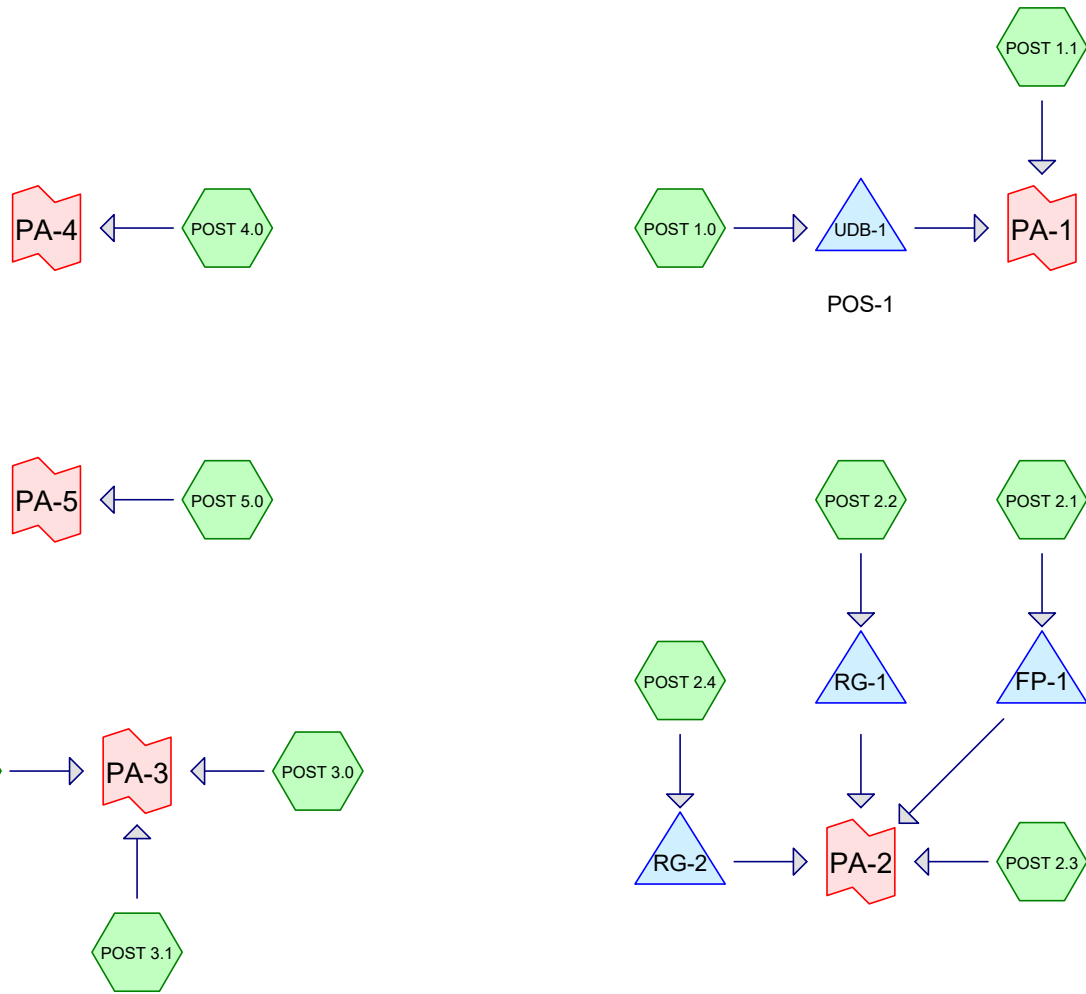
100 DURGIN LANE
PORTSMOUTH,
NEW HAMPSHIRE

-  POST-DEVELOPMENT WATERSHED BOUNDARY
-  NRCS WEB SOIL SURVEY BOUNDARIES
-  LONGEST FLOW PATH
-  PRE DEVELOPMENT WATERSHED AREA DESIGNATION
-  POST-DEVELOPMENT POND DESIGNATION
-  POINT OF ANALYSIS



MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
PROJECT NO: E5071-001		
DATE: 4/22/2024		
FILE: E5071-001-HYDRO.dwg		
DRAWN BY: BKC/NHW		
DESIGNED/CHECKED BY: NAH		
APPROVED BY: PMC		
PRE-DEVELOPMENT WATERSHED PLAN		
SCALE: AS SHOWN		
C-802		

Last Saved: 4/18/2024 2:30pm By: SCurcio
 Plotted On: Apr 19, 2024 2:30pm
 Tighe & Bond \Vigilante\com\data\proj\100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-HYDRO.dwg



E-5071-001_POST

Prepared by Tighe & Bond Consulting

Printed 4/19/2024

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
249,330	61	>75% Grass cover, Good, HSG B (POST 1.0, POST 1.1, POST 2.1, POST 2.2, POST 2.3, POST 2.4, POST 3.0, POST 3.1, POST 3.2, POST 4.0, POST 5.0)
8,625	74	>75% Grass cover, Good, HSG C (POST 2.2, POST 2.3)
14,874	80	>75% Grass cover, Good, HSG D (POST 1.0, POST 1.1, POST 2.3, POST 3.0, POST 3.1, POST 3.2, POST 4.0)
299,992	98	Paved parking, HSG B (POST 1.0, POST 2.1, POST 2.2, POST 2.3, POST 2.4, POST 3.0, POST 5.0)
2,917	98	Paved parking, HSG C (POST 2.3)
8,603	98	Paved parking, HSG D (POST 1.0, POST 3.0, POST 5.0)
92,723	98	Roofs, HSG B (POST 1.0, POST 2.1, POST 2.2, POST 2.4, POST 3.0)
37,946	55	Woods, Good, HSG B (POST 1.1, POST 2.3, POST 3.1)
515	70	Woods, Good, HSG C (POST 1.1)
715,525	82	TOTAL AREA

E-5071-001_POST

Prepared by Tighe & Bond Consulting

Printed 4/19/2024

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Page 3

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
679,991	HSG B	POST 1.0, POST 1.1, POST 2.1, POST 2.2, POST 2.3, POST 2.4, POST 3.0, POST 3.1, POST 3.2, POST 4.0, POST 5.0
12,057	HSG C	POST 1.1, POST 2.2, POST 2.3
23,477	HSG D	POST 1.0, POST 1.1, POST 2.3, POST 3.0, POST 3.1, POST 3.2, POST 4.0, POST 5.0
0	Other	
715,525		TOTAL AREA

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 2-Yr Rainfall=3.68"

Printed 4/19/2024

Page 4

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

Subcatchment POST 1.0:	Runoff Area=208,896 sf 71.87% Impervious Runoff Depth>2.43" Flow Length=950' Tc=5.6 min CN=88 Runoff=13.39 cfs 42,330 cf
Subcatchment POST 1.1:	Runoff Area=40,669 sf 0.00% Impervious Runoff Depth>0.61" Flow Length=75' Slope=0.0400 '/' Tc=5.5 min CN=60 Runoff=0.49 cfs 2,068 cf
Subcatchment POST 2.1:	Runoff Area=48,315 sf 65.70% Impervious Runoff Depth>2.17" Flow Length=340' Tc=5.0 min CN=85 Runoff=2.82 cfs 8,747 cf
Subcatchment POST 2.2:	Runoff Area=52,733 sf 53.30% Impervious Runoff Depth>1.85" Flow Length=450' Tc=8.0 min CN=81 Runoff=2.42 cfs 8,142 cf
Subcatchment POST 2.3:	Runoff Area=68,786 sf 32.19% Impervious Runoff Depth>1.36" Flow Length=415' Tc=5.0 min CN=74 Runoff=2.46 cfs 7,822 cf
Subcatchment POST 2.4:	Runoff Area=53,602 sf 68.17% Impervious Runoff Depth>2.26" Flow Length=400' Tc=7.7 min CN=86 Runoff=3.03 cfs 10,076 cf
Subcatchment POST 3.0:	Runoff Area=186,544 sf 68.86% Impervious Runoff Depth>2.34" Flow Length=700' Tc=8.8 min CN=87 Runoff=10.50 cfs 36,402 cf
Subcatchment POST 3.1:	Runoff Area=41,365 sf 0.00% Impervious Runoff Depth>0.65" Flow Length=80' Tc=5.4 min CN=61 Runoff=0.56 cfs 2,257 cf
Subcatchment POST 3.2:	Runoff Area=3,972 sf 0.00% Impervious Runoff Depth>1.71" Flow Length=135' Tc=5.0 min CN=79 Runoff=0.18 cfs 565 cf
Subcatchment POST 4.0:	Runoff Area=3,305 sf 0.00% Impervious Runoff Depth>0.85" Tc=5.0 min CN=65 Runoff=0.07 cfs 233 cf
Subcatchment POST 5.0:	Runoff Area=7,338 sf 96.78% Impervious Runoff Depth>3.33" Flow Length=230' Slope=0.0200 '/' Tc=5.0 min CN=97 Runoff=0.60 cfs 2,037 cf
Pond FP-1:	Peak Elev=52.80' Storage=1,765 cf Inflow=2.82 cfs 8,747 cf Outflow=1.56 cfs 8,338 cf
Pond RG-1:	Peak Elev=59.24' Storage=661 cf Inflow=2.42 cfs 8,142 cf Outflow=1.71 cfs 8,142 cf
Pond RG-2:	Peak Elev=58.79' Storage=968 cf Inflow=3.03 cfs 10,076 cf Outflow=1.86 cfs 10,057 cf
Pond UDB-1: POS-1	Peak Elev=61.05' Storage=15,503 cf Inflow=13.39 cfs 42,330 cf Outflow=2.73 cfs 41,500 cf
Link PA-1:	Inflow=2.91 cfs 43,568 cf Primary=2.91 cfs 43,568 cf

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 2-Yr Rainfall=3.68"

Printed 4/19/2024

Page 5

Link PA-2:

Inflow=7.03 cfs 34,359 cf
Primary=7.03 cfs 34,359 cf

Link PA-3:

Inflow=11.21 cfs 39,224 cf
Primary=11.21 cfs 39,224 cf

Link PA-4:

Inflow=0.07 cfs 233 cf
Primary=0.07 cfs 233 cf

Link PA-5:

Inflow=0.60 cfs 2,037 cf
Primary=0.60 cfs 2,037 cf

Total Runoff Area = 715,525 sf Runoff Volume = 120,679 cf Average Runoff Depth = 2.02"
43.51% Pervious = 311,290 sf 56.49% Impervious = 404,235 sf

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-Yr Rainfall=5.58"

Printed 4/19/2024

Page 6

Summary for Subcatchment POST 1.0:

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

[47] Hint: Peak is 902% of capacity of segment #3

Runoff = 22.71 cfs @ 12.08 hrs, Volume= 73,454 cf, Depth> 4.22"
Routed to Pond UDB-1 : POS-1

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=5.58"

Area (sf)	CN	Description
58,333	61	>75% Grass cover, Good, HSG B
108,639	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
40,358	98	Roofs, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	0	Roofs, HGC C
0	70	Woods, Good, HSG C
422	80	>75% Grass cover, Good, HSG D
1,144	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
208,896	88	Weighted Average
58,755		28.13% Pervious Area
150,141		71.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0200	1.48		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.68"
0.3	50	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	800	0.0050	3.21	2.52	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
5.6	950	Total			

Summary for Subcatchment POST 1.1:

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

Runoff = 1.68 cfs @ 12.10 hrs, Volume= 5,594 cf, Depth> 1.65"
Routed to Link PA-1 :

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=5.58"

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-Yr Rainfall=5.58"

Printed 4/19/2024

Page 7

Area (sf)	CN	Description
21,449	61	>75% Grass cover, Good, HSG B
0	98	Paved parking, HSG B
16,442	55	Woods, Good, HSG B
0	98	Unconnected roofs, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	98	Roofs, HGC C
515	70	Woods, Good, HSG C
2,263	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
40,669	60	Weighted Average
40,669		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	75	0.0400	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.68"

Summary for Subcatchment POST 2.1:

[49] Hint: Tc<2dt may require smaller dt
 [47] Hint: Peak is 200% of capacity of segment #2

Runoff = 5.03 cfs @ 12.07 hrs, Volume= 15,724 cf, Depth> 3.91"
 Routed to Pond FP-1 :

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=5.58"

Area (sf)	CN	Description
16,570	61	>75% Grass cover, Good, HSG B
25,509	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
6,236	98	Roofs, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	98	Roofs, HGC C
0	70	Woods, Good, HSG C
0	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
48,315	85	Weighted Average
16,570		34.30% Pervious Area
31,745		65.70% Impervious Area

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-Yr Rainfall=5.58"

Printed 4/19/2024

Page 8

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0200	1.48		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.68"
1.2	240	0.0050	3.21	2.52	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
2.3	340	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 2.2:

[47] Hint: Peak is 181% of capacity of segment #2

Runoff = 4.57 cfs @ 12.11 hrs, Volume= 15,375 cf, Depth> 3.50"
Routed to Pond RG-1 :

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=5.58"

Area (sf)	CN	Description
23,452	61	>75% Grass cover, Good, HSG B
18,539	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
9,570	98	Roofs, HSG B
1,172	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	0	Roofs, HGC C
0	70	Woods, Good, HSG C
0	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
52,733	81	Weighted Average
24,624		46.70% Pervious Area
28,109		53.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	50	0.0150	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.68"
2.1	400	0.0050	3.21	2.52	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.0	450	Total			

Summary for Subcatchment POST 2.3:

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

[47] Hint: Peak is 208% of capacity of segment #2

E-5071-001_POST

Type III 24-hr 10-Yr Rainfall=5.58"

Prepared by Tighe & Bond Consulting

Printed 4/19/2024

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Page 9

Runoff = 5.25 cfs @ 12.08 hrs, Volume= 16,239 cf, Depth> 2.83"
Routed to Link PA-2 :

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=5.58"

Area (sf)	CN	Description
30,833	61	>75% Grass cover, Good, HSG B
19,227	98	Paved parking, HSG B
7,775	55	Woods, Good, HSG B
0	98	Unconnected roofs, HSG B
7,453	74	>75% Grass cover, Good, HSG C
2,917	98	Paved parking, HSG C
*	0	Roofs, HGC C
0	70	Woods, Good, HSG C
581	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
68,786	74	Weighted Average
46,642		67.81% Pervious Area
22,144		32.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	95	0.0200	1.46		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.68"
1.7	320	0.0050	3.21	2.52	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
2.8	415	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 2.4:

[47] Hint: Peak is 210% of capacity of segment #2

Runoff = 5.29 cfs @ 12.11 hrs, Volume= 17,900 cf, Depth> 4.01"
Routed to Pond RG-2 :

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=5.58"

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-Yr Rainfall=5.58"

Printed 4/19/2024

Page 10

Area (sf)	CN	Description
17,063	61	>75% Grass cover, Good, HSG B
26,872	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
9,667	98	Roofs, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	98	Roofs, HGC C
0	70	Woods, Good, HSG C
0	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
53,602	86	Weighted Average
17,063		31.83% Pervious Area
36,539		68.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	50	0.0150	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.68"
1.8	350	0.0050	3.21	2.52	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
7.7	400	Total			

Summary for Subcatchment POST 3.0:

[47] Hint: Peak is 415% of capacity of segment #2

Runoff = 18.09 cfs @ 12.12 hrs, Volume= 63,913 cf, Depth> 4.11"
Routed to Link PA-3 :

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=5.58"

Area (sf)	CN	Description
54,857	61	>75% Grass cover, Good, HSG B
96,571	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
26,892	98	Roofs, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	98	Roofs, HGC C
0	70	Woods, Good, HSG C
3,232	80	>75% Grass cover, Good, HSG D
4,992	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
186,544	87	Weighted Average
58,089		31.14% Pervious Area
128,455		68.86% Impervious Area

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-Yr Rainfall=5.58"

Printed 4/19/2024

Page 11

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	50	0.0100	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 3.68"
1.9	650	0.0150	5.56	4.36	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.8	700	Total			

Summary for Subcatchment POST 3.1:

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

Runoff = 1.81 cfs @ 12.09 hrs, Volume= 5,957 cf, Depth> 1.73"
Routed to Link PA-3 :

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=5.58"

Area (sf)	CN	Description
23,632	61	>75% Grass cover, Good, HSG B
0	98	Paved parking, HSG B
13,729	55	Woods, Good, HSG B
0	98	Roofs, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	0	Roofs, HGC C
0	70	Woods, Good, HSG C
4,004	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
41,365	61	Weighted Average
41,365		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0200	0.16		Sheet Flow, Grass: Short n= 0.150 P2= 3.68"
0.2	30	0.1300	2.52		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.4	80	Total			

Summary for Subcatchment POST 3.2:

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

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 1,094 cf, Depth> 3.30"
Routed to Link PA-3 :

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-Yr Rainfall=5.58"

Printed 4/19/2024

Page 12

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=5.58"

Area (sf)	CN	Description
262	61	>75% Grass cover, Good, HSG B
0	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
0	98	Roofs, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	98	Roofs, HSG C
0	70	Woods, Good, HSG C
3,710	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
3,972	79	Weighted Average
3,972		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	40	0.3000	3.83		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	55	0.0050	3.21	2.52	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
1.9	40	0.0050	0.35		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.4	135	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 4.0:

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

Runoff = 0.18 cfs @ 12.08 hrs, Volume= 564 cf, Depth> 2.05"
 Routed to Link PA-4 :

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=5.58"

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-Yr Rainfall=5.58"

Printed 4/19/2024

Page 13

Area (sf)	CN	Description
2,643	61	>75% Grass cover, Good, HSG B
0	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
0	98	Unconnected roofs, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	98	Roofs, HGC C
0	70	Woods, Good, HSG C
662	80	>75% Grass cover, Good, HSG D
0	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
3,305	65	Weighted Average
3,305		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					Direct Entry,
1.0	0				Total, Increased to minimum Tc = 5.0 min

Summary for Subcatchment POST 5.0:

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

Runoff = 0.92 cfs @ 12.07 hrs, Volume= 3,194 cf, Depth> 5.22"
 Routed to Link PA-5 :

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=5.58"

Area (sf)	CN	Description
236	61	>75% Grass cover, Good, HSG B
4,635	98	Paved parking, HSG B
0	55	Woods, Good, HSG B
0	98	Unconnected roofs, HSG B
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
*	98	Roofs, HGC C
0	70	Woods, Good, HSG C
0	80	>75% Grass cover, Good, HSG D
2,467	98	Paved parking, HSG D
0	77	Woods, Good, HSG D
7,338	97	Weighted Average
236		3.22% Pervious Area
7,102		96.78% Impervious Area

E-5071-001_POST

Type III 24-hr 10-Yr Rainfall=5.58"

Prepared by Tighe & Bond Consulting

Printed 4/19/2024

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Page 14

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0200	1.28		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.68"
1.0	180	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.6	230	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond FP-1:

Inflow Area = 48,315 sf, 65.70% Impervious, Inflow Depth > 3.91" for 10-Yr event
 Inflow = 5.03 cfs @ 12.07 hrs, Volume= 15,724 cf
 Outflow = 4.13 cfs @ 12.13 hrs, Volume= 15,304 cf, Atten= 18%, Lag= 3.6 min
 Primary = 4.13 cfs @ 12.13 hrs, Volume= 15,304 cf
 Routed to Link PA-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 53.29' @ 12.13 hrs Surf.Area= 1,332 sf Storage= 2,363 cf
 Flood Elev= 54.00' Surf.Area= 1,665 sf Storage= 3,424 cf

Plug-Flow detention time= 33.5 min calculated for 15,304 cf (97% of inflow)
 Center-of-Mass det. time= 17.9 min (819.9 - 802.0)

Volume	Invert	Avail.Storage	Storage Description		
#1	48.40'	3,424 cf	Custom Stage Data (Prismatic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
48.40	440	0.0	0	0	
49.50	440	40.0	194	194	
51.00	440	30.0	198	392	
52.00	785	100.0	613	1,004	
53.00	1,195	100.0	990	1,994	
54.00	1,665	100.0	1,430	3,424	

Device	Routing	Invert	Outlet Devices
#1	Primary	48.40'	15.0" Round Culvert L= 12.0' Ke= 0.500 Inlet / Outlet Invert= 48.40' / 47.60' S= 0.0667 ' / Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	48.40'	100.000 in/hr Exfiltration over Surface area above 48.40' Excluded Surface area = 440 sf
#3	Device 1	53.00'	1.0" x 1.0" Horiz. Orifice/Grate X 114 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.06 cfs @ 12.13 hrs HW=53.28' TW=0.00' (Dynamic Tailwater)

- 1=Culvert (Passes 4.06 cfs of 12.19 cfs potential flow)
- 2=Exfiltration (Exfiltration Controls 2.05 cfs)
- 3=Orifice/Grate (Orifice Controls 2.01 cfs @ 2.54 fps)

Summary for Pond RG-1:

Inflow Area = 52,733 sf, 53.30% Impervious, Inflow Depth > 3.50" for 10-Yr event
 Inflow = 4.57 cfs @ 12.11 hrs, Volume= 15,375 cf
 Outflow = 2.27 cfs @ 12.31 hrs, Volume= 15,375 cf, Atten= 50%, Lag= 12.0 min
 Primary = 2.27 cfs @ 12.31 hrs, Volume= 15,375 cf
 Routed to Link PA-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 60.30' @ 12.31 hrs Surf.Area= 1,996 sf Storage= 2,091 cf
 Flood Elev= 61.00' Surf.Area= 3,026 sf Storage= 3,836 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 6.1 min (821.7 - 815.6)

Volume	Invert	Avail.Storage	Storage Description	
#1	56.40'	3,836 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.40	560	0.0	0	0
57.50	560	40.0	246	246
59.00	560	30.0	252	498
60.00	1,545	100.0	1,053	1,551
61.00	3,026	100.0	2,286	3,836

Device	Routing	Invert	Outlet Devices
#1	Primary	54.00'	24.0" Round Culvert L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 54.00' / 52.19' S= 0.0724 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	56.40'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	56.40'	10.000 in/hr Exfiltration over Surface area
#4	Device 1	60.50'	1.0" x 1.0" Horiz. Orifice/Grate X 114 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.27 cfs @ 12.31 hrs HW=60.30' TW=0.00' (Dynamic Tailwater)

- 1=Culvert (Passes 2.27 cfs of 34.83 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 1.81 cfs @ 9.20 fps)
- 3=Exfiltration (Exfiltration Controls 0.46 cfs)
- 4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond RG-2:

Inflow Area = 53,602 sf, 68.17% Impervious, Inflow Depth > 4.01" for 10-Yr event
 Inflow = 5.29 cfs @ 12.11 hrs, Volume= 17,900 cf
 Outflow = 2.41 cfs @ 12.32 hrs, Volume= 17,876 cf, Atten= 55%, Lag= 12.9 min
 Primary = 2.41 cfs @ 12.32 hrs, Volume= 17,876 cf
 Routed to Link PA-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

E-5071-001_POST

Type III 24-hr 10-Yr Rainfall=5.58"

Prepared by Tighe & Bond Consulting

Printed 4/19/2024

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Page 16

Peak Elev= 60.33' @ 12.32 hrs Surf.Area= 1,564 sf Storage= 2,668 cf
 Flood Elev= 62.00' Surf.Area= 3,184 sf Storage= 6,636 cf

Plug-Flow detention time= 8.1 min calculated for 17,839 cf (100% of inflow)
 Center-of-Mass det. time= 7.3 min (808.6 - 801.2)

Volume	Invert	Avail.Storage	Storage Description	
#1	55.40'	6,636 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.40	509	0.0	0	0
56.50	509	40.0	224	224
58.00	509	30.0	229	453
60.00	1,245	100.0	1,754	2,207
62.00	3,184	100.0	4,429	6,636

Device	Routing	Invert	Outlet Devices
#1	Primary	55.40'	18.0" Round Culvert L= 24.0' Ke= 0.500 Inlet / Outlet Invert= 55.40' / 55.25' S= 0.0062 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	55.40'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	55.40'	10.000 in/hr Exfiltration over Surface area
#4	Device 1	61.00'	1.0" x 1.0" Horiz. Orifice/Grate X 114 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.40 cfs @ 12.32 hrs HW=60.32' TW=0.00' (Dynamic Tailwater)

- 1=Culvert (Passes 2.40 cfs of 17.38 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 2.04 cfs @ 10.41 fps)
- 3=Exfiltration (Exfiltration Controls 0.36 cfs)
- 4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond UDB-1: POS-1

Inflow Area = 208,896 sf, 71.87% Impervious, Inflow Depth > 4.22" for 10-Yr event
 Inflow = 22.71 cfs @ 12.08 hrs, Volume= 73,454 cf
 Outflow = 12.06 cfs @ 12.22 hrs, Volume= 72,369 cf, Atten= 47%, Lag= 8.4 min
 Primary = 12.06 cfs @ 12.22 hrs, Volume= 72,369 cf
 Routed to Link PA-1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 61.95' @ 12.22 hrs Surf.Area= 7,392 sf Storage= 20,950 cf
 Flood Elev= 63.25' Surf.Area= 7,392 sf Storage= 27,366 cf

Plug-Flow detention time= 62.1 min calculated for 72,218 cf (98% of inflow)
 Center-of-Mass det. time= 53.1 min (846.3 - 793.2)

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-Yr Rainfall=5.58"

Printed 4/19/2024

Page 17

Volume	Invert	Avail.Storage	Storage Description
#1A	58.25'	6,396 cf	56.00'W x 132.00'L x 5.00'H Field A 36,960 cf Overall - 20,970 cf Embedded = 15,990 cf x 40.0% Voids
#2A	58.25'	20,970 cf	CMP Round 60 x 48 Inside #1 Effective Size= 60.0"W x 60.0"H => 19.63 sf x 20.00'L = 392.7 cf Overall Size= 60.0"W x 60.0"H x 20.00'L 48 Chambers in 8 Rows 54.00' Header x 19.63 sf x 2 = 2,120.6 cf Inside
		27,366 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	58.25'	24.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 58.25' / 58.15' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	58.25'	8.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	61.00'	36.0" W x 12.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	62.75'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=11.84 cfs @ 12.22 hrs HW=61.94' TW=0.00' (Dynamic Tailwater)

- 1=Culvert (Passes 11.84 cfs of 24.80 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 3.08 cfs @ 8.82 fps)
- 3=Orifice/Grate (Orifice Controls 8.76 cfs @ 3.11 fps)
- 4=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link PA-1:

Inflow Area = 249,565 sf, 60.16% Impervious, Inflow Depth > 3.75" for 10-Yr event
 Inflow = 13.06 cfs @ 12.22 hrs, Volume= 77,963 cf
 Primary = 13.06 cfs @ 12.22 hrs, Volume= 77,963 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-2:

Inflow Area = 223,436 sf, 53.05% Impervious, Inflow Depth > 3.48" for 10-Yr event
 Inflow = 13.19 cfs @ 12.11 hrs, Volume= 64,794 cf
 Primary = 13.19 cfs @ 12.11 hrs, Volume= 64,794 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-3:

Inflow Area = 231,881 sf, 55.40% Impervious, Inflow Depth > 3.67" for 10-Yr event
 Inflow = 20.15 cfs @ 12.12 hrs, Volume= 70,964 cf
 Primary = 20.15 cfs @ 12.12 hrs, Volume= 70,964 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-4:

Inflow Area = 3,305 sf, 0.00% Impervious, Inflow Depth > 2.05" for 10-Yr event
Inflow = 0.18 cfs @ 12.08 hrs, Volume= 564 cf
Primary = 0.18 cfs @ 12.08 hrs, Volume= 564 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-5:

Inflow Area = 7,338 sf, 96.78% Impervious, Inflow Depth > 5.22" for 10-Yr event
Inflow = 0.92 cfs @ 12.07 hrs, Volume= 3,194 cf
Primary = 0.92 cfs @ 12.07 hrs, Volume= 3,194 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 25-Yr Rainfall=7.07"

Printed 4/19/2024

Page 19

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

Subcatchment POST 1.0:	Runoff Area=208,896 sf 71.87% Impervious Runoff Depth>5.66" Flow Length=950' Tc=5.6 min CN=88 Runoff=29.98 cfs 98,492 cf
Subcatchment POST 1.1:	Runoff Area=40,669 sf 0.00% Impervious Runoff Depth>2.65" Flow Length=75' Slope=0.0400 '/' Tc=5.5 min CN=60 Runoff=2.81 cfs 8,983 cf
Subcatchment POST 2.1:	Runoff Area=48,315 sf 65.70% Impervious Runoff Depth>5.32" Flow Length=340' Tc=5.0 min CN=85 Runoff=6.76 cfs 21,406 cf
Subcatchment POST 2.2:	Runoff Area=52,733 sf 53.30% Impervious Runoff Depth>4.86" Flow Length=450' Tc=8.0 min CN=81 Runoff=6.29 cfs 21,377 cf
Subcatchment POST 2.3:	Runoff Area=68,786 sf 32.19% Impervious Runoff Depth>4.10" Flow Length=415' Tc=5.0 min CN=74 Runoff=7.60 cfs 23,504 cf
Subcatchment POST 2.4:	Runoff Area=53,602 sf 68.17% Impervious Runoff Depth>5.43" Flow Length=400' Tc=7.7 min CN=86 Runoff=7.07 cfs 24,244 cf
Subcatchment POST 3.0:	Runoff Area=186,544 sf 68.86% Impervious Runoff Depth>5.54" Flow Length=700' Tc=8.8 min CN=87 Runoff=24.04 cfs 86,129 cf
Subcatchment POST 3.1:	Runoff Area=41,365 sf 0.00% Impervious Runoff Depth>2.75" Flow Length=80' Tc=5.4 min CN=61 Runoff=2.98 cfs 9,479 cf
Subcatchment POST 3.2:	Runoff Area=3,972 sf 0.00% Impervious Runoff Depth>4.65" Flow Length=135' Tc=5.0 min CN=79 Runoff=0.50 cfs 1,538 cf
Subcatchment POST 4.0:	Runoff Area=3,305 sf 0.00% Impervious Runoff Depth>3.15" Tc=5.0 min CN=65 Runoff=0.28 cfs 869 cf
Subcatchment POST 5.0:	Runoff Area=7,338 sf 96.78% Impervious Runoff Depth>6.71" Flow Length=230' Slope=0.0200 '/' Tc=5.0 min CN=97 Runoff=1.17 cfs 4,102 cf
Pond FP-1:	Peak Elev=53.61' Storage=2,815 cf Inflow=6.76 cfs 21,406 cf Outflow=5.40 cfs 20,976 cf
Pond RG-1:	Peak Elev=60.67' Storage=2,923 cf Inflow=6.29 cfs 21,377 cf Outflow=4.06 cfs 21,377 cf
Pond RG-2:	Peak Elev=61.05' Storage=4,049 cf Inflow=7.07 cfs 24,244 cf Outflow=3.58 cfs 24,217 cf
Pond UDB-1: POS-1	Peak Elev=62.65' Storage=24,714 cf Inflow=29.98 cfs 98,492 cf Outflow=18.72 cfs 97,228 cf
Link PA-1:	Inflow=20.81 cfs 106,211 cf Primary=20.81 cfs 106,211 cf

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 25-Yr Rainfall=7.07"

Printed 4/19/2024

Page 20

Link PA-2:

Inflow=17.21 cfs 90,075 cf
Primary=17.21 cfs 90,075 cf

Link PA-3:

Inflow=27.33 cfs 97,146 cf
Primary=27.33 cfs 97,146 cf

Link PA-4:

Inflow=0.28 cfs 869 cf
Primary=0.28 cfs 869 cf

Link PA-5:

Inflow=1.17 cfs 4,102 cf
Primary=1.17 cfs 4,102 cf

Total Runoff Area = 715,525 sf Runoff Volume = 300,124 cf Average Runoff Depth = 5.03"
43.51% Pervious = 311,290 sf 56.49% Impervious = 404,235 sf

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 50-Yr Rainfall=8.46"

Printed 4/19/2024

Page 21

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

Subcatchment POST 1.0:	Runoff Area=208,896 sf 71.87% Impervious Runoff Depth>7.01" Flow Length=950' Tc=5.6 min CN=88 Runoff=36.71 cfs 122,099 cf
Subcatchment POST 1.1:	Runoff Area=40,669 sf 0.00% Impervious Runoff Depth>3.68" Flow Length=75' Slope=0.0400 '/' Tc=5.5 min CN=60 Runoff=3.96 cfs 12,468 cf
Subcatchment POST 2.1:	Runoff Area=48,315 sf 65.70% Impervious Runoff Depth>6.65" Flow Length=340' Tc=5.0 min CN=85 Runoff=8.37 cfs 26,791 cf
Subcatchment POST 2.2:	Runoff Area=52,733 sf 53.30% Impervious Runoff Depth>6.17" Flow Length=450' Tc=8.0 min CN=81 Runoff=7.91 cfs 27,117 cf
Subcatchment POST 2.3:	Runoff Area=68,786 sf 32.19% Impervious Runoff Depth>5.34" Flow Length=415' Tc=5.0 min CN=74 Runoff=9.84 cfs 30,585 cf
Subcatchment POST 2.4:	Runoff Area=53,602 sf 68.17% Impervious Runoff Depth>6.77" Flow Length=400' Tc=7.7 min CN=86 Runoff=8.71 cfs 30,246 cf
Subcatchment POST 3.0:	Runoff Area=186,544 sf 68.86% Impervious Runoff Depth>6.89" Flow Length=700' Tc=8.8 min CN=87 Runoff=29.55 cfs 107,112 cf
Subcatchment POST 3.1:	Runoff Area=41,365 sf 0.00% Impervious Runoff Depth>3.80" Flow Length=80' Tc=5.4 min CN=61 Runoff=4.17 cfs 13,084 cf
Subcatchment POST 3.2:	Runoff Area=3,972 sf 0.00% Impervious Runoff Depth>5.93" Flow Length=135' Tc=5.0 min CN=79 Runoff=0.63 cfs 1,964 cf
Subcatchment POST 4.0:	Runoff Area=3,305 sf 0.00% Impervious Runoff Depth>4.27" Tc=5.0 min CN=65 Runoff=0.38 cfs 1,175 cf
Subcatchment POST 5.0:	Runoff Area=7,338 sf 96.78% Impervious Runoff Depth>8.10" Flow Length=230' Slope=0.0200 '/' Tc=5.0 min CN=97 Runoff=1.40 cfs 4,951 cf
Pond FP-1:	Peak Elev=53.92' Storage=3,296 cf Inflow=8.37 cfs 26,791 cf Outflow=6.41 cfs 26,354 cf
Pond RG-1:	Peak Elev=60.94' Storage=3,646 cf Inflow=7.91 cfs 27,117 cf Outflow=5.15 cfs 27,116 cf
Pond RG-2:	Peak Elev=61.35' Storage=4,773 cf Inflow=8.71 cfs 30,246 cf Outflow=5.11 cfs 30,217 cf
Pond UDB-1: POS-1	Peak Elev=63.26' Storage=27,366 cf Inflow=36.71 cfs 122,099 cf Outflow=28.61 cfs 120,678 cf
Link PA-1:	Inflow=31.65 cfs 133,146 cf Primary=31.65 cfs 133,146 cf

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 50-Yr Rainfall=8.46"

Printed 4/19/2024

Page 22

Link PA-2:

Inflow=22.42 cfs 114,272 cf
Primary=22.42 cfs 114,272 cf

Link PA-3:

Inflow=34.08 cfs 122,160 cf
Primary=34.08 cfs 122,160 cf

Link PA-4:

Inflow=0.38 cfs 1,175 cf
Primary=0.38 cfs 1,175 cf

Link PA-5:

Inflow=1.40 cfs 4,951 cf
Primary=1.40 cfs 4,951 cf

Total Runoff Area = 715,525 sf Runoff Volume = 377,592 cf Average Runoff Depth = 6.33"
43.51% Pervious = 311,290 sf 56.49% Impervious = 404,235 sf

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	10.36	19.19	26.26	32.86
PA-2	10.46	17.09	26.94	37.55
PA-3	11.80	22.09	30.34	38.59
PA-4	1.14	1.91	2.51	3.06
PA-5	0.69	1.06	1.35	1.61
Post-Development Watershed				
PA-1	2.91	13.06	20.81	31.65
PA-2	7.03	13.19	17.21	22.42
PA-3	11.21	20.15	27.33	34.08
PA-4	0.07	0.18	0.28	0.38
PA-5	0.60	0.92	1.17	1.40

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, sediment forebays, Rain Guardian turrets, and Contech CDS units.

5.2 Treatment Methods for Protecting Water Quality.

The runoff from proposed impervious areas will be treated by Contech Jellyfish stormwater filtration systems as well as a Rain Garden bioretention systems. These Jellyfish and Rain Garden systems are sized to treat the Water Quality Flow of their respective sub catchment areas. The BMP worksheets for the treatment practices have been included in Section 6 of this report.

The proposed stormwater management system is required to remove 80% of the annual Total Suspended Solids (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 systems exceed the City of Portsmouth's removal requirements.

BMP	Total Suspended Solids	Total Nitrogen	Total Phosphorus
Jellyfish Filter w/Pretreatment ¹	91%	53%	61%
Rain Garden w/Pretreatment ²	97%	65%	65%

Section 6

BMP Worksheets



FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: _____

RG-1

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
1.21	ac	A = Area draining to the practice	
0.64	ac	A _I = Impervious area draining to the practice	
0.53	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.53	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.64	ac-in	WQV = 1" x Rv x A	
2,310	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
578	cf	25% x WQV (check calc for sediment forebay volume)	
1,733	cf	75% x WQV (check calc for surface sand filter volume)	
Rain Guardian Turret		Method of Pretreatment? (not required for clean or roof runoff)	
N/A	cf	V _{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
Calculate time to drain if system IS NOT underdrained:			
	sf	A _{SA} = Surface area of the practice	
	iph	K _{sat} _{DESIGN} = Design infiltration rate ¹	
	Yes/No	If K _{sat} (prior to factor of safety) is < 0.50 iph, has an underdrain been provided? (Use the calculations below)	
-	hours	T _{DRAIN} = Drain time = V / (A _{SA} * I _{DESIGN})	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
60.45	ft	E _{WQV} = Elevation of WQV (attach stage-storage table)	
2.35	cfs	Q _{WQV} = Discharge at the E _{WQV} (attach stage-discharge table)	
0.55	hours	T _{DRAIN} = Drain time = 2WQV/Q _{WQV}	≤ 72-hrs
57.50	feet	E _{FC} = Elevation of the bottom of the filter course material ²	
56.40	feet	E _{UD} = Invert elevation of the underdrain (UD), if applicable	
-	feet	E _{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
-	feet	E _{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.10	feet	D _{FC to UD} = Depth to UD from the bottom of the filter course	≥ 1'
#VALUE!	feet	D _{FC to ROCK} = Depth to bedrock from the bottom of the filter course	≥ 1'
#VALUE!	feet	D _{FC to SHWT} = Depth to SHWT from the bottom of the filter course	≥ 1'
60.94	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
61.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	← yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
	cf	V = Volume of storage ³ (attach a stage-storage table)	≥ 75%WQV
	inches	D _{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
Yes/No		Access grate provided?	← yes

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 50-Yr Rainfall=8.46"

Printed 4/19/2024

Stage-Discharge for Pond RG-1:

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
56.40	0.00	59.00	1.58
56.45	0.14	59.05	1.61
56.50	0.16	59.10	1.63
56.55	0.19	59.15	1.66
56.60	0.24	59.20	1.68
56.65	0.30	59.25	1.71
56.70	0.36	59.30	1.74
56.75	0.43	59.35	1.76
56.80	0.49	59.40	1.79
56.85	0.55	59.45	1.81
56.90	0.60	59.50	1.84
56.95	0.65	59.55	1.87
57.00	0.69	59.60	1.89
57.05	0.73	59.65	1.92
57.10	0.76	59.70	1.94
57.15	0.80	59.75	1.97
57.20	0.83	59.80	1.99
57.25	0.86	59.85	2.01
57.30	0.89	59.90	2.04
57.35	0.92	59.95	2.06
57.40	0.95	60.00	2.09
57.45	0.98	60.05	2.12
57.50	1.00	60.10	2.15
57.55	1.03	60.15	2.18
57.60	1.05	60.20	2.21
57.65	1.08	60.25	2.24
57.70	1.10	60.30	2.27
57.75	1.12	60.35	2.30
57.80	1.14	60.40	2.33
57.85	1.17	60.45	2.35
57.90	1.19	60.50	2.38
57.95	1.21	60.55	3.27
58.00	1.23	60.60	3.65
58.05	1.25	60.65	3.95
58.10	1.27	60.70	4.20
58.15	1.29	60.75	4.44
58.20	1.31	60.80	4.65
58.25	1.33	60.85	4.84
58.30	1.34	60.90	5.03
58.35	1.36	60.95	5.20
58.40	1.38	61.00	5.37
58.45	1.40		
58.50	1.42		
58.55	1.43		
58.60	1.45		
58.65	1.47		
58.70	1.48		
58.75	1.50		
58.80	1.52		
58.85	1.53		
58.90	1.55		
58.95	1.56		

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 50-Yr Rainfall=8.46"

Printed 4/19/2024

Stage-Area-Storage for Pond RG-1:

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
56.40	560	0	59.00	560	498
56.45	560	11	59.05	609	528
56.50	560	22	59.10	659	559
56.55	560	34	59.15	708	593
56.60	560	45	59.20	757	630
56.65	560	56	59.25	806	669
56.70	560	67	59.30	855	711
56.75	560	78	59.35	905	755
56.80	560	90	59.40	954	801
56.85	560	101	59.45	1,003	850
56.90	560	112	59.50	1,053	902
56.95	560	123	59.55	1,102	955
57.00	560	134	59.60	1,151	1,012
57.05	560	146	59.65	1,200	1,070
57.10	560	157	59.70	1,249	1,132
57.15	560	168	59.75	1,299	1,195
57.20	560	179	59.80	1,348	1,262
57.25	560	190	59.85	1,397	1,330
57.30	560	202	59.90	1,446	1,401
57.35	560	213	59.95	1,496	1,475
57.40	560	224	60.00	1,545	1,551
57.45	560	235	60.05	1,619	1,630
57.50	560	246	60.10	1,693	1,713
57.55	560	255	60.15	1,767	1,799
57.60	560	263	60.20	1,841	1,890
57.65	560	272	60.25	1,915	1,983
57.70	560	280	60.30	1,989	2,081
57.75	560	288	60.35	2,063	2,182
57.80	560	297	60.40	2,137	2,287
57.85	560	305	60.45	2,211	2,396
57.90	560	314	60.50	2,286	2,509
57.95	560	322	60.55	2,360	2,625
58.00	560	330	60.60	2,434	2,744
58.05	560	339	60.65	2,508	2,868
58.10	560	347	60.70	2,582	2,995
58.15	560	356	60.75	2,656	3,126
58.20	560	364	60.80	2,730	3,261
58.25	560	372	60.85	2,804	3,399
58.30	560	381	60.90	2,878	3,541
58.35	560	389	60.95	2,952	3,687
58.40	560	398	61.00	3,026	3,836
58.45	560	406			
58.50	560	414			
58.55	560	423			
58.60	560	431			
58.65	560	440			
58.70	560	448			
58.75	560	456			
58.80	560	465			
58.85	560	473			
58.90	560	482			
58.95	560	490			



FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: _____

RG-2

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
1.23	ac	A = Area draining to the practice	
0.84	ac	A _I = Impervious area draining to the practice	
0.68	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.66	unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
0.82	ac-in	WQV = 1" x R _v x A	
2,968	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
742	cf	25% x WQV (check calc for sediment forebay volume)	
2,226	cf	75% x WQV (check calc for surface sand filter volume)	
Sediment Forebay		Method of Pretreatment? (not required for clean or roof runoff)	
750	cf	V _{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
Calculate time to drain if system IS NOT underdrained:			
	sf	A _{SA} = Surface area of the practice	
	iph	K _{sat} _{DESIGN} = Design infiltration rate ¹	
	Yes/No	If K _{sat} (prior to factor of safety) is < 0.50 iph, has an underdrain been provided? (Use the calculations below)	
-	hours	T _{DRAIN} = Drain time = V / (A _{SA} * I _{DESIGN})	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
60.50	ft	E _{WQV} = Elevation of WQV (attach stage-storage table)	
2.50	cfs	Q _{WQV} = Discharge at the E _{WQV} (attach stage-discharge table)	
0.66	hours	T _{DRAIN} = Drain time = 2WQV/Q _{WQV}	≤ 72-hrs
56.50	feet	E _{FC} = Elevation of the bottom of the filter course material ²	
55.40	feet	E _{UD} = Invert elevation of the underdrain (UD), if applicable	
-	feet	E _{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
-	feet	E _{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.10	feet	D _{FC to UD} = Depth to UD from the bottom of the filter course	≥ 1'
#VALUE!	feet	D _{FC to ROCK} = Depth to bedrock from the bottom of the filter course	≥ 1'
#VALUE!	feet	D _{FC to SHWT} = Depth to SHWT from the bottom of the filter course	≥ 1'
61.35	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
62.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	← yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
	cf	V = Volume of storage ³ (attach a stage-storage table)	≥ 75%WQV
	inches	D _{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
Yes/No		Access grate provided?	← yes

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 50-Yr Rainfall=8.46"

Printed 4/19/2024

Stage-Discharge for Pond RG-2:

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
55.40	0.00	58.00	1.57	60.60	2.53
55.45	0.01	58.05	1.59	60.65	2.55
55.50	0.04	58.10	1.61	60.70	2.57
55.55	0.09	58.15	1.63	60.75	2.59
55.60	0.17	58.20	1.64	60.80	2.61
55.65	0.26	58.25	1.66	60.85	2.63
55.70	0.35	58.30	1.68	60.90	2.66
55.75	0.41	58.35	1.70	60.95	2.68
55.80	0.48	58.40	1.72	61.00	2.70
55.85	0.54	58.45	1.74	61.05	3.57
55.90	0.59	58.50	1.76	61.10	3.95
55.95	0.64	58.55	1.77	61.15	4.24
56.00	0.68	58.60	1.79	61.20	4.49
56.05	0.72	58.65	1.81	61.25	4.71
56.10	0.75	58.70	1.83	61.30	4.92
56.15	0.79	58.75	1.85	61.35	5.10
56.20	0.82	58.80	1.86	61.40	5.28
56.25	0.85	58.85	1.88	61.45	5.45
56.30	0.88	58.90	1.90	61.50	5.61
56.35	0.91	58.95	1.92	61.55	5.76
56.40	0.94	59.00	1.93	61.60	5.91
56.45	0.96	59.05	1.95	61.65	6.05
56.50	0.99	59.10	1.97	61.70	6.18
56.55	1.01	59.15	1.98	61.75	6.32
56.60	1.04	59.20	2.00	61.80	6.45
56.65	1.06	59.25	2.02	61.85	6.57
56.70	1.09	59.30	2.03	61.90	6.69
56.75	1.11	59.35	2.05	61.95	6.81
56.80	1.13	59.40	2.07	62.00	6.93
56.85	1.15	59.45	2.08		
56.90	1.17	59.50	2.10		
56.95	1.20	59.55	2.12		
57.00	1.22	59.60	2.13		
57.05	1.24	59.65	2.15		
57.10	1.26	59.70	2.17		
57.15	1.28	59.75	2.18		
57.20	1.29	59.80	2.20		
57.25	1.31	59.85	2.21		
57.30	1.33	59.90	2.23		
57.35	1.35	59.95	2.24		
57.40	1.37	60.00	2.26		
57.45	1.39	60.05	2.28		
57.50	1.40	60.10	2.30		
57.55	1.42	60.15	2.33		
57.60	1.44	60.20	2.35		
57.65	1.45	60.25	2.37		
57.70	1.47	60.30	2.39		
57.75	1.49	60.35	2.42		
57.80	1.50	60.40	2.44		
57.85	1.52	60.45	2.46		
57.90	1.54	60.50	2.48		
57.95	1.55	60.55	2.50		

E-5071-001_POST

Prepared by Tighe & Bond Consulting

HydroCAD® 10.20-4b s/n 03436 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 50-Yr Rainfall=8.46"

Printed 4/19/2024

Stage-Area-Storage for Pond RG-2:

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
55.40	509	0	60.60	1,827	3,129
55.50	509	20	60.70	1,924	3,316
55.60	509	41	60.80	2,021	3,513
55.70	509	61	60.90	2,118	3,720
55.80	509	81	61.00	2,215	3,937
55.90	509	102	61.10	2,311	4,163
56.00	509	122	61.20	2,408	4,399
56.10	509	143	61.30	2,505	4,645
56.20	509	163	61.40	2,602	4,900
56.30	509	183	61.50	2,699	5,165
56.40	509	204	61.60	2,796	5,440
56.50	509	224	61.70	2,893	5,724
56.60	509	239	61.80	2,990	6,019
56.70	509	254	61.90	3,087	6,322
56.80	509	270	62.00	3,184	6,636
56.90	509	285			
57.00	509	300			
57.10	509	316			
57.20	509	331			
57.30	509	346			
57.40	509	361			
57.50	509	377			
57.60	509	392			
57.70	509	407			
57.80	509	422			
57.90	509	438			
58.00	509	453			
58.10	546	506			
58.20	583	562			
58.30	619	622			
58.40	656	686			
58.50	693	754			
58.60	730	825			
58.70	767	899			
58.80	803	978			
58.90	840	1,060			
59.00	877	1,146			
59.10	914	1,236			
59.20	951	1,329			
59.30	987	1,426			
59.40	1,024	1,526			
59.50	1,061	1,631			
59.60	1,098	1,738			
59.70	1,135	1,850			
59.80	1,171	1,965			
59.90	1,208	2,084			
60.00	1,245	2,207			
60.10	1,342	2,336			
60.20	1,439	2,475			
60.30	1,536	2,624			
60.40	1,633	2,783			
60.50	1,730	2,951			



FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: _____

FP-1 (FocalPoint BioFiltration)

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
1.10	ac	A = Area draining to the practice	
0.73	ac	A_i = Impervious area draining to the practice	
0.66	decimal	l = Percent impervious area draining to the practice, in decimal form	
0.65	unitless	R_v = Runoff coefficient = $0.05 + (0.9 \times l)$	
0.71	ac-in	WQV = 1" x R_v x A	
2,585	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
646	cf	25% x WQV (check calc for sediment forebay volume)	
1,938	cf	75% x WQV (check calc for surface sand filter volume)	
Offline CBs		Method of Pretreatment? (not required for clean or roof runoff)	
N/A	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
Calculate time to drain if system IS NOT underdrained:			
	sf	A_{SA} = Surface area of the practice	
	iph	$K_{sat_{DESIGN}}$ = Design infiltration rate ¹	
	Yes/No	If K_{sat} (prior to factor of safety) is < 0.50 iph, has an underdrain been provided? (Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = $V / (A_{SA} * I_{DESIGN})$	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
N/A	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
N/A	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
-	hours	T_{DRAIN} = Drain time = $2WQV/Q_{WQV}$	≤ 72-hrs
49.50	feet	E_{FC} = Elevation of the bottom of the filter course material ²	
48.40	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
-	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
-	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.10	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	≥ 1'
49.50	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	≥ 1'
49.50	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	≥ 1'
53.90	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
54.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	← yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
	cf	V = Volume of storage ³ (attach a stage-storage table)	≥ 75%WQV
	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
Yes/No		Access grate provided?	← yes



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)

4.79 ac	A = Area draining to the practice
3.45 ac	A _i = Impervious area draining to the practice
0.72 decimal	I = Percent impervious area draining to the practice, in decimal form
0.70 unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)
3.34 ac-in	WQV = 1" x R _v x A
12,141 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".
0.70 inches	Q = Water quality depth. Q = WQV/A
97 unitless	CN = Unit peak discharge curve number. $CN = 1000 / (10 + 5P + 10Q - 10 * [Q^2 + 1.25 * Q * P]^{0.5})$
0.3 inches	S = Potential maximum retention. $S = (1000 / CN) - 10$
0.064 inches	I _a = Initial abstraction. I _a = 0.2S
5.0 minutes	T _c = Time of Concentration
640.0 cfs/mi ² /in	q _u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
3.345 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: POST 1.0 WATERSHED

Proprietary Pretreatment device located upstream of underground detention.

Pretreatment Device - Contech CDS Model 3030-6 (designed to treat maximum 3.0 cfs) with internal bypass

Proprietary treatment device located downstream of underground detention.

Per previous project approvals with the AoT Bureau, for treatment systems located downstream from detention facilities, the surrogate for the WQF is the discharge from a detention facility during the 2-year storm event.

Treatment Device - Contech Jellyfish Filter Model JFPD080815-3 (designed to treat maximum 2.94 cfs)

Outlet Control structure configuration set to bypass flows beyond WQF.



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)

4.28 ac	A = Area draining to the practice
2.95 ac	A_i = Impervious area draining to the practice
0.69 decimal	I = Percent impervious area draining to the practice, in decimal form
0.67 unitless	R_v = Runoff coefficient = $0.05 + (0.9 \times I)$
2.87 ac-in	$WQV = 1'' \times R_v \times A$
10,414 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, $P = 1''$.
0.67 inches	Q = Water quality depth. $Q = WQV/A$
97 unitless	CN = Unit peak discharge curve number. $CN = 1000 / (10 + 5P + 10Q - 10 * [Q^2 + 1.25 * Q * P]^{0.5})$
0.4 inches	S = Potential maximum retention. $S = (1000/CN) - 10$
0.072 inches	I_a = Initial abstraction. $I_a = 0.2S$
8.8 minutes	T_c = Time of Concentration
640.0 cfs/mi ² /in	q_u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
2.869 cfs	$WQF = q_u \times WQV$. Conversion: to convert "cfs/mi ² /in * ac-in" to "cfs" multiply by 1mi ² /640ac.

Designer's Notes: POST 3.0 WATERSHED
PJFF-2 AND PCDS-2

Pretreatment Device - Contech CDS Model 3030-6 (designed to treat maximum 3.0 cfs)

Treatment Device - Contech Jellyfish Filter Model JFPD080815-3 (designed to treat maximum 2.94 cfs)



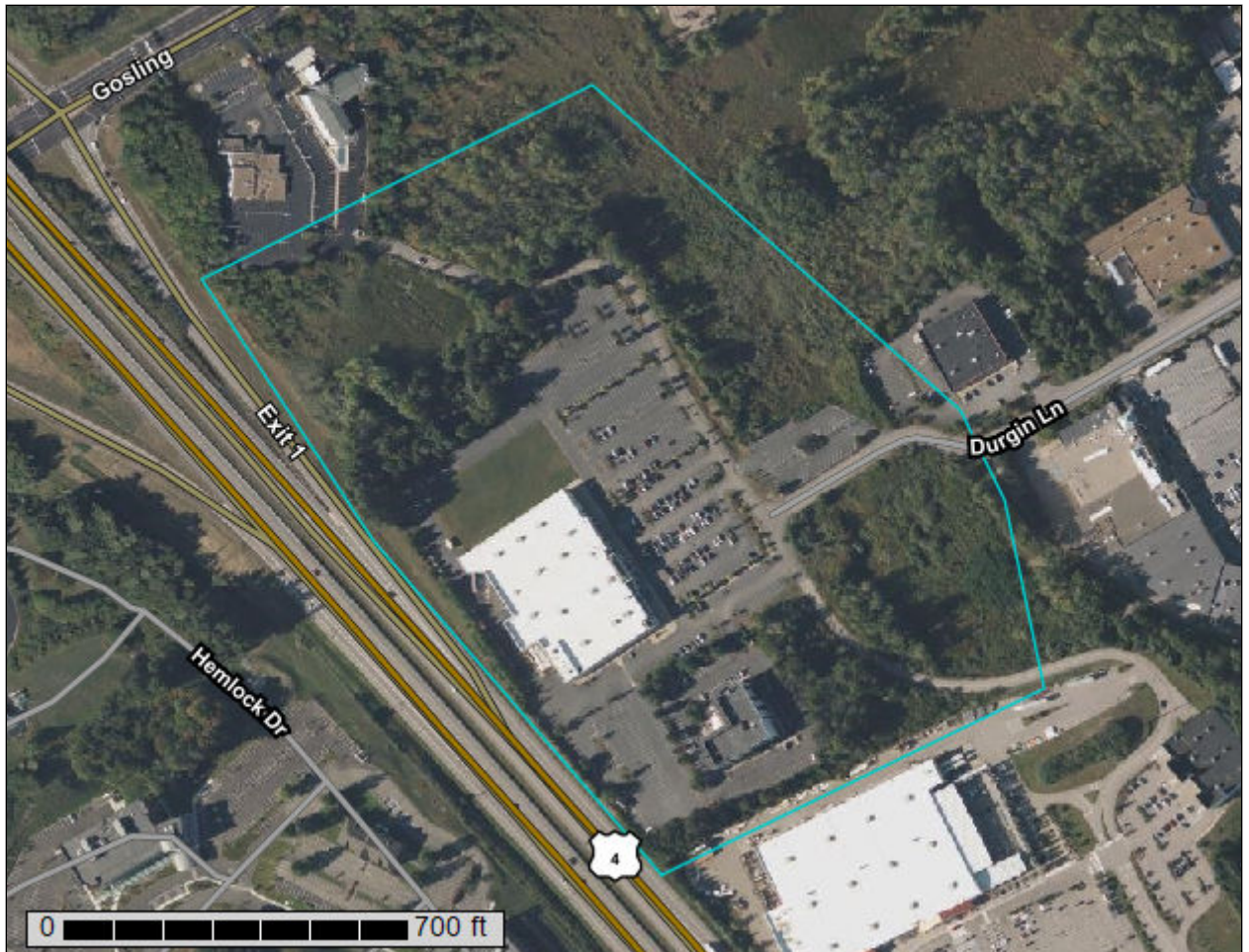
United States
Department of
Agriculture

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



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Rockingham County, New Hampshire.....	13
33A—Scitico silt loam, 0 to 5 percent slopes.....	13
134—Maybid silt loam.....	14
140B—Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky.....	15
699—Urban land.....	18
799—Urban land-Canton complex, 3 to 15 percent slopes.....	18
References	21

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

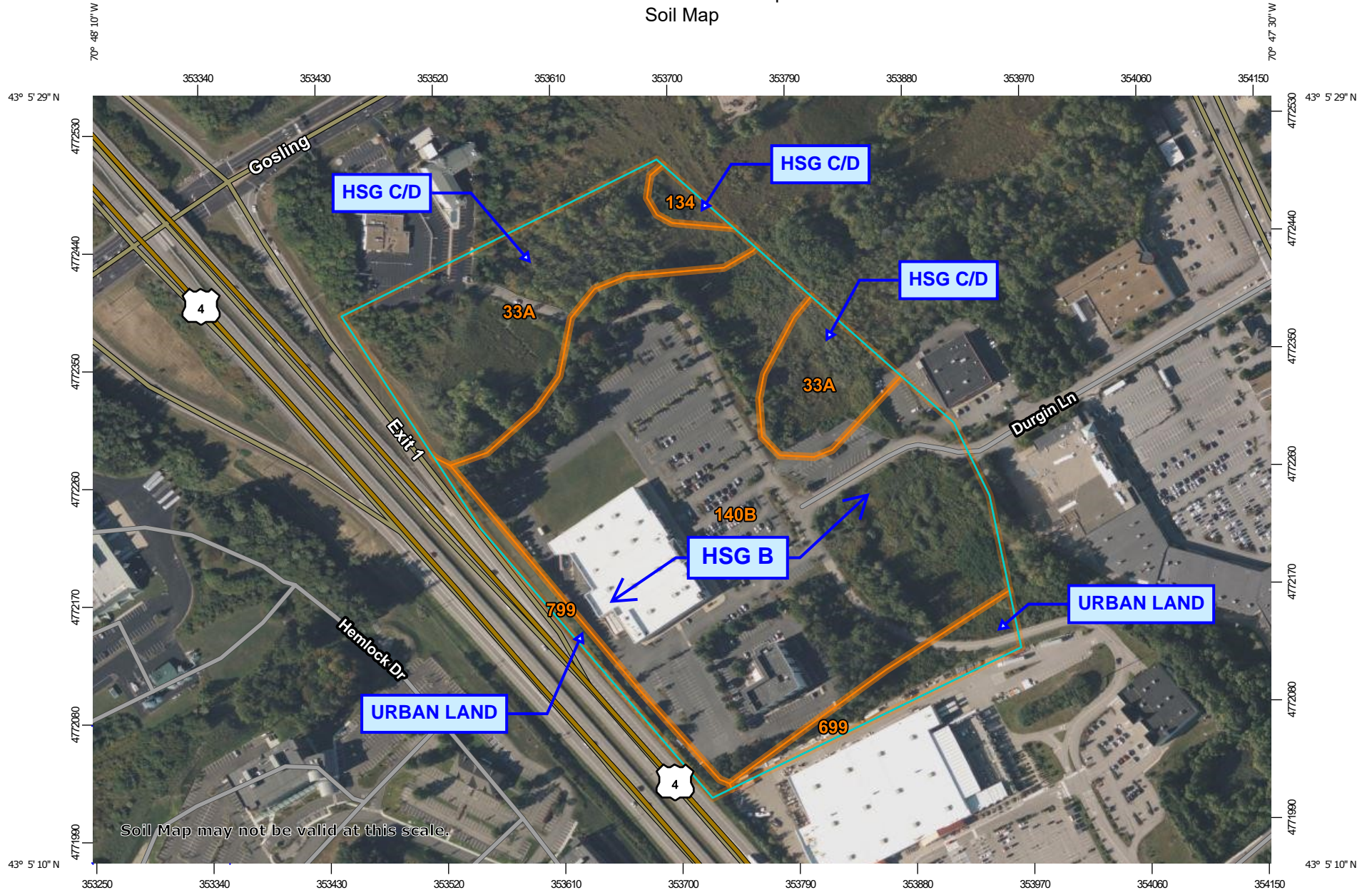
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

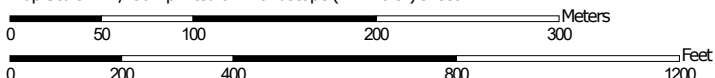
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:4,130 if printed on A landscape (11" x 8.5") sheet.



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
33A	Scitico silt loam, 0 to 5 percent slopes	8.9	25.6%
134	Maybid silt loam	0.4	1.1%
140B	Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky	23.0	66.0%
699	Urban land	1.6	4.5%
799	Urban land-Canton complex, 3 to 15 percent slopes	1.0	2.9%
Totals for Area of Interest		34.9	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.

Custom Soil Resource Report

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

33A—Scitico silt loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 9cn6
Elevation: 0 to 180 feet
Mean annual precipitation: 47 to 49 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 155 to 165 days
Farmland classification: Farmland of local importance

Map Unit Composition

Scitico and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scitico

Setting

Landform: Marine terraces

Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 12 inches: silty clay loam
H3 - 12 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F144AY019NH - Wet Lake Plain
Hydric soil rating: Yes

Minor Components

Maybid

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Squamscott

Percent of map unit: 5 percent
Landform: Marine terraces

Custom Soil Resource Report

Hydric soil rating: Yes

Boxford

Percent of map unit: 5 percent

Hydric soil rating: No

134—Maybid silt loam

Map Unit Setting

National map unit symbol: 9cmg

Elevation: 0 to 180 feet

Mean annual precipitation: 47 to 50 inches

Mean annual air temperature: 48 degrees F

Frost-free period: 155 to 165 days

Farmland classification: Not prime farmland

Map Unit Composition

Maybid and similar soils: 75 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Maybid

Setting

Landform: Marine terraces

Parent material: Silty and clayey marine deposits

Typical profile

H1 - 0 to 9 inches: silt loam

H2 - 9 to 26 inches: silty clay loam

H3 - 26 to 63 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: C/D

Ecological site: F144AY020MA - Very Wet Coastal Lake Plain

Hydric soil rating: Yes

Minor Components

Ossipee

Percent of map unit: 10 percent
Landform: Swamps
Hydric soil rating: Yes

Scitico

Percent of map unit: 10 percent
Landform: Marine terraces
Hydric soil rating: Yes

Not named wet

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

140B—Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2w82m
Elevation: 380 to 1,070 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Chatfield, very stony, and similar soils: 35 percent
Canton, very stony, and similar soils: 25 percent
Hollis, very stony, and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chatfield, Very Stony

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

O_i - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
B_w - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Custom Soil Resource Report

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Canton, Very Stony

Setting

Landform: Ridges, hills, moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

O_i - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw₁ - 5 to 16 inches: fine sandy loam
Bw₂ - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Hollis, Very Stony

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

O_i - 0 to 2 inches: slightly decomposed plant material
A - 2 to 7 inches: gravelly fine sandy loam
B_w - 7 to 16 inches: gravelly fine sandy loam
2R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 8 to 23 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (K_{sat}): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Minor Components

Freetown

Percent of map unit: 5 percent
Landform: Swamps, kettles, bogs, depressions, marshes
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Newfields, very stony

Percent of map unit: 5 percent
Landform: Moraines, hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope

Custom Soil Resource Report

Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Walpole, very stony

Percent of map unit: 3 percent
Landform: Outwash terraces, depressions, outwash plains, depressions, deltas
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 2 percent
Landform: Hills, ridges
Hydric soil rating: Unranked

699—Urban land

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Not named

Percent of map unit: 15 percent
Hydric soil rating: No

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

Boxford and eldridge

Percent of map unit: 4 percent

Hydric soil rating: No

Squamscott and scitico

Percent of map unit: 4 percent

Landform: Marine terraces

Hydric soil rating: Yes

Scituate and newfields

Percent of map unit: 4 percent

Hydric soil rating: No

Chatfield

Percent of map unit: 4 percent

Hydric soil rating: No

Walpole

Percent of map unit: 4 percent

Landform: Depressions

Hydric soil rating: Yes

Custom Soil Resource Report

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

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	Rockingham County, New Hampshire, United States
Latitude	43.088 degrees North
Longitude	70.798 degrees West
Elevation	10 feet
Date/Time	Tue Mar 05 2024 16:41:17 GMT-0500 (Eastern Standard Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day
1yr	0.26	0.40	0.50	0.65	0.81	1.04	1yr	0.70	0.98	1.21	1.56	2.02	2.65	2.91	1yr	2.35	2.80
2yr	0.32	0.50	0.62	0.81	1.02	1.30	2yr	0.88	1.18	1.51	1.93	2.48	3.20	3.55	2yr	2.83	3.42
5yr	0.37	0.58	0.73	0.97	1.24	1.60	5yr	1.07	1.46	1.88	2.42	3.13	4.05	4.56	5yr	3.59	4.38
10yr	0.41	0.64	0.81	1.11	1.44	1.88	10yr	1.24	1.72	2.22	2.88	3.73	4.85	5.50	10yr	4.29	5.29
25yr	0.47	0.75	0.96	1.32	1.76	2.32	25yr	1.52	2.13	2.75	3.61	4.71	6.15	7.07	25yr	5.44	6.80
50yr	0.53	0.85	1.09	1.52	2.05	2.73	50yr	1.77	2.51	3.26	4.29	5.63	7.36	8.54	50yr	6.52	8.22
100yr	0.59	0.95	1.23	1.75	2.39	3.22	100yr	2.06	2.95	3.86	5.11	6.73	8.82	10.33	100yr	7.80	9.94
200yr	0.66	1.08	1.40	2.01	2.78	3.78	200yr	2.40	3.48	4.56	6.07	8.03	10.57	12.50	200yr	9.35	12.02
500yr	0.78	1.29	1.68	2.44	3.42	4.69	500yr	2.95	4.33	5.68	7.62	10.14	13.43	16.08	500yr	11.88	15.46

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day
1yr	0.23	0.36	0.44	0.59	0.73	0.89	1yr	0.63	0.87	0.92	1.32	1.66	2.22	2.49	1yr	1.97	2.40
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	3.44	2yr	2.70	3.31
5yr	0.35	0.54	0.67	0.92	1.17	1.40	5yr	1.01	1.37	1.61	2.13	2.74	3.78	4.18	5yr	3.34	4.02
10yr	0.38	0.59	0.73	1.02	1.32	1.60	10yr	1.14	1.56	1.81	2.40	3.07	4.36	4.85	10yr	3.86	4.67
25yr	0.44	0.67	0.83	1.18	1.56	1.90	25yr	1.34	1.86	2.10	2.78	3.56	4.68	5.89	25yr	4.14	5.66
50yr	0.48	0.73	0.91	1.31	1.76	2.17	50yr	1.52	2.12	2.35	3.10	3.97	5.29	6.80	50yr	4.68	6.54
100yr	0.53	0.81	1.01	1.46	2.01	2.47	100yr	1.73	2.42	2.63	3.45	4.40	5.94	7.86	100yr	5.25	7.56
200yr	0.59	0.89	1.13	1.63	2.27	2.82	200yr	1.96	2.75	2.93	3.84	4.86	6.65	9.08	200yr	5.88	8.73
500yr	0.68	1.02	1.31	1.90	2.71	3.37	500yr	2.34	3.29	3.40	4.40	5.56	7.72	10.98	500yr	6.83	10.55

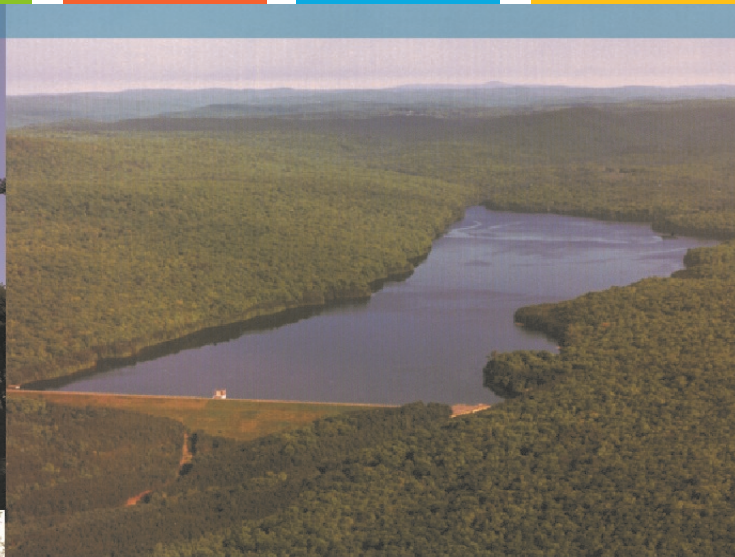
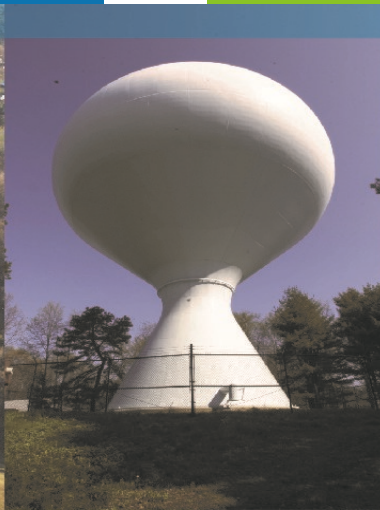
Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day
1yr	0.28	0.44	0.54	0.72	0.89	1.08	1yr	0.76	1.06	1.25	1.75	2.21	2.99	3.14	1yr	2.64	3.02
2yr	0.33	0.52	0.64	0.86	1.06	1.26	2yr	0.92	1.24	1.48	1.96	2.51	3.42	3.68	2yr	3.02	3.54
5yr	0.40	0.61	0.76	1.04	1.33	1.61	5yr	1.15	1.58	1.88	2.53	3.24	4.32	4.93	5yr	3.82	4.74
10yr	0.46	0.71	0.88	1.24	1.60	1.96	10yr	1.38	1.92	2.27	3.10	3.93	5.32	6.16	10yr	4.71	5.92
25yr	0.57	0.87	1.08	1.54	2.02	2.55	25yr	1.75	2.49	2.94	4.05	5.11	7.75	8.27	25yr	6.86	7.95
50yr	0.66	1.01	1.26	1.80	2.43	3.09	50yr	2.10	3.02	3.57	4.97	6.25	9.70	10.36	50yr	8.58	9.96
100yr	0.78	1.17	1.47	2.13	2.91	3.76	100yr	2.52	3.67	4.34	6.11	7.66	12.13	12.98	100yr	10.74	12.48
200yr	0.91	1.37	1.73	2.50	3.49	4.58	200yr	3.01	4.48	5.29	7.51	9.38	15.21	16.28	200yr	13.46	15.65
500yr	1.12	1.67	2.15	3.12	4.44	5.93	500yr	3.83	5.80	6.86	9.91	12.30	20.54	21.96	500yr	18.18	21.11



Coastal and Great Bay Region Precipitation Increase		
	24-hr Storm Event (in.)	24-hr Storm Event + 15% (in.)
1 Year	2.65	3.05
2 Year	3.20	3.68
10 Year	4.85	5.58
25 Year	6.15	7.07
50 Year	7.36	8.46
100 Year	8.82	10.14





Proposed Multi-Family Development
100 Durgin Lane
Portsmouth, NH

Long-Term Operation & Maintenance Plan

100 Durgin Lane Owner, LLC

April 22, 2024

Tighe&Bond

Section 1 Long-Term Operation & Maintenance Plan

1.1 Contact/Responsible Party1-1

1.2 Maintenance Items1-1

1.3 Overall Site Operation & Maintenance Schedule1-2

 1.3.1 Disposal Requirements.....1-2

1.4 Underground Detention System Maintenance Requirements1-3

1.5 Rain Garden Maintenance Requirements1-3

1.6 Contech Jellyfish Filter System Maintenance Requirements.....1-4

1.7 Contech Cascade Separator Maintenance Requirements1-5

1.8 Rip Rap Maintenance Requirements1-5

1.9 Snow & Ice Management for Standard Asphalt and Walkways.....1-5

Section 2 Chloride Management Plan

2.1 Background Information.....2-1

2.2 Operational Guidelines – Chloride Management.....2-1

 2.2.1 Winter Operator Certification Requirements2-1

 2.2.2 Improved Weather Monitoring.....2-2

 2.2.3 Equipment Calibration Requirements2-2

 2.2.4 Increased Mechanical Removal Capabilities.....2-2

2.3 Salt Usage Evaluation and Monitoring2-3

2.4 Summary2-3

Section 3 Invasive Species

Section 4 Annual Updates and Log Requirements

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 implementing 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

100 Durgin Lane Owner, LLC
1 Marina Park Drive, Suite 1500
Boston, MA 02210

(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
- Rain Garden
- Contech Jellyfish Filtration System
- Contech CDS Units
- Rip Rap Outlets

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
Rain Gardens - Trash and debris to be removed. - Any required maintenance shall be addressed.	Two (2) times annually After any rainfall event exceeding 2.5" in a 24-hr period
Contech Jelly Fish Units	In accordance with Manufacturer's Recommendations
Contech CDS Units®	In accordance with Manufacturer's Recommendations
Underground Detention Basin - Visual observation of sediment levels within system	Annually

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	<ul style="list-style-type: none"> - Trash, debris and sediment to be removed - Any required maintenance shall be addressed
Deep Sump Catchbasins	Two (2) times annually	<ul style="list-style-type: none"> - Removal of sediment as warranted by inspection - No less than once annually
Monitor detention system for sediment accumulation	Two (2) times annually	<ul style="list-style-type: none"> - Trash, debris and sediment to be removed - Any required maintenance shall be addressed

1.5 Rain Garden Maintenance Requirements

Rain Garden Inspection/Maintenance Requirements		
Inspection/Maintenance	Frequency	Action
Monitor to ensure that Rain Gardens function effectively after storms	Two (2) times annually and after any rainfall event exceeding 2.5" in a 24-hr period	<ul style="list-style-type: none"> - Trash and debris to be removed - Any required maintenance shall be addressed
Inspect Vegetation	Annually	<ul style="list-style-type: none"> - Inspect the condition of all Rain Garden vegetation - Prune back overgrowth - Replace dead vegetation - Remove any invasive species
Inspect Drawdown Time - The system shall drawdown within 48-hours following a rainfall event.	Annually	<ul style="list-style-type: none"> - Assess the condition of the facility to determine measures required to restore the filtration function, including but not limited to removal of accumulated sediments or reconstruction of the filter.

1.6 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	One (1) time annually and after any rainfall event exceeding 2.5" in a 24-hr period	Maintenance required for any of the following: - >4" of sediment on the vault floor - >1/4" of sediment on top of the cartridge - .4" of static water above the cartridge bottom more than 24 hours after a rain event - If pore space between media is absent. - If vault is in bypass condition during an average rainfall event.
Replace Cartridges	As required by inspection, 1-5 years.	- Remove filter cartridges per manufacturer methods. - Vacuum sediment from vault. - Install new cartridges per manufacturer methods

1.7 Contech CDS Unit Maintenance Requirements

Contech Cascade Separator® Inspection/Maintenance Requirements		
Inspection/ Maintenance	Frequency	Action
Visual Inspection	Twice per year at a minimum (spring and fall)	-Visually inspect for blockages or obstruction in the inlet chamber, flumes or outlet channel - Sediment removal once 50% of maximum storage has been reached

1.8 Rip Rap Maintenance Requirements

Rip Rap Inspection/Maintenance Requirements		
Inspection/ Maintenance	Frequency	Action
Visual Inspection	Annually	- Visually inspect for damage and deterioration - Repair damages immediately

1.9 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). 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 (typical 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.

Pavement Temp. (°F) and Trend (↑↓)	Weather Condition	Maintenance Actions	Pounds per two-lane mile			
			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 MgCl₂ or CaCl₂ 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

Chloride Management Plan

Winter Operational Guidelines

The following Chloride Management Plan is for the 100 Durgin Lane - Multifamily Development in Portsmouth, New Hampshire. The Plan includes operational guidelines including: winter operator certification requirements, weather monitoring, equipment calibration requirements, mechanical removal, and salt usage evaluation and monitoring. Due to the evolving nature of chloride management efforts, the Chlorides Management Plan will be reviewed annually, in advance of the winter season, to reflect the current management standards.

2.1 Background Information

The 100 Durgin Lane - Multifamily Development located within the Upper Hodgson Brook Watershed in Newington and Portsmouth, New Hampshire. The Upper Hodgson Brook is identified as a chloride-impaired waterbody.

2.2 Operational Guidelines – Chloride Management

All 100 Durgin Lane Owner LLC private contractors engaged at the 100 Durgin Lane premises for the purposes of winter operational snow removal and surface maintenance, are responsible for assisting in meeting compliance for the following protocols. 100 Durgin Lane Owner LLC private contractors are expected to minimize the effects of the use of de-icing, anti-icing and pretreatment materials by adhering to the strict guidelines outlined below.

The 100 Durgin Lane Owner LLC winter operational de-icing, anti-icing and pretreatment materials will adhere to the following protocols:

2.2.1 Winter Operator Certification Requirements

All private contractors engaged at the 100 Durgin Lane premises for the purpose of winter operational snow removal and surface maintenance must be current UNHT2 Green SnowPro Certified operators or equivalent and will use only pre-approved methods for spreading abrasives on private roadways and parking lots. All private contractors engaged at the 100 Durgin Lane premises for the purpose of winter operational snow removal and surface maintenance shall provide to 100 Durgin Lane Owner LLC management two copies of the annual UNHT2 Green SnowPro certificate or equivalent for each operator utilized on the 100 Durgin Lane premises. The annual UNHT2 Green SnowPro certificate or equivalent for each operator will be available on file in the 100 Durgin Lane Facilities Management office and be present in the vehicle/carrier at all times.

2.2.2 Improved Weather Monitoring

100 Durgin Lane Owner LLC will coordinate weather information for use by winter maintenance contractors. This information in conjunction with site specific air/ground surface temperature monitoring will ensure that private contractors engaged at the 100 Durgin Lane premises for the purpose of winter operational snow removal and surface maintenance will make more informed decisions as to when and to what extent de-icing, anti-icing and pretreatment materials are applied to private roadways, sidewalks, and parking lots.

2.2.3 Equipment Calibration Requirements

All equipment utilized on the 100 Durgin Lane premises for the purpose of winter operational snow removal and surface maintenance will conform to the following calibration requirements.

2.2.3.1 Annual Calibration Requirements

All private contractors engaged at the 100 Durgin Lane premises for the purpose of winter operational snow removal and surface maintenance shall provide two copies of the annual calibration report for each piece of equipment utilized on the 100 Durgin Lane premises. Each calibration report shall include the vehicle/carrier VIN number and the serial numbers for each component including, but not limited to, spreader control units, salt aggregate spreader equipment, brining/pre-wetting equipment, ground speed orientation unit, and air/ground surface temperature monitor. Annual calibration reports will be available on file in the 100 Durgin Lane Facilities Management office and be present in the vehicle/carrier at all times.

Prior to each use, each vehicle/carrier operator will perform a systems check to verify that unit settings remain within the guidelines established by the 100 Durgin Lane Owner LLC Management Team in order to accurately dispense material. All private contractors engaged at the 100 Durgin Lane premises for the purpose of winter operational snow removal and surface maintenance will be subject to spot inspections by members of the 100 Durgin Lane Owner LLC Management Team to ensure that each vehicle/carrier is operating in a manner consistent with the guidelines set herein or State and Municipal regulations. All units will be recalibrated, and the updated calibration reports will be provided each time repairs or maintenance procedures affect the hydraulic system of the vehicle/carrier.

2.2.4 Increased Mechanical Removal Capabilities

All private contractors engaged at the 100 Durgin Lane premises will endeavor to use mechanical removal means on a more frequent basis for roadways, parking lots and sidewalks. Dedicating more manpower and equipment to increase snow removal frequencies prevents the buildup of snow and the corresponding need for de-icing, anti-icing and pretreatment materials. Shortened maintenance

routes, with shorter service intervals, will be used to stay ahead of snowfall. Minimized snow and ice packing will reduce the need for abrasives, salt aggregates, and/or brining solution to restore surfaces back to bare surface states after winter precipitation events.

After storm events the 100 Durgin Lane Owner LLC management team will be responsible for having the streets swept to recapture un-melted de-icing materials, when practical.

2.3 Salt Usage Evaluation and Monitoring

All private contractors engaged at the 100 Durgin Lane premises for the purpose of winter operational snow removal and surface maintenance shall provide two copies of a storm report, which includes detailed information regarding treatment areas and the use of de-icing, anti-icing and pretreatment materials applied for the removal of snow and surface maintenance on the 100 Durgin Lane premises. 100 Durgin Lane Owner LLC will maintain copies of Summary Documents, including copies of the Storm Reports, operator certifications, equipment used for roadway and sidewalk winter maintenance, calibration reports and amount of de-icing materials used.

2.4 Summary

The above-described methodologies are incorporated into the 100 Durgin Lane Operational Manual and are to be used to qualify and retain all private contractors engaged at the 100 Durgin Lane premises for the purpose of winter operational snow removal and surface maintenance. This section of the Manual, is intended to be an adaptive management document that is modified as required based on experience gained from past practices and technological advancements that reflect chloride BMP standards. All 100 Durgin Lane Owner LLC employees directly involved with winter operational activities are required to review this document and the current standard Best Management Practices published by the UNH Technology Transfer (T2) program annually. All 100 Durgin Lane Owner LLC employees directly involved with winter operational activities, and all private contractors engaged at the 100 Durgin Lane premises for the purposes of winter operational snow removal and surface maintenance, must be current UNHT2 Green SnowPro Certified operators or equivalent and undergo the necessary requirements to maintain this certification annually.

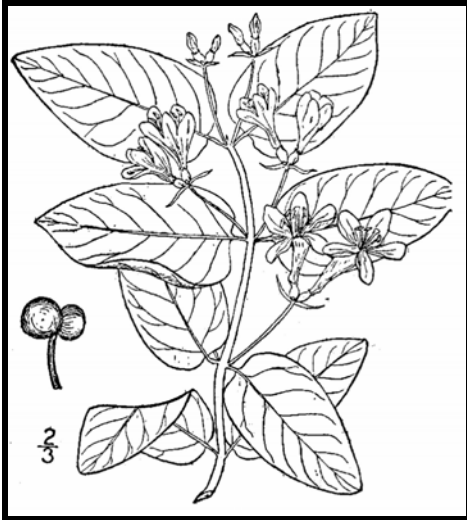
Section 3

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.



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.

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.






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.

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.

Woody Plants	Method of Reproducing	Methods of Disposal
Norway maple <i>(Acer platanoides)</i> European barberry <i>(Berberis vulgaris)</i> Japanese barberry <i>(Berberis thunbergii)</i> autumn olive <i>(Elaeagnus umbellata)</i> burning bush <i>(Euonymus alatus)</i> Morrow's honeysuckle <i>(Lonicera morrowii)</i> Tatarian honeysuckle <i>(Lonicera tatarica)</i> showy bush honeysuckle <i>(Lonicera x bella)</i> common buckthorn <i>(Rhamnus cathartica)</i> glossy buckthorn <i>(Frangula alnus)</i>	Fruit and Seeds 	<p>Prior to fruit/seed ripening</p> <p>Seedlings and small plants</p> <ul style="list-style-type: none"> ▪ Pull or cut and leave on site with roots exposed. No special care needed. <p>Larger plants</p> <ul style="list-style-type: none"> ▪ Use as firewood. ▪ Make a brush pile. ▪ Chip. ▪ Burn. <hr/> <p>After fruit/seed is ripe</p> <p>Don't remove from site.</p> <ul style="list-style-type: none"> ▪ Burn. ▪ Make a covered brush pile. ▪ Chip once all fruit has dropped from branches. ▪ Leave resulting chips on site and monitor.
oriental bittersweet <i>(Celastrus orbiculatus)</i> multiflora rose <i>(Rosa multiflora)</i>	Fruits, Seeds, Plant Fragments 	<p>Prior to fruit/seed ripening</p> <p>Seedlings and small plants</p> <ul style="list-style-type: none"> ▪ Pull or cut and leave on site with roots exposed. No special care needed. <p>Larger plants</p> <ul style="list-style-type: none"> ▪ Make a brush pile. ▪ Burn. <hr/> <p>After fruit/seed is ripe</p> <p>Don't remove from site.</p> <ul style="list-style-type: none"> ▪ 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.

Non-Woody Plants	Method of Reproducing	Methods of Disposal
<p>garlic mustard (<i>Alliaria petiolata</i>)</p> <p>spotted knapweed (<i>Centaurea maculosa</i>)</p> <ul style="list-style-type: none"> ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. <p>black swallow-wort (<i>Cynanchum nigrum</i>)</p> <ul style="list-style-type: none"> ▪ May cause skin rash. Wear gloves and long sleeves when handling. <p>pale swallow-wort (<i>Cynanchum rossicum</i>)</p> <p>giant hogweed (<i>Heracleum mantegazzianum</i>)</p> <ul style="list-style-type: none"> ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. <p>dame's rocket (<i>Hesperis matronalis</i>)</p> <p>perennial pepperweed (<i>Lepidium latifolium</i>)</p> <p>purple loosestrife (<i>Lythrum salicaria</i>)</p> <p>Japanese stilt grass (<i>Microstegium vimineum</i>)</p> <p>mile-a-minute weed (<i>Polygonum perfoliatum</i>)</p>	<p>Fruits and Seeds</p> 	<p>Prior to flowering</p> <p>Depends on scale of infestation</p> <p>Small infestation</p> <ul style="list-style-type: none"> ▪ Pull or cut plant and leave on site with roots exposed. <p>Large infestation</p> <ul style="list-style-type: none"> ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. <hr/> <p>During and following flowering</p> <p>Do nothing until the following year or remove flowering heads and bag and let rot.</p> <p>Small infestation</p> <ul style="list-style-type: none"> ▪ Pull or cut plant and leave on site with roots exposed. <p>Large infestation</p> <ul style="list-style-type: none"> ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
<p>common reed (<i>Phragmites australis</i>)</p> <p>Japanese knotweed (<i>Polygonum cuspidatum</i>)</p> <p>Bohemian knotweed (<i>Polygonum x bohemicum</i>)</p>	<p>Fruits, Seeds, Plant Fragments</p> <p>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.</p>	<p>Small infestation</p> <ul style="list-style-type: none"> ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. <p>Large infestation</p> <ul style="list-style-type: none"> ▪ 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.

January 2010

UNH Cooperative Extension programs and policies are consistent with pertinent Federal and State laws and regulations, and prohibits discrimination in its programs, activities and employment on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sex, sexual orientation, or veteran's, marital or family status. College of Life Sciences and Agriculture, County Governments, NH Dept. of Resources and Economic Development, Division of Forests and Lands, NH Fish and Game ,and U.S. Dept. of Agriculture cooperating.

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



Spraying chemicals to control invasive plants.

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.

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 4

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						
Multifamily Development		100 Durgin Lane				
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			<input type="checkbox"/> Yes <input type="checkbox"/> No			
Underground Detention Basin			<input type="checkbox"/> Yes <input type="checkbox"/> No			
Jellyfish Filter 1			<input type="checkbox"/> Yes <input type="checkbox"/> No			
Jellyfish Filter 2			<input type="checkbox"/> Yes <input type="checkbox"/> No			
CDS Unit 1			<input type="checkbox"/> Yes <input type="checkbox"/> No			
CDS Unit 2			<input type="checkbox"/> Yes <input type="checkbox"/> No			
Rain Garden 1			<input type="checkbox"/> Yes <input type="checkbox"/> No			
Rain Garden 2			<input type="checkbox"/> Yes <input type="checkbox"/> No			
Rain Garden 3			<input type="checkbox"/> Yes <input type="checkbox"/> No			

**Jellyfish[®] Filter
Owner's Manual**



Table of Contents

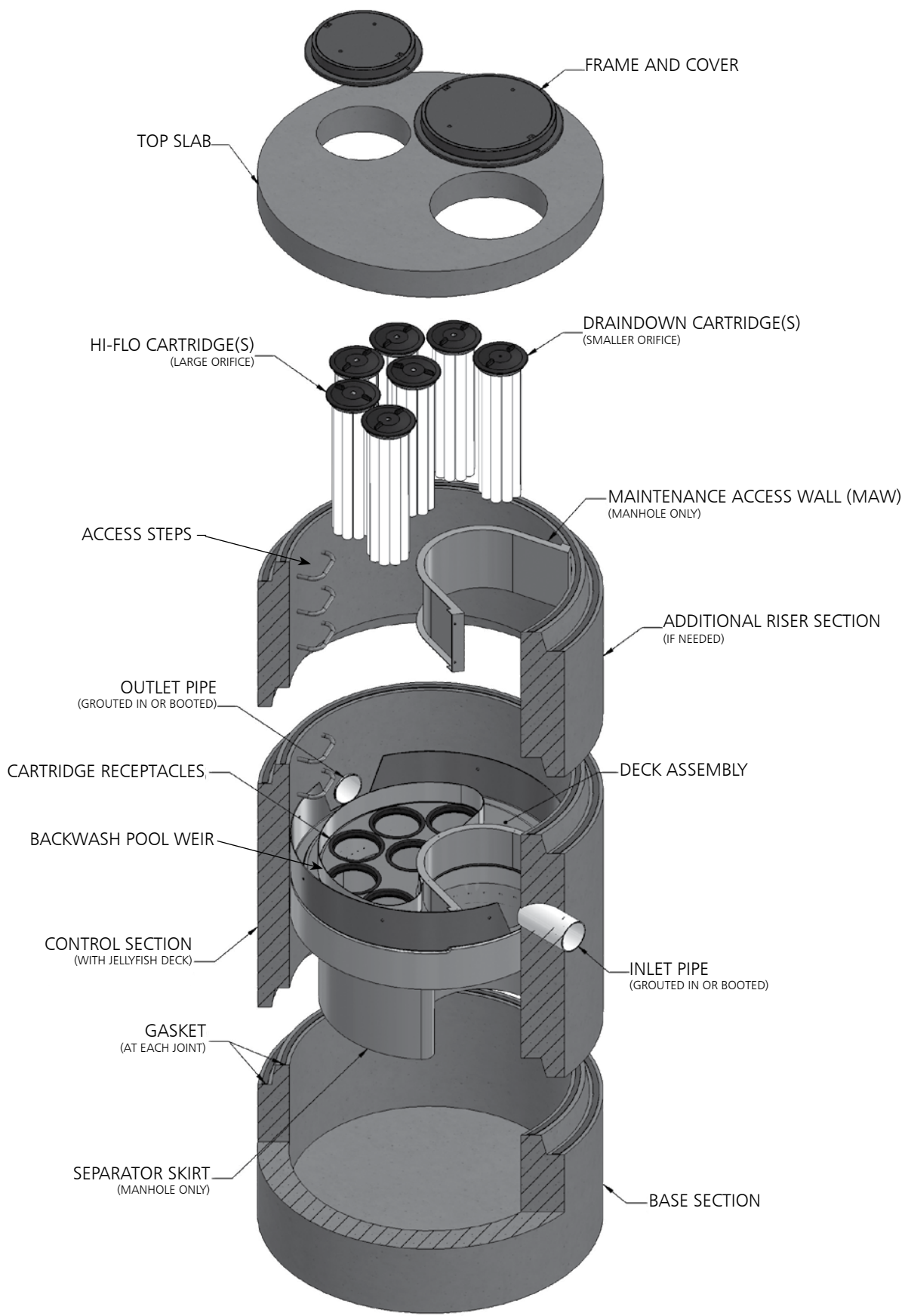
Chapter 1	1.0 Owner Specific Jellyfish Product Information.....	4
Chapter 2	2.0 Jellyfish Filter System Operations & Functions	5
	2.1 Components & Cartridges	6
	2.2 Jellyfish Membrane Filtration Cartridges Assembly	7
	2.3 Installation of Jellyfish Membrane Filtration Cartridges.....	7
Chapter 3	3.0 Inspection and Maintenance Overview	8
Chapter 4	4.0 Inspection Timing	8
Chapter 5	5.0 Inspection Procedure.....	8
	5.1 Dry Weather Inspections	8
	5.1 Wet Weather Inspections	9
Chapter 6	6.0 Maintenance Requirements.....	9
Chapter 7	7.0 Maintenance Procedure	9
	7.1 Filter Cartridge Removal	9
	7.2 Filter Cartridge Rinsing	9
	7.3 Sediment and Flotables Extraction	10
	7.4 Filter Cartridge Reinstallation and Replacement.....	10
	7.5 Chemical Spills.....	10
	5.6 Material Disposal	10
	Jellyfish Filter Inspection and Maintenance Log	12

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



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):	

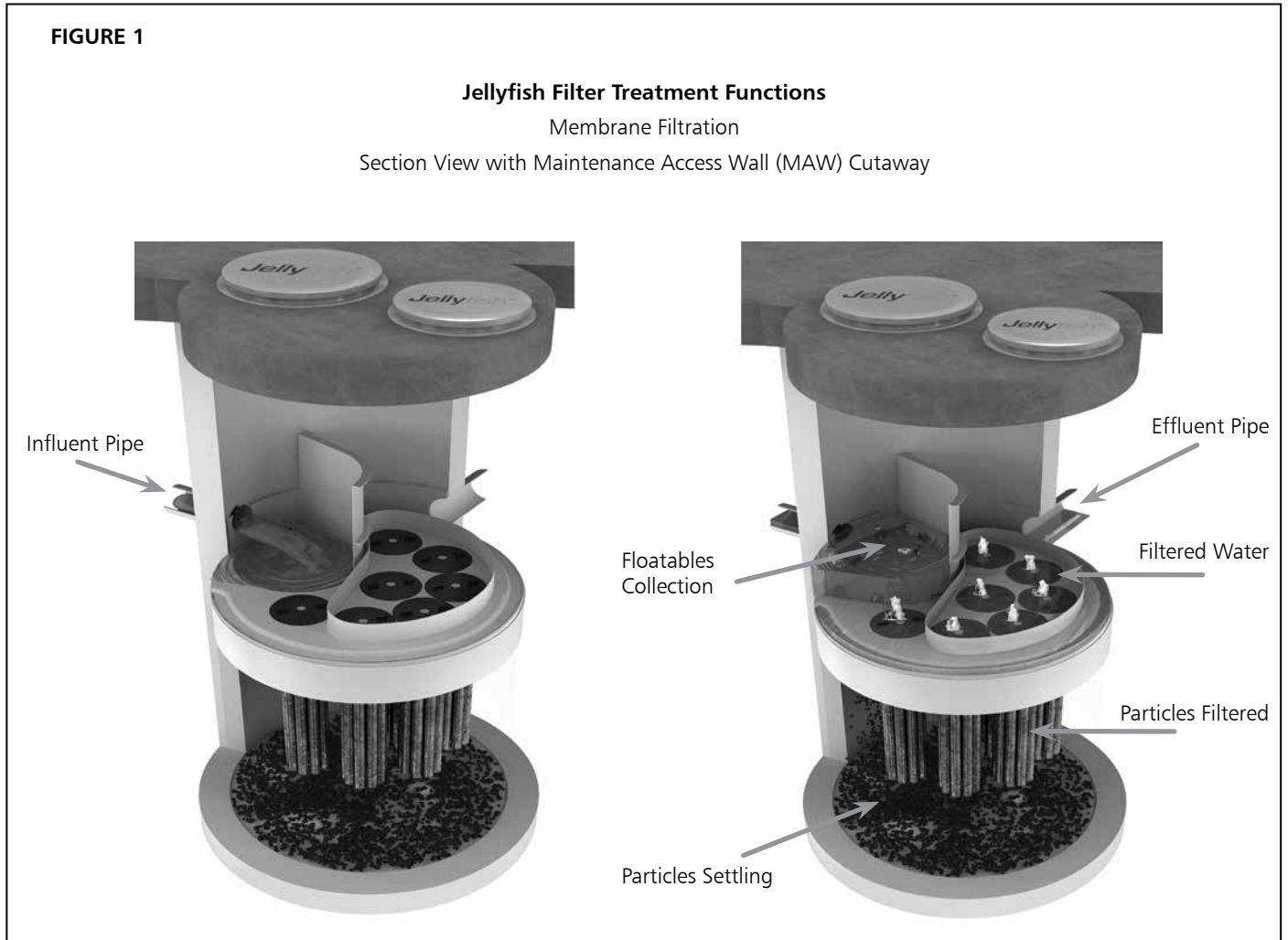
Notes:

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.



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.

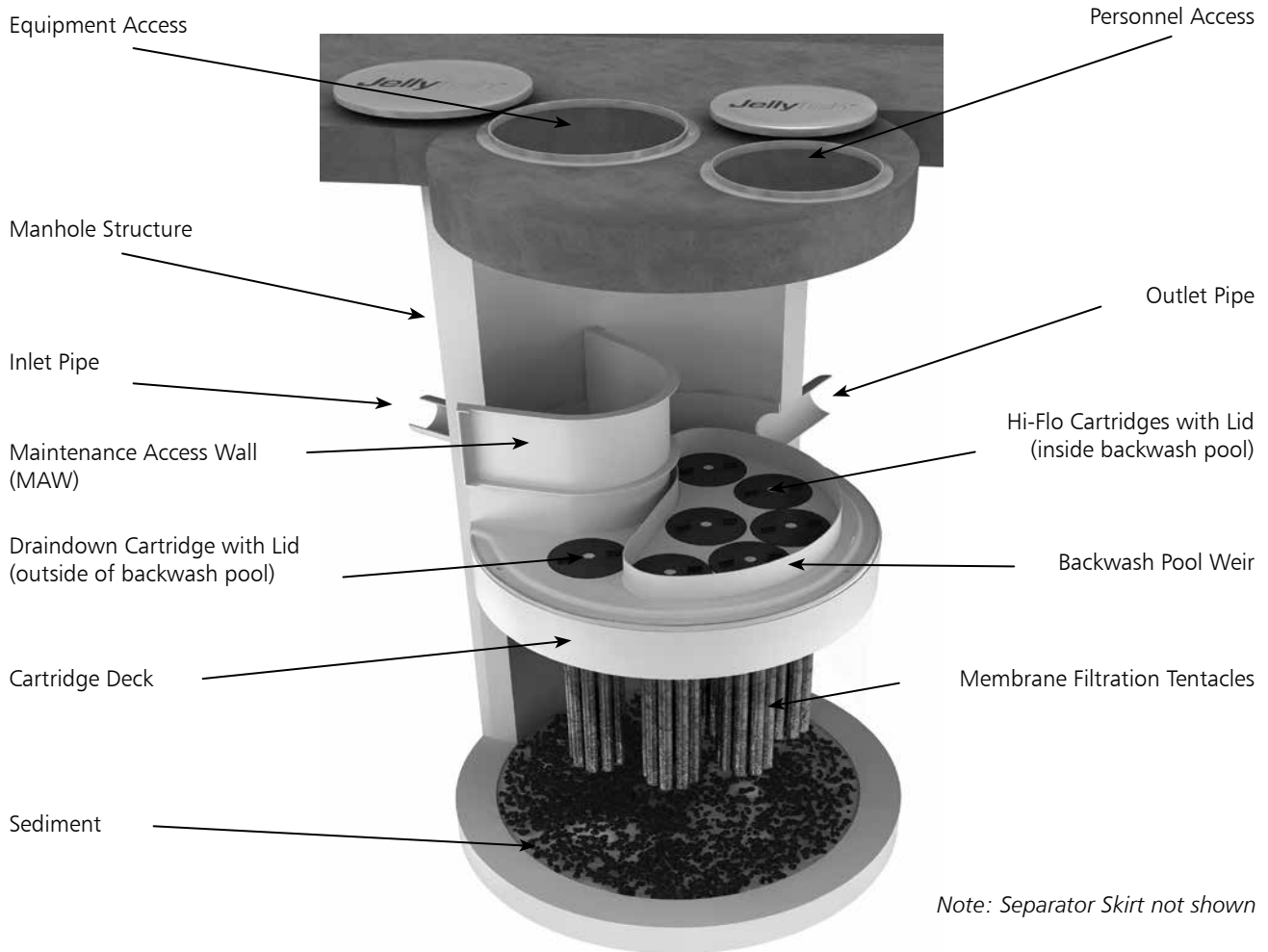
For additional details on the operation and pollutant capabilities of the Jellyfish Filter please refer to additional details on our website at www.ContechES.com.

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:

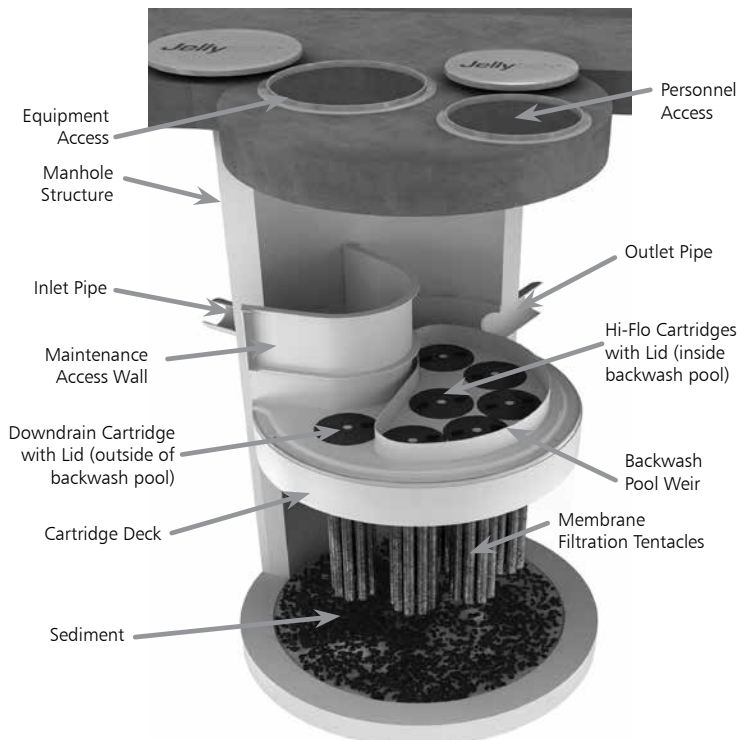
- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

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 ($\geq 1/16''$) 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



Cartridge Removal & Lifting Device



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.

7.3 Sediment and Floatables 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

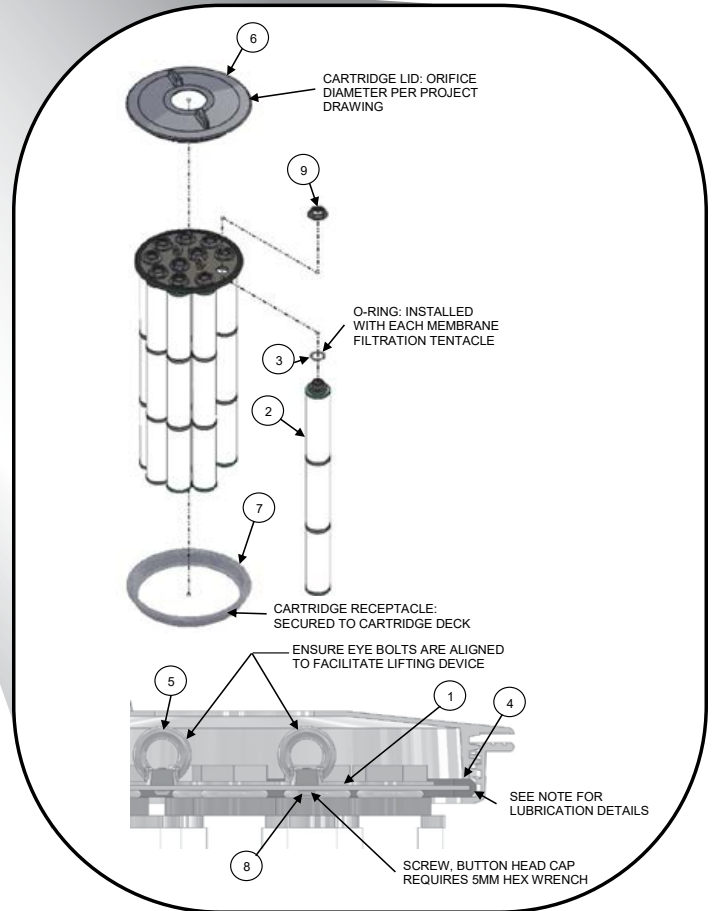
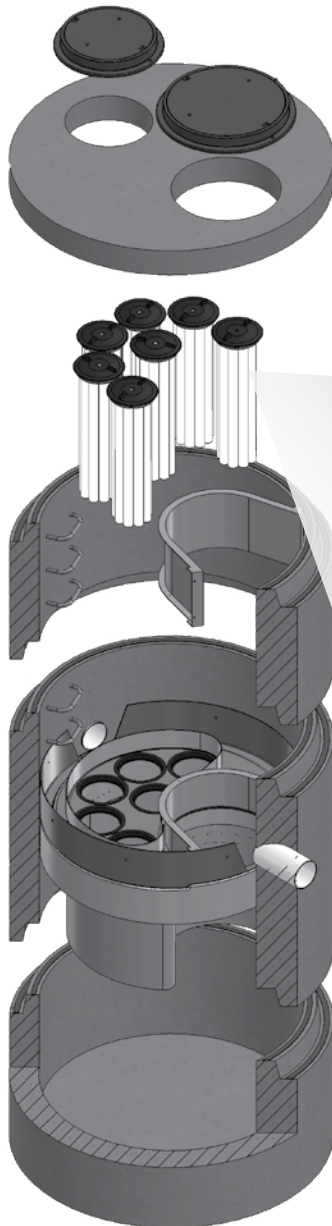


TABLE 1: BOM

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:					

CDS[®] Inspection and Maintenance Guide



Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allow both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine whether the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

Cleaning of a CDS system should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes.



CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y ³	m ³
CDS1515	3	0.9	3.0	0.9	0.5	0.4
CDS2015	4	1.2	3.0	0.9	0.9	0.7
CDS2015	5	1.3	3.0	0.9	1.3	1.0
CDS2020	5	1.3	3.5	1.1	1.3	1.0
CDS2025	5	1.3	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3025	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3
CDS5640	10	3.0	6.3	1.9	8.7	6.7
CDS5653	10	3.0	7.7	2.3	8.7	6.7
CDS5668	10	3.0	9.3	2.8	8.7	6.7
CDS5678	10	3.0	10.3	3.1	8.7	6.7

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities



Support

- Drawings and specifications are available at www.contechstormwater.com.
- Site-specific design support is available from our engineers.

©2017 Contech Engineered Solutions LLC, a QUIKRETE Company

Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, earth stabilization and wastewater treatment products. For information, visit www.ContechES.com or call 800.338.1122

NOTHING IN THIS CATALOG SHOULD BE CONSTRUED AS AN EXPRESSED WARRANTY OR AN IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. SEE THE CONTECH STANDARD CONDITION OF SALES (VIEWABLE AT WWW.CONTECHES.COM/COS) FOR MORE INFORMATION.

The product(s) described may be protected by one or more of the following US patents: 5,322,629; 5,624,576; 5,707,527; 5,759,415; 5,788,848; 5,985,157; 6,027,639; 6,350,374; 6,406,218; 6,641,720; 6,511,595; 6,649,048; 6,991,114; 6,998,038; 7,186,058; 7,296,692; 7,297,266; 7,517,450 related foreign patents or other patents pending.



WETLAND DELINEATION REPORT

100 Durgin Lane
Portsmouth, NH
February 28, 2024



As requested, I am pleased to provide the following report documenting the wetland delineation performed by Gove Environmental Services, Inc. in connection with the above referenced property. The work was conducted on three lots, referenced on the City of Portsmouth assessors' maps as lots 239-13-2, 239-16, and 239-18 which together total approximately 26.15 acres (the Site). The resource areas discussed in this report are depicted on the enclosed sketch.

WETLAND DELINEATION

The delineation work was performed on November 11, 2023 by Brendan Quigley utilizing the following standards:

1. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, (Version 2.0) January 2012, U.S. Army Corps of Engineers.
2. *Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils*, Version 8.2. United States Department of Agriculture (2018).
3. *New England Hydric Soils Technical Committee. 2019 Version 4, Field Indicators for Identifying Hydric Soils in New England*. New England Interstate Water Pollution Control Commission, Lowell, MA.
4. *U.S. Army Corps of Engineers National Wetland Plant List, version 3.5*. (2020)

The central part of the Site is a developed commercial property consisting of a large retail building, associated parking areas, and a connector road running between Gosling Road and Arthur Brady Drive. The developed portions of the Site are generally well defined from the surrounding vegetated areas which are a mix of forest, dense early successional shrub growth, and emergent wetland. Wetlands were identified in three main areas east and north of the developed portion of the Site. These were demarcated with seven (7) series of consecutively numbered pink "WETLAND DELINEATION" flagging as shown on the attached sketch. The following table provides a description of each wetland area.

Table 1—Wetland Descriptions

Wetland ID	Cowardin Class ¹	Description/Notes
A and C	PSS1B	These two wetlands occupy the area under the power lines in the southeast corner of the Site. They are scrub shrub wetlands with a saturated hydrology, dominated by silky dogwood, willow, and glossy buckthorn. The wetlands are isolated from one another and surrounded by development or roadway. At the time of the delineation timber mats and stabilized access had been installed in and adjacent to the wetlands for power line maintenance activities.
B	PSS1Kh	This small wetland occupies a portion of a constructed stormwater basin. It is otherwise similar to Wetlands A and C.
#1-62	PSS1E/PFO1E PEM1/5E	This wetland lies on the west side of the connector road north of the existing development. Much of the wetland lies off-site and is predominantly a cattail/phragmites marsh. The edges of this emergent wetland that lie on the Site are a mix of scrub shrub and forested wetland dominated by speckled alder, common and glossy buckthorn, and red maple. Hydrology of the wetland is seasonally flooded /saturated. The wetland also contains a shallow pond and an old weir structure that appear to be components of legacy drainage system, now nearly indistinguishable from the larger wetland. The wetland drains into Wetland E via a culvert under the connector road.
D & E	PSS1E/PFO1E PEM1/5E	These two series of flags define two on-site portions of a larger wetland situated under the power lines and extending off-site to the north and east. Like the wetland defined by flags #1-62, to which this area is connected, this is predominantly a cattail and Phragmites marsh with a limited forested and scrub shrub edge.
F	PEM1/5B	This small wetland is essentially the same as D&E but appears to have been purposely separated from the main wetland by construction of a dyke and weir like the one contained in the #1-62 wetland. Though its intended function is not clear this is also likely part of a legacy drainage system.

¹ *Classification of Wetlands and Deepwater Habitats of the United States*. USFW Manual FWS/OBS-79/31 (1979)

OTHER REGULATED WETLAND RESOURCES

The NHDES' web-based Wetlands Permit and Planning Tool (WPPT) was used to identify the presence of other regulated wetland resources such as protected shoreland, prime wetland, and other Priority Resource Areas as defined by NH Administrative Rule Env-Wt 103.66. The planning tool indicates that no such areas are present on the property. A copy of the WPPT map is attached.

The field work for the delineation was conducted in late fall so no formal vernal pool survey was conducted. The large cattail and phragmites marsh wetland (D, E, F, 1-62) that constitutes most of the wetlands on the site is not typically suitable vernal pool habitat. The smaller scrub-shrub wetland (A, B, & C) do not appear to have the topography to maintain a pool. Furthermore, all the wetland on the site exist in a highly developed area with very minimal supporting upland habitat necessary to support vernal pool species. It is therefore very unlikely that any of the wetlands identified on the Site contain vernal pools. This should be verified during the vernal pool breeding season.

PORTSMOUTH WETLAND PROTECTION ORDINANCE

Section 10.1010 of the Portsmouth Zoning Ordinance regulates wetland resource areas including vegetated wetlands, vernal pools, tidal areas, streams, other surface water, and specific buffers to these resources. The Site only contains inland freshwater wetlands which are regulated under the Ordinance if they are 10,000 square feet in size or greater². Wetlands B and F are 4,594 square feet and 2,442 square feet respectively, so these two small wetlands are not regulated under the Ordinance. Note, however, that these areas are still jurisdictional wetlands subject to state and federal regulation. All other wetlands identified on the Site, and a 100-foot buffer from these areas, are regulated under the Ordinance.

² Section 10.1013.10



- LEGEND:**
- ADJOINING PROPERTY LINE
 - FENCELINE
 - UNDERGROUND ELECTRIC (Point)
 - SEWER LINE (Point)
 - 10 FOOT CONTOUR
 - 2 FOOT CONTOUR
 - CURBING
 - EDGE OF PAVEMENT
 - FENCE
 - QUARRYL
 - PROPERTY LINE
 - FORMER LOT LINE
 - BUILDING SETBACK LINE
 - OVERHEAD UTILITY LINES
 - EASEMENT
 - STONEWALL
 - FLAGGED WETLAND
 - SWALE
 - GAS LINE (Point)
 - CONCRETE
 - CATCH BASIN
 - DRAIN MANHOLE
 - ELECTRIC BOX
 - LIGHT POLE
 - REPAIR OR MAINTENANCE SPACE
 - DRILL HOLE
 - POST
 - SIGN
 - SEWER MANHOLE
 - UTILITY POLE OR BRACE POLE
 - WATER SHUT-OFF
 - HYDROVENT
 - ELECTRIC METER
 - GAS METER
 - FLAG POLE
 - GAS SHUT-OFF
 - BORING
 - WETLAND FLAG LOCATION
 - BOLLARD
 - TREE

HOLDEN ENGINEERING & SURVEYING, inc.

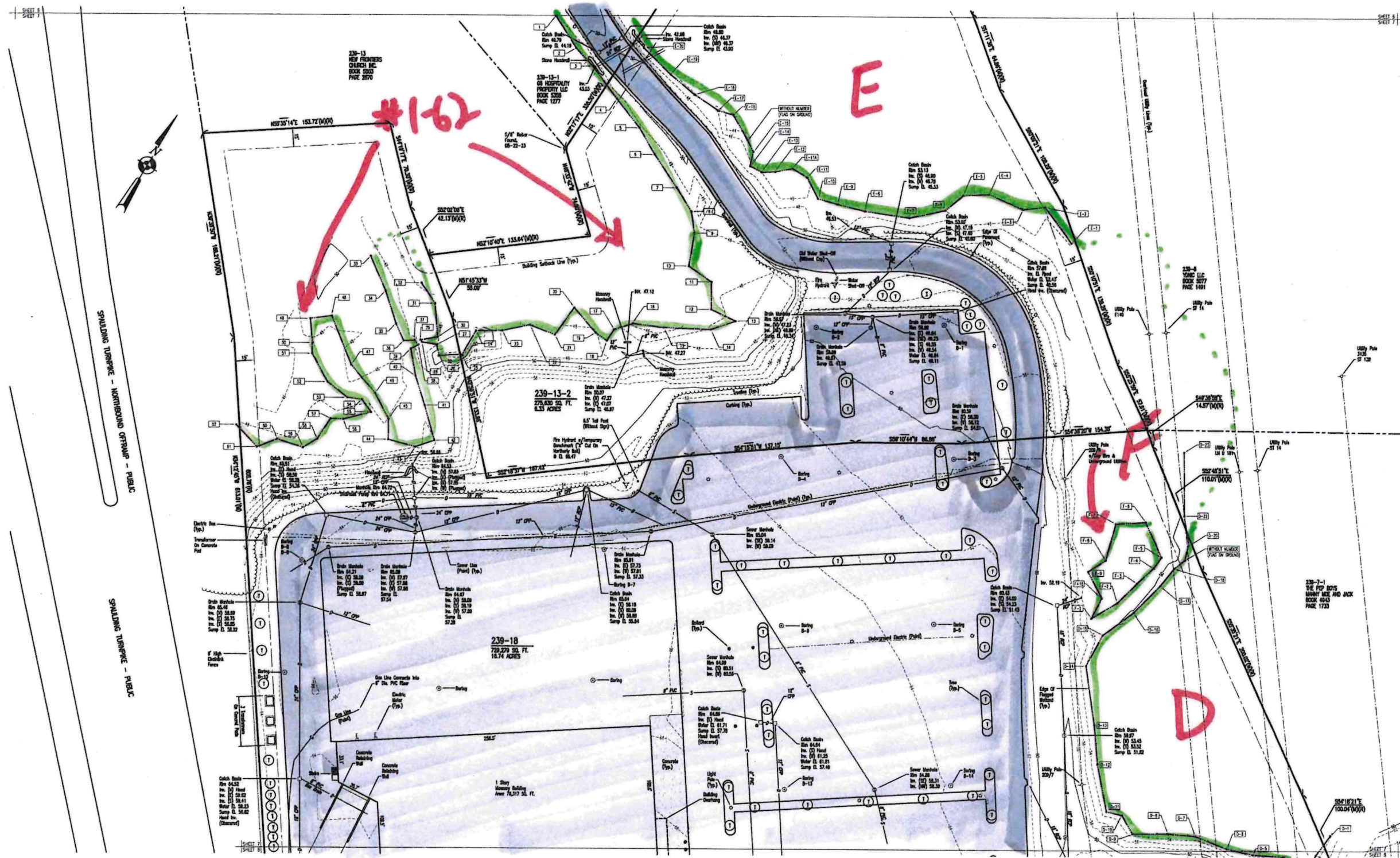
56 Old Saco Road
PO Box 480 Concord, NH 03302
(603) 225-6449

9 Constitution Drive
Bedford, NH 03110
(603) 472-2078

TOPOGRAPHIC SURVEY PREPARED FOR
100 DURGIN LANE OWNER LLC
100 DURGIN LANE, PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE

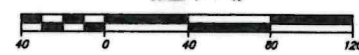
Date	Revisions Description	Dr. By	Chk. By	Book	Page
11-10-23	REVISED PER CLIENT COMMENTS	DS	LR		
02-13-24	MINOR UTILITY EXITS	DS	PH		

Date: 08-10-23
Scale: 1"=40'
Dr. By: DS Chk. By: LR
Job No. 2320547
Sheet no 8 of 8



- LEGEND:**
- ADJUTING PROPERTY LINE
 - TIE LINE
 - UNDERGROUND ELECTRIC (Point)
 - SEWER LINE (Point)
 - 10 FOOT CONTOUR
 - 2 FOOT CONTOUR
 - CURBING
 - EDGE OF PAVEMENT
 - FENCE
 - GROUNDWATER
 - PROPERTY LINE
 - FORMER LOT LINE
 - BUILDING SETBACK LINE
 - OVERHEAD UTILITY LINES
 - EASEMENT
 - STONEWALL
 - FLAGGED WETLAND
 - STAKE
 - GAS LINE (Point)
 - CONCRETE
 - CATCH BASIN
 - DOWN MANHOLE
 - ELECTRIC BOX
 - LIGHT POLE
 - REBAR OR REBARNO SPIRE
 - DRILL HOLE
 - POST
 - SIGN
 - SEWER MANHOLE
 - UTILITY POLE OR BRICE POLE
 - WATER SHUT-OFF
 - HYDRANT
 - ELECTRIC METER
 - GAS METER
 - FLAG POLE
 - GAS SHUT-OFF
 - BORING
 - WETLAND FLAG LOCATION
 - BOLLARD
 - TREE

SCALE 1" = 40'



HOLDEN ENGINEERING & SURVEYING, inc.

55 Old Suncook Road
PO Box 480 Concord, NH 03302
(603) 225-6449

9 Constitution Drive
Bedford, NH 03110
(603) 472-2078

TOPOGRAPHIC SURVEY PREPARED FOR
100 DURGIN LANE OWNER LLC
100 DURGIN LANE, PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE

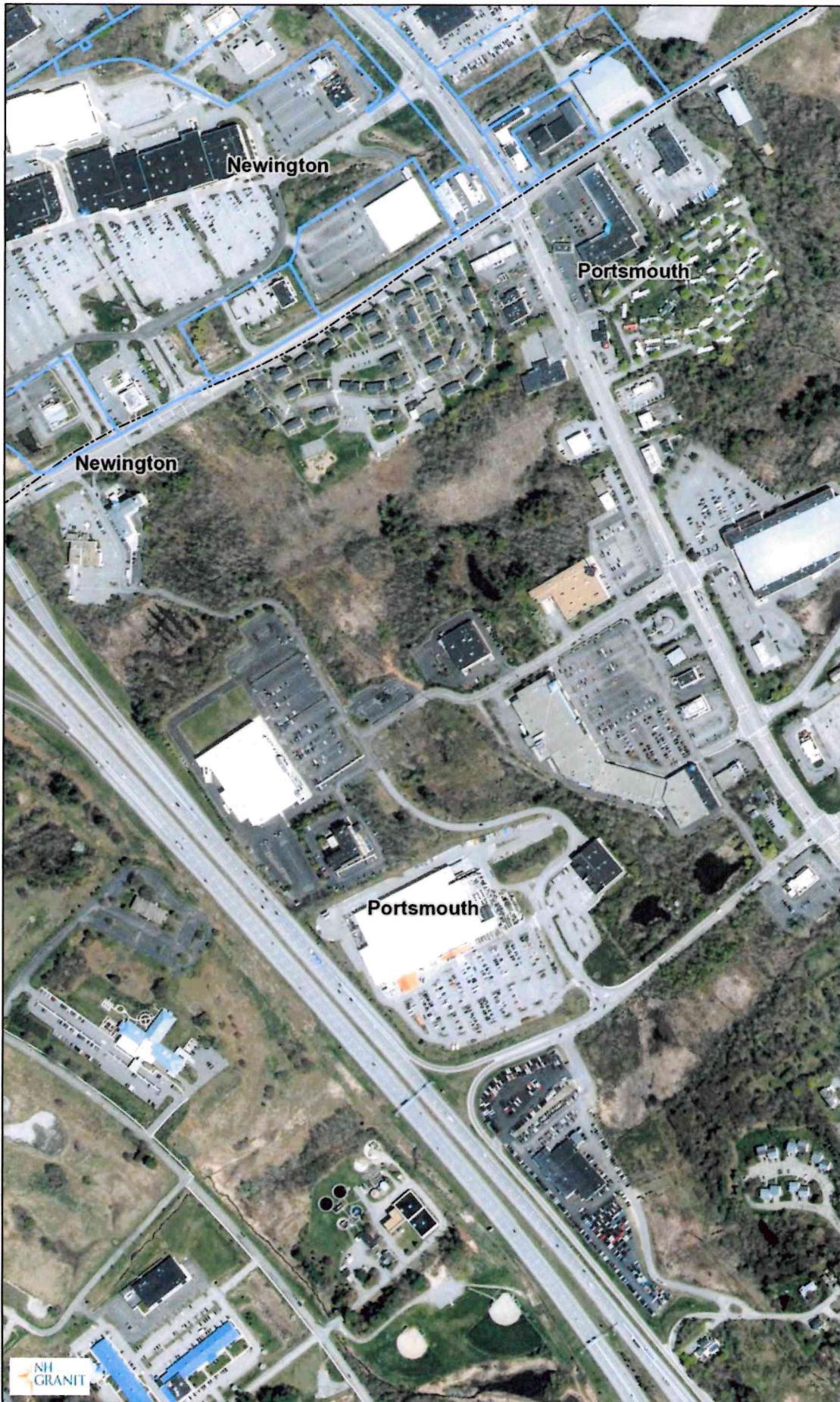
Date	Revisions Description	Dr. By	Chk. By	Book	Page
11-10-23	REVISED PER CLIENT COMMENTS	DS	LR		
02-13-24	MINOR UTILITY EDITS	DS	PH		

Date: 08-10-23
Scale: 1"=40'
Dr. By: DS Ck. By: LR
Job No. 2320547
Sheet no 7 of 8












All Rights Reserved. No part of this plan may be reproduced or utilized without the express permission of Holden Engineering & Surveying, Inc.

H:\CONC-2320547\CADD\SHEETS-6-7-8-PART-2.dwg Feb 13, 2024 dsoucy

Durbin Lane WPPT



Legend

-  Additional Lines
 -  City/Town
 -  Prime Wetlands
 -  Prime Wetlands with 100
 -  Peatland
 -  Flood Plain Wetlands Adj
 -  Marsh-Scrub / Shrub Wet
- Dunes**
-  backdune
 -  foredune
 -  interdune
 -  other

Map Scale

1: 6,494



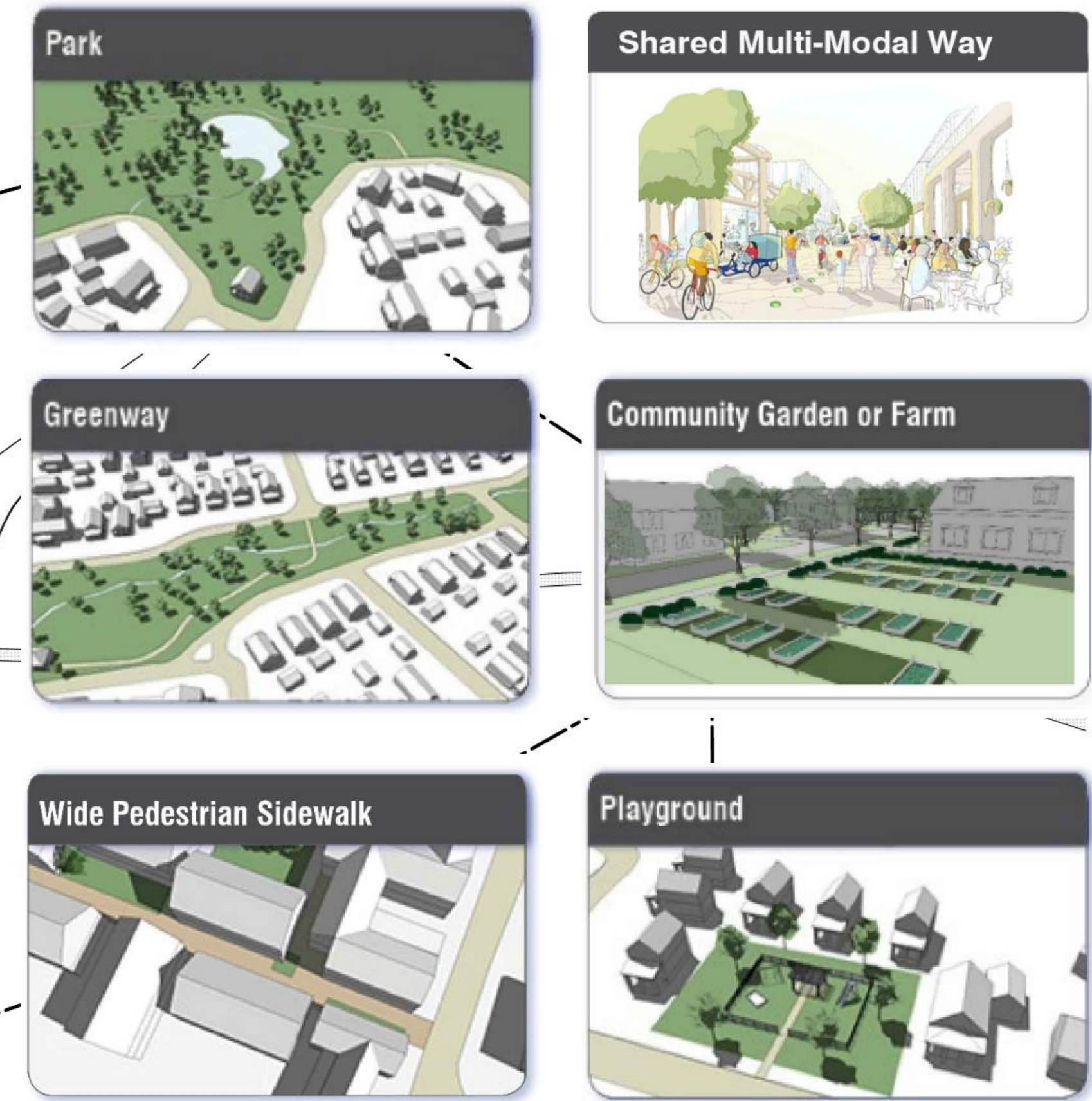
© NH GRANIT, www.granit.unh.edu

Map Generated: 2/29/2024




Notes

REVISIONS	DATE

POTENTIAL COMMUNITY SPACE



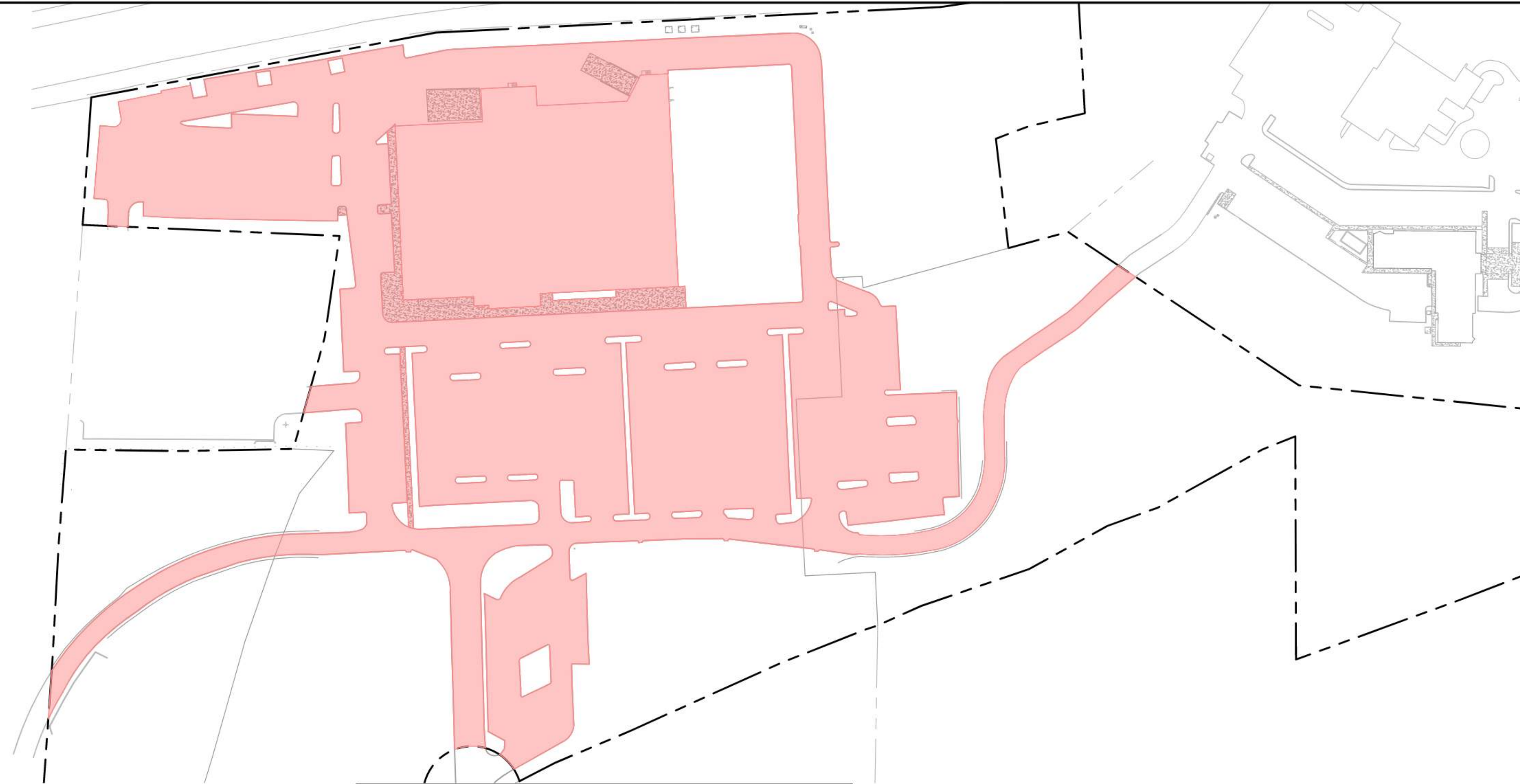
PROPOSED COMMUNITY SPACE:

	POTENTIAL RESIDENTIAL SOCIAL SPACES	REQUIRED	PROVIDED
			
	POTENTIAL COMMUNITY SPACE	113,915 SF (10%) (2.62 ACRES)	131,942 SF (11.6%) (3.03 ACRES)
	TOTAL DEVELOPMENT LOT	1,139,156 SF (26.15 ACRES)	
TOTAL COMMUNITY SPACE AREA		113,915 SF (2.62 ACRES)	131,942 SF (11.6%) (3.03 ACRES)



PROPOSED MULTI-FAMILY DEVELOPMENT
 DURGIN LANE
 PORTSMOUTH, NEW HAMPSHIRE

IMPERVIOUS SURFACE
 REDUCTION EXHIBIT

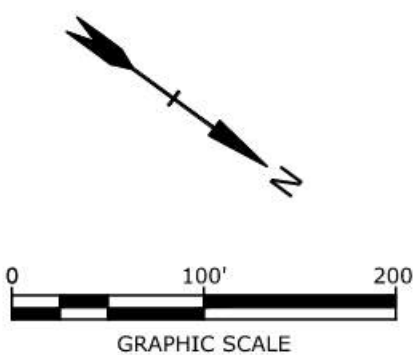


EXISTING IMPERVIOUS SURFACES
 SCALE 1" = 100'



PROPOSED IMPERVIOUS SURFACES
 SCALE 1" = 100'

Impervious Surface Within Site	
Existing Conditions	434,787 sf
Proposed Development	425,295 sf
Net Impervious Cover	- 9,492 sf



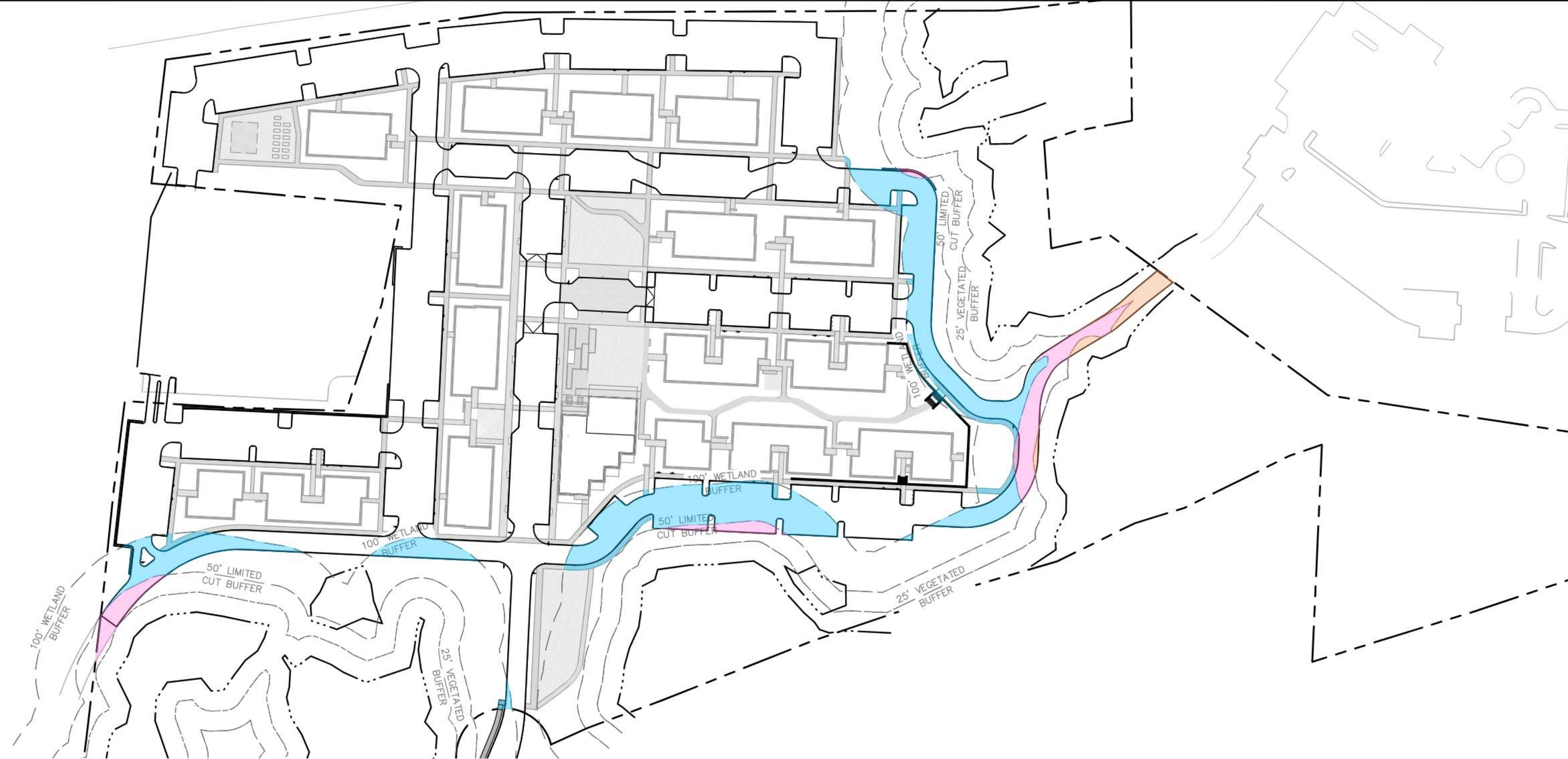
Tighe & Bond

PROPOSED MULTI-FAMILY DEVELOPMENT
DURGIN LANE
PORTSMOUTH, NEW HAMPSHIRE

WETLAND BUFFER IMPERVIOUS
SURFACE EXHIBIT

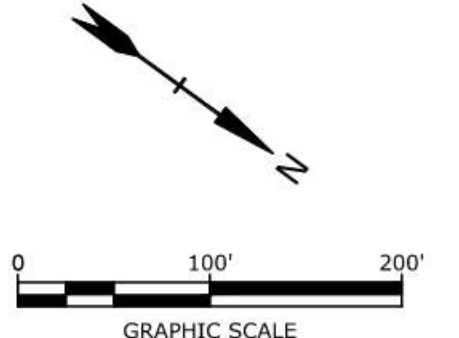


EXISTING WETLAND BUFFER IMPERVIOUS SURFACE
SCALE 1" = 100'



PROPOSED WETLAND BUFFER IMPERVIOUS SURFACE
SCALE 1" = 100'

Impervious Surface Within Buffer Area		
Local Wetland Buffer Setback	Impervious Surface	
	Existing Condition	Proposed Development
0 - 25 FT	3,114 SF	2,467 SF
25 - 50 FT	12,156 SF	9,010 SF
50 - 100 FT	45,975 SF	41,506 SF
Total Impervious Surface	61,245 SF	52,983 SF
Net Impervious Surface	-8,262 SF	



Tighe & Bond

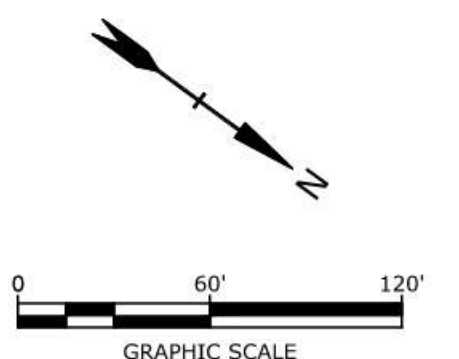
Last Save Date: April 19, 2024 10:55 AM By: MAHANSEN
 Plot Date: Friday, April 19, 2024 Plotted By: Neil A. Hansen
 TSS File Location: J:\E5071 Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-FIGS.dwg Layout Tab: BUFFER PRE & POST

PROPOSED MULTI-FAMILY DEVELOPMENT
 DURGIN LANE
 PORTSMOUTH, NEW HAMPSHIRE

WETLAND BUFFER IMPERVIOUS
 COMPARISON EXHIBIT



Wetland Buffer Impervious Surface Comparison	
Impervious Surface Removed	28,930 SF
Impervious Surface Added	20,668 SF
Net Impervious Surface	-8,262 SF



Tighe & Bond

APRIL 22, 2024
 E5071-001-FIGS.dwg

Last Save Date: April 19, 2024 10:55 AM By: MAHANSEN
 Plot Date: Friday, April 19, 2024 Plotted By: Neil A. Hansen
 T&B File Location: J:\E5071 Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-FIGS.dwg Layout Tab: BUFFER_COMP

PROPOSED MULTI-FAMILY DEVELOPMENT
100 DURGIN LANE
PORTSMOUTH, NEW HAMPSHIRE

GRADE PLANE EXHIBIT 1

BUILDING 1 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
66.25	116.25'	108.00'	50.00'	40.00'

BUILDING 5 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
66.00	115.99'	114.50'	50.00'	47.50'

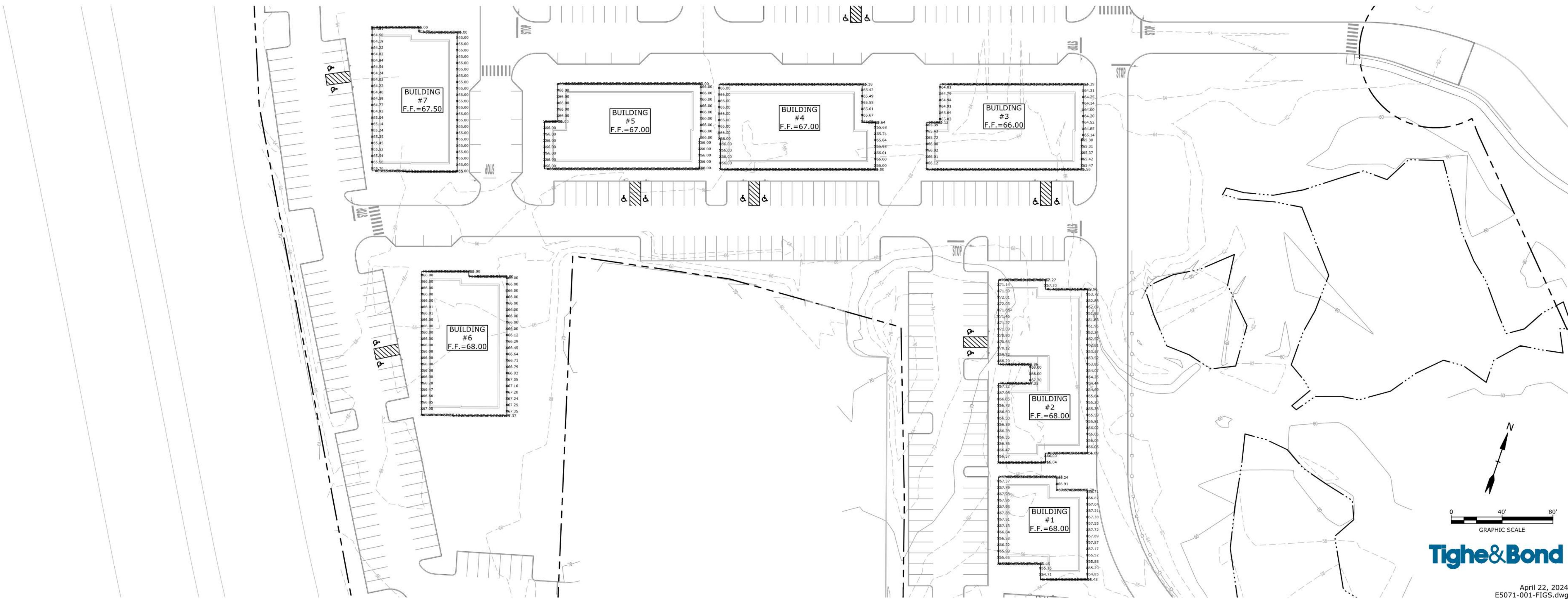
BUILDING 2 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
66.54	116.54'	108.00'	50.00'	40.00'

BUILDING 6 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
66.45	116.45'	115.25'	50.00'	47.50'

BUILDING 3 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
65.38	115.38'	114.50'	50.00'	47.50'

BUILDING 7 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
65.68	115.60'	115.00'	50.00'	47.50'

BUILDING 4 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
65.89	115.89	114.50'	50.00'	47.50'



Last Save Date: April 19, 2024, 5:36 PM By: BCURCIO
 Plot Date: Monday, April 22, 2024 plotted By: Benjamin Curcio
 T&B File Location: \\iglobebond.com\data\Projects\E5071-Eastern Real Estate\001-Portsmouth, NH 100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-FIGS.dwg Layout Tab: GRADE PLANE 1

Tighe & Bond

PROPOSED MULTI-FAMILY DEVELOPMENT
100 DURGIN LANE
PORTSMOUTH, NEW HAMPSHIRE

GRADE PLANE EXHIBIT 2

BUILDING 8 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
66.00	116.00	115.00'	50.00'	47.50'

BUILDING 15 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
64.15	114.15	104.50'	50.00'	40.00'

BUILDING 9 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
66.00	116.00	115.00'	50.00'	47.50'

BUILDING 16 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
63.32	113.32	104.75'	50.00'	40.00'

BUILDING 10 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
66.00	116.00	115.00'	50.00'	47.50'

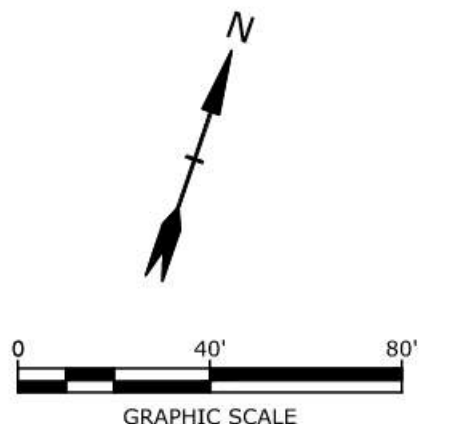
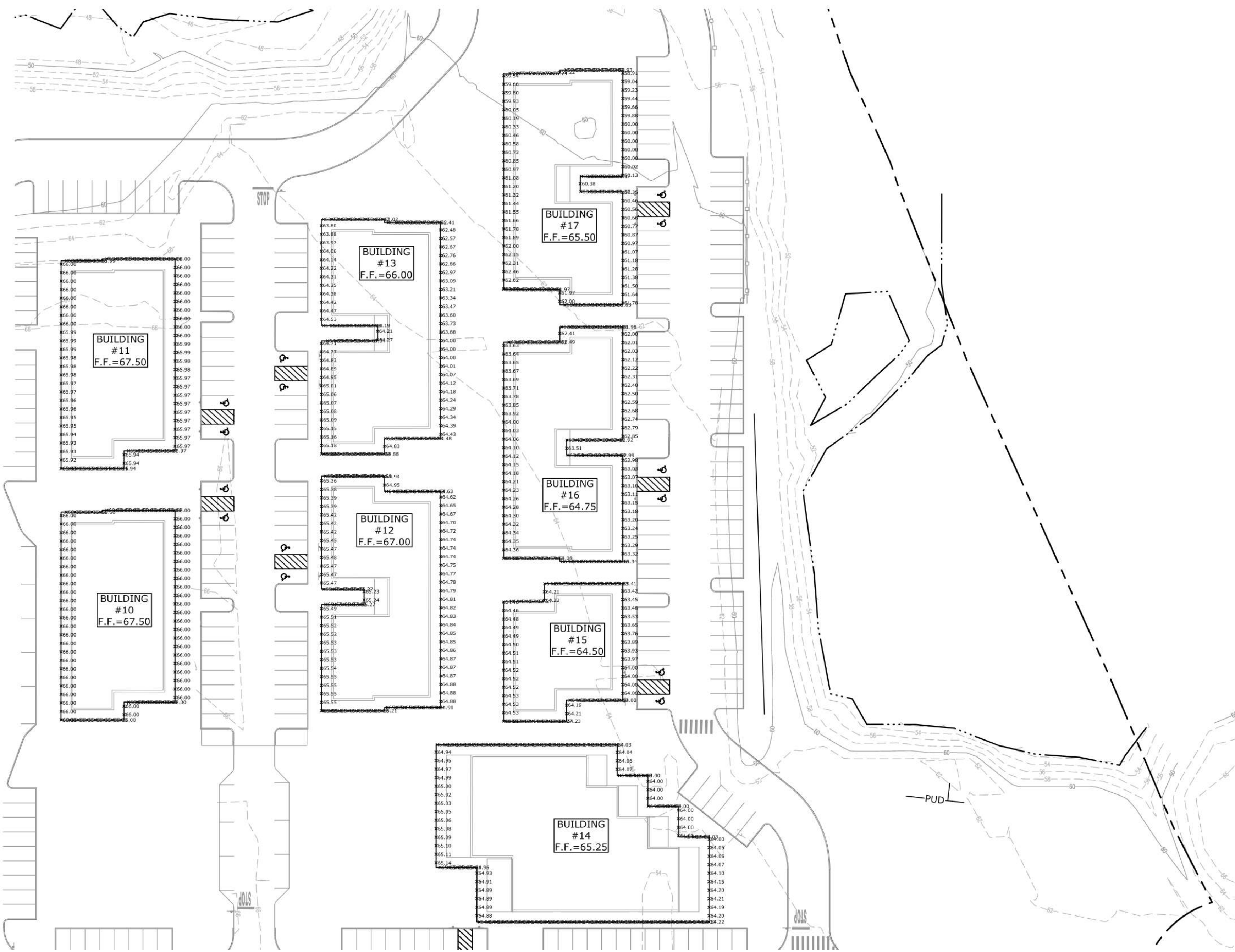
BUILDING 17 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
60.71	110.71	105.50'	50.00'	40.00'

BUILDING 11 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
65.97	115.97	115.00'	50.00'	47.50'

BUILDING 12 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
65.15	115.15	107.00'	50.00'	40.00'

BUILDING 13 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
64.15	114.15	106.00'	50.00'	40.00'

BUILDING 14 ELEVATION AND HEIGHT				
GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
	ALLOWED	PROPOSED	ALLOWED	PROPOSED
64.44	114.44	83.92'	45.00'	18.67'



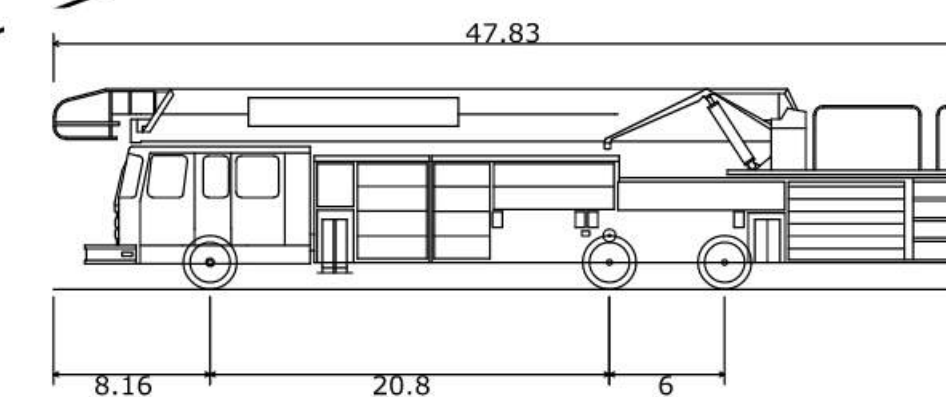
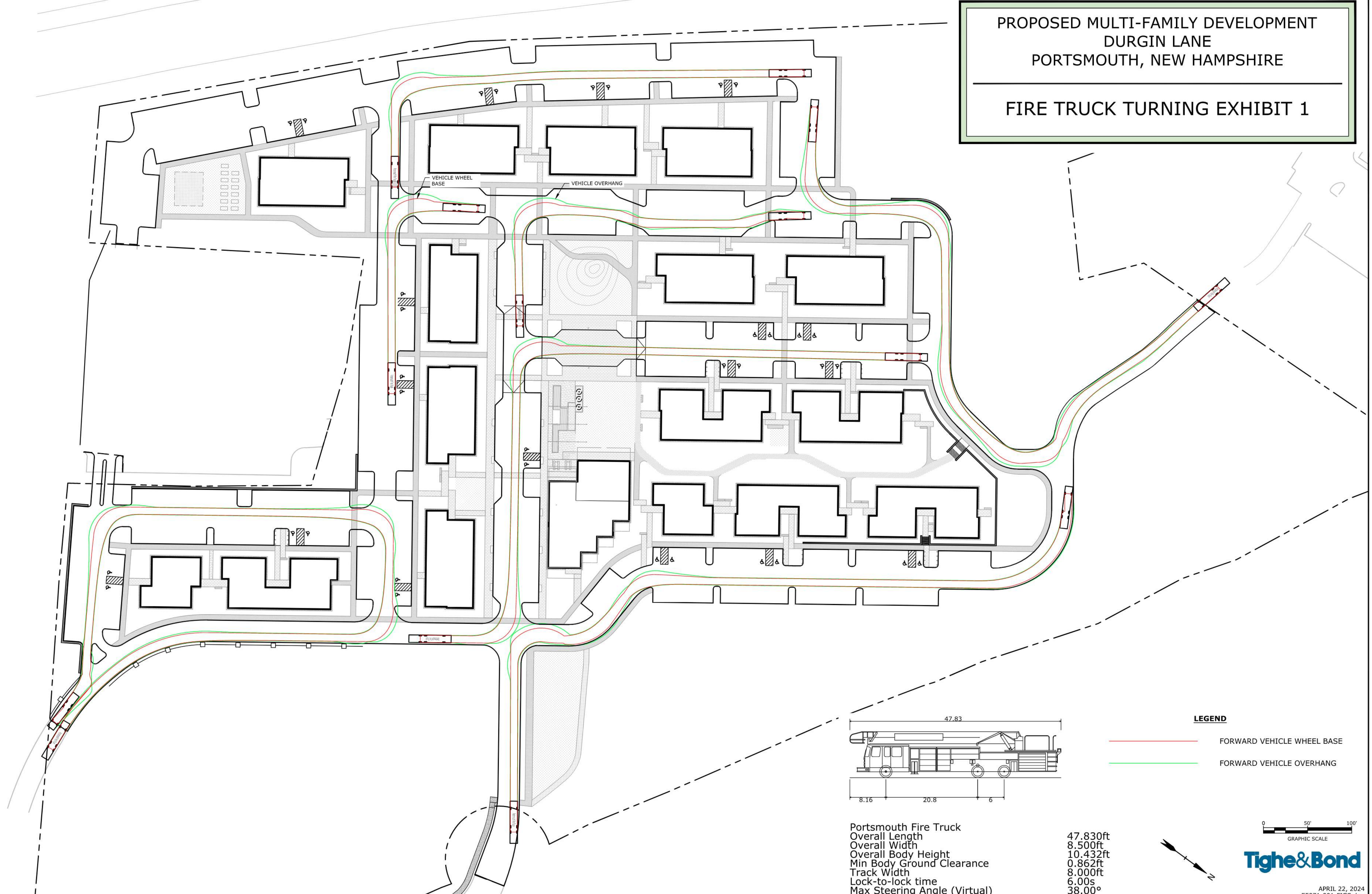
Tighe & Bond

April 22, 2024
E5071-001-FIGS.dwg

Last Save Date: April 19, 2024 5:36 PM By: BCURCIO
 Plot Date: Monday, April 22, 2024 Plotted By: Benjamin Curcio
 T&B File Location: \\igribond.com\data\Projects\E5071 Eastern Real Estate\01 Portsmouth, NH 100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-FIGS.dwg Layout Tab: GRADE PLANE 2

PROPOSED MULTI-FAMILY DEVELOPMENT
 DURGIN LANE
 PORTSMOUTH, NEW HAMPSHIRE

FIRE TRUCK TURNING EXHIBIT 1

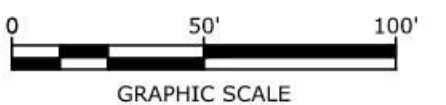


Portsmouth Fire Truck
 Overall Length
 Overall Width
 Overall Body Height
 Min Body Ground Clearance
 Track Width
 Lock-to-lock time
 Max Steering Angle (Virtual)

47.830ft
 8.500ft
 10.432ft
 0.862ft
 8.000ft
 6.00s
 38.00°

LEGEND

- FORWARD VEHICLE WHEEL BASE
- FORWARD VEHICLE OVERHANG

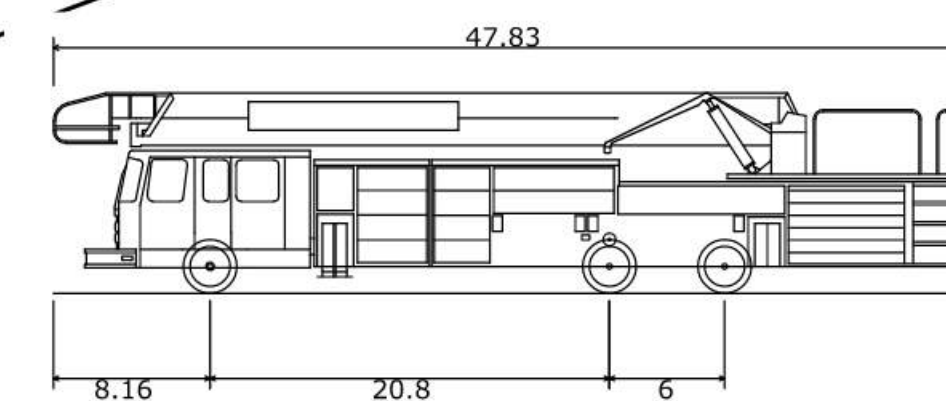
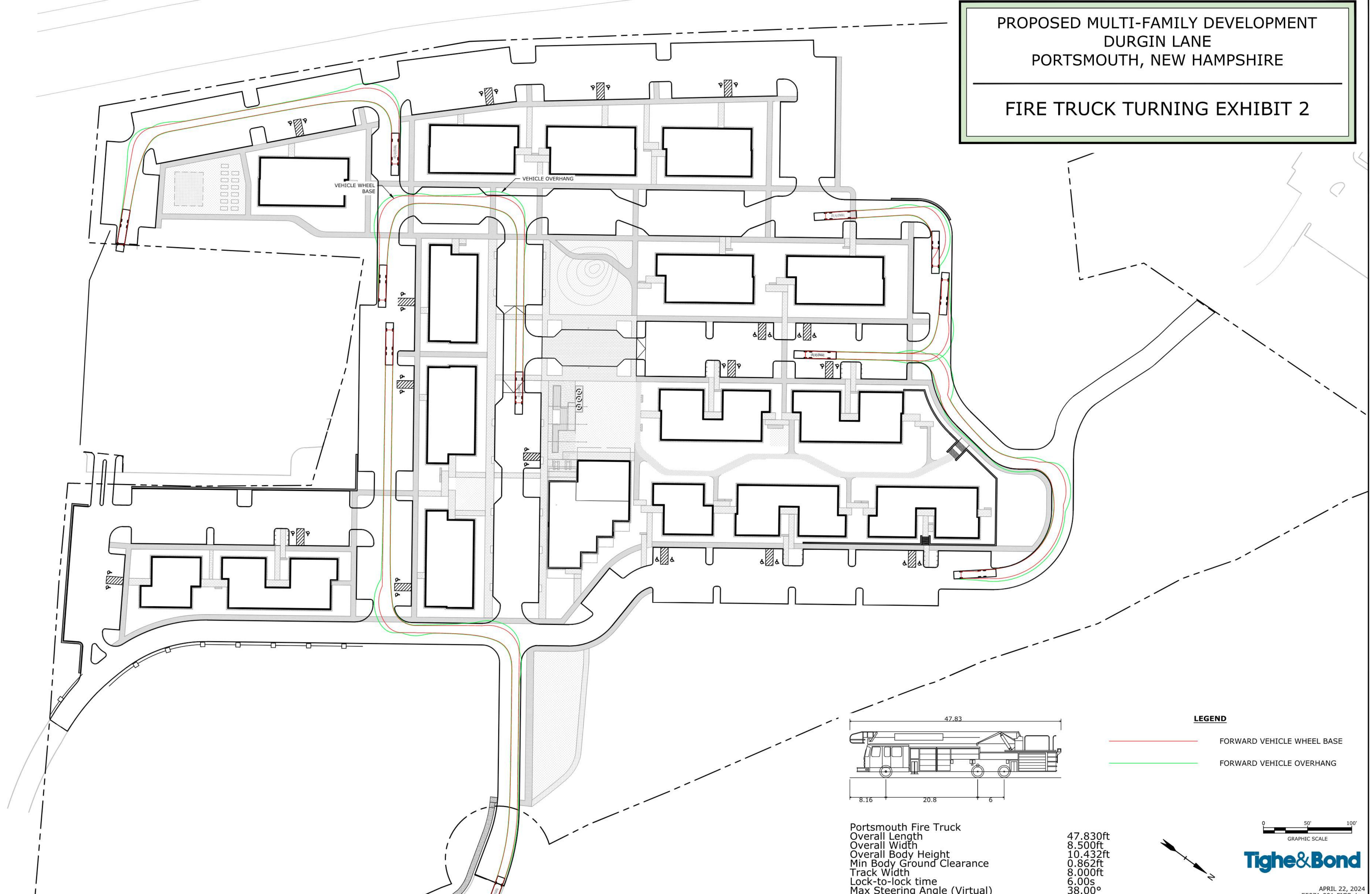


Tighe & Bond

APRIL 22, 2024
 E5071-001-FIGS.dwg

PROPOSED MULTI-FAMILY DEVELOPMENT
DURGIN LANE
PORTSMOUTH, NEW HAMPSHIRE

FIRE TRUCK TURNING EXHIBIT 2

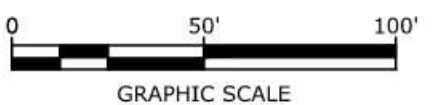


Portsmouth Fire Truck
Overall Length
Overall Width
Overall Body Height
Min Body Ground Clearance
Track Width
Lock-to-lock time
Max Steering Angle (Virtual)

47.830ft
8.500ft
10.432ft
0.862ft
8.000ft
6.00s
38.00°

LEGEND

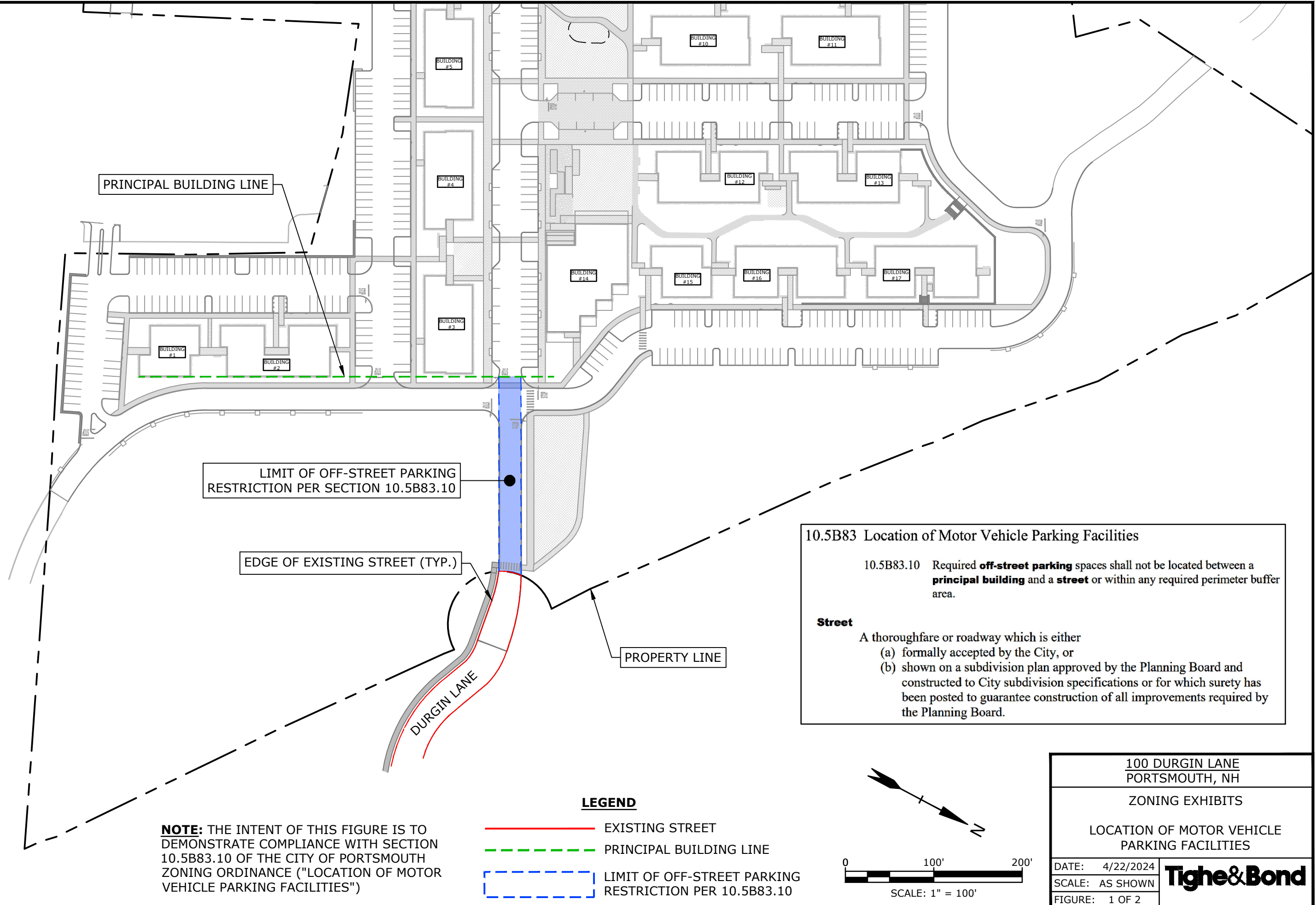
- FORWARD VEHICLE WHEEL BASE
- FORWARD VEHICLE OVERHANG



Tighe & Bond

APRIL 22, 2024
E5071-001-FIGS.dwg

Plotted On: Apr 19, 2024 4:42pm By: BCurcio
Tighe & Bond: \\Tighebond.com\data\Projects\E\5071 Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-FIGS.dwg



PRINCIPAL BUILDING LINE

LIMIT OF OFF-STREET PARKING RESTRICTION PER SECTION 10.5B83.10

EDGE OF EXISTING STREET (TYP.)

PROPERTY LINE

DURGIN LANE

10.5B83 Location of Motor Vehicle Parking Facilities

10.5B83.10 Required **off-street parking** spaces shall not be located between a **principal building** and a **street** or within any required perimeter buffer area.

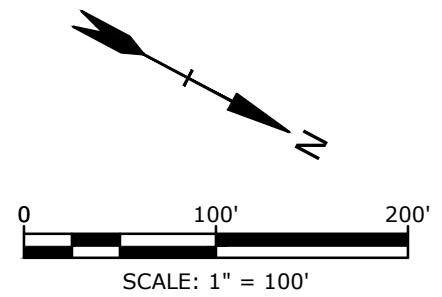
Street

A thoroughfare or roadway which is either
(a) formally accepted by the City, or
(b) shown on a subdivision plan approved by the Planning Board and constructed to City subdivision specifications or for which surety has been posted to guarantee construction of all improvements required by the Planning Board.

NOTE: THE INTENT OF THIS FIGURE IS TO DEMONSTRATE COMPLIANCE WITH SECTION 10.5B83.10 OF THE CITY OF PORTSMOUTH ZONING ORDINANCE ("LOCATION OF MOTOR VEHICLE PARKING FACILITIES")

LEGEND

- EXISTING STREET
- - - PRINCIPAL BUILDING LINE
- LIMIT OF OFF-STREET PARKING RESTRICTION PER 10.5B83.10



100 DURGIN LANE PORTSMOUTH, NH	
ZONING EXHIBITS	
LOCATION OF MOTOR VEHICLE PARKING FACILITIES	
DATE: 4/22/2024	Tighe & Bond
SCALE: AS SHOWN	
FIGURE: 1 OF 2	

NOTE
 1. THE INTENT OF THIS FIGURE IS TO DEMONSTRATE TO THE PLANNING BOARD THAT THE LAND USES ALONG THE BOUNDARY OF THE DEVELOPMENT SITE (WETLAND, WETLAND BUFFER & OVERHEAD UTILITY EASEMENT) ARE INCOMPATIBLE WITH THE REQUIRED BUILDING SETBACK FROM THE LOT LINE. THE APPLICANT IS REQUESTING THE PLANNING BOARD TO ALLOW AN INCREASE OF BUILDING SETBACK FROM THE FRONT LOT LINE AS ALLOWED BY SECTION 10.5B41.60.

100' WETLAND BUFFER (TYP.)

100' WETLAND BUFFER (TYP.)

EXISTING 300'-WIDE OVERHEAD UTILITY EASEMENT (TYP.)

PROPERTY LINE (TYP.)

10.5B34.100 Community Building

LOT STANDARDS

Minimum lot depth	NR
Minimum street frontage	50 ft
Front building setback from lot line	10 ft min. to 40 ft max.
Minimum side building setback from lot line	15 ft
Minimum rear building setback from lot line	20 ft
Minimum open space coverage	20%

10.5B34.40 Apartment Building

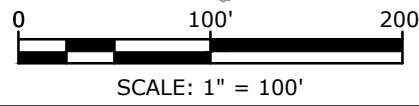
LOT STANDARDS

Minimum lot depth	NR
Minimum street frontage	50 ft
Front building setback from lot line	10 ft min. to 30 ft max.
Minimum side building setback from lot line	15 ft
Minimum rear building setback from lot line	20 ft
Minimum open space coverage	20%

LEGEND

- WETLAND BUFFER AREA
- OVERHEAD UTILITY EASEMENT AREA

10.5B41.60 **Perimeter Buffer:** The perimeter buffer requirements apply to the outside boundary of the **development site** where the site abuts adjoining properties that are not part of the **development site**, but not along the primary **street frontage**. In addition to the minimum perimeter buffer required, the Planning Board may require **landscaping**, fencing, or an increase in the **building setback from lot lines** where adjacent land uses may be incompatible. Perimeter buffer requirements supersede **parking setback requirements** and **building setbacks from lot lines** requirements for individual **building types**.



100 DURGIN LANE
 PORTSMOUTH, NH

ZONING EXHIBITS

FRONT BUILDING SETBACK

DATE: 4/22/2024
 SCALE: AS SHOWN
 FIGURE: 2 OF 2



Plotted On: Apr 19, 2024 5:21pm By: BCurcio
 Tighe & Bond: \\Tighebond.com\data\Projects\EI\E5071 Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane Drawings\AutoCAD\Sheet\E5071-001-FIGS.dwg

E5071-001
April 22, 2024

Mr. Peter Britz, Director of Planning & Sustainability
City of Portsmouth Planning & Sustainability Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Trip Generation Memorandum
100 Durgin Lane Residential Development
Portsmouth, New Hampshire**

Dear Peter:

Tighe & Bond has prepared a trip generation memorandum to outline the anticipated study area of the Traffic Impact Assessment (TIA) for the proposed residential development located at 100 Durgin Lane in Portsmouth, NH. The site is bounded by US Route 4 (Spaulding Turnpike) to the west, Hampton Inn and the Home Depot shopping plaza to the south, Motel 6 to the north, and wetlands and Durgin Square shopping plaza to the east. Figure 1 shows the Site location relative to the surrounding roadway network.

The project proposes to demolish the currently vacant retail building, which formerly housed Bed Bath and Beyond and The Christmas Tree Shops, and construct 144 residential units spread across seven three-story buildings and 216 units spread across nine four-story buildings, for a total of 360 units. On-site parking will be provided by surface parking lots on site. Site access will continue to be provided via the three existing full-access driveways: the northern driveway to Gosling Road via the Motel 6 parking lot, the eastern driveway to Durgin Lane, and the southern driveway to Arthur F Brady Drive via the Home Depot shopping plaza driveway. The project will include site, access drive, stormwater management, utilities, lighting, amenity space, and landscaping improvements. The trip generation estimate for the proposed development presented herein will serve as the basis for the traffic impact assessment.

Study Area

Based on a review of expected trip generation and distribution for the surrounding area, the following intersections have been identified to be included in the study area. The study area has been confirmed with the Portsmouth City Engineer in a preliminary scoping meeting.

- Woodbury Avenue at Durgin Way (signalized)
- Woodbury Avenue at Market Street (signalized)
- Woodbury Avenue at Gosling Road (signalized)
- US Route 4 (Spaulding Turnpike) Northbound Ramps at Gosling Road (signalized)
- US Route 4 (Spaulding Turnpike) Southbound Ramps at Gosling Road (signalized)
- Gosling Road at Motel 6 / North site access drive
- Arthur F Brady Drive at Home Depot / South site access drive

Turning movement count (TMC) data were collected at the study area intersections during the weekday morning (7:00-9:00 AM) and weekday afternoon (4:00-6:00 PM) peak periods on Wednesday March 20, 2024, and during the Saturday midday peak period (11:00 AM-2:00



PM) on Saturday March 23, 2024. An automatic traffic recorder (ATR) count was collected on Woodbury Avenue in the vicinity of the site driveways to collect directional traffic volume flows and vehicular travel speeds. The study area intersections are shown in Figure 1. Turning movement counts will be included in the TIA.

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 (Low-Rise) (LUC-220) and Multifamily Housing (Mid-Rise) (LUC-221) were used to estimate vehicle trips based on the current development program, which proposes 144 units in seven three-story buildings and 216 units in nine four-story buildings.

Based on the ITE data, the proposed development is estimated to generate 151 trips (35 entering, 116 exiting) during the weekday morning peak hour, 167 trips (104 entering, 63 exiting) during the weekday afternoon peak hour, and 146 trips (74 entering, 72 exiting) during the Saturday midday peak hour. Table 1 provides a detailed summary of the trip generation.

Table 1 represents new trips to the study area network because the retail building to be demolished is currently vacant; however, the overall impact on the study area should consider the prior site use to determine the net increase on trips experienced over the study area. Bed Bath and Beyond and Christmas Tree Shops ceased operations on site in May 2023 and July 2023, respectively. Trips assumed to be generated by the prior use were estimated using ITE LUC 821 (Shopping Plaza) and compared to new trips estimated to be generated by the residential redevelopment. Based on the ITE data, the net impact on the site is a slight increase in trips in the weekday morning peak hour, a decrease in trips in the weekday afternoon and Saturday midday peak hours, and an overall decrease in weekday and Saturday daily trips. The net new trips are 16 trips (decrease of 49 entering, increase of 65 exiting) during the weekday morning peak hour, a decrease of 239 trips (95 entering, 144 exiting) during the weekday afternoon peak hour, and a decrease of 341 trips (179 entering, 162 exiting) during the Saturday midday peak hour. Table 2 provides a comparison of net site trips to be generated.

Trip Distribution

The distribution of the proposed traffic entering and exiting the site expected to be generated by the residential development was reviewed based on U.S. Census journey-to-work data for people residing in Portsmouth for the residential uses and existing and anticipated travel patterns. The following arrival/departure distributions are anticipated:


- 30% to/ from the South to Portsmouth Center via Market Street/ Woodbury Avenue
- 25% to/ from the South via US Route 1 Bypass
- 20% to/ from the North via US Route 4 (Spaulding Turnpike)
- 20% to/ from the South to I-95 South
- 5% to/ from the North to I-95 North

Conclusion

The proposed residential development includes 360 units in a mix of three- and four-story buildings. Based on the estimated trip generation and trip distribution, the full TIA will analyze traffic operations at the study intersection during the weekday morning, weekday afternoon, and Saturday midday peak periods.

Sincerely,

TIGHE & BOND, INC.



Greg Lucas, PE, PTOE, RSP1
Senior Project Manager

Copy:

Enclosures: Study Area Map (Figure 1)
Proposed Site-Generated Traffic Summary (Table 1)
Net Site-Generated Traffic Summary (Table 2)

\\\\tighebond.com\data\Data\Projects\E\E5071 Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane\Reports\Reports\Trip Gen Memo\P5118-001 1035 Lafayette Rd Trip Gen Memo.docx

Apr 22, 2024-10:40am Plotted By: WBlair Tighe & Bond, Inc. J:\VE\5071 Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane\Drawings\AutoCAD\Figures\E5071-001 Traffic Study Area Figure.dwg



SITE

HAMPTON INN

HOME DEPOT

DURGIN SQUARE SHOPPING PLAZA

MOTEL 6

PEASE BLVD

GOSLING RD

WOBBURY AVE

DURGIN LN

ARTHUR F BRADY DR

MARKET ST

WOBBURY AVE



SPAULDING TURNPIKE



100 DURGIN LANE
PORTSMOUTH, NH

STUDY AREA


DATE: 4/16/2024
SCALE: 1" = 1000'
FIGURE: 1



LEGEND

-  SITE LOCATION
-  STUDY AREA INTERSECTION

0 1000' 2000'



SCALE: 1" = 1000'

TABLE 1
Proposed Site-Generated Traffic Summary

Proposed - 144 Units Residential			LUC 220
Peak Hour Period	Enter	Exit	Total
Weekday Morning	16	51	67
Weekday Afternoon	52	30	82
Saturday Midday	30	29	59
Weekday	499	499	998
Saturday	328	327	655

Proposed - 216 Units Residential			LUC 221
Peak Hour Period	Enter	Exit	Total
Weekday Morning	19	64	83
Weekday Afternoon	52	33	85
Saturday Midday	44	43	87
Weekday	491	490	981
Saturday	494	493	987

Total Proposed			
Peak Hour Period	Enter	Exit	Total
Weekday Morning	35	116	151
Weekday Afternoon	104	63	167
Saturday Midday	74	72	146
Weekday	990	989	1,979
Saturday	822	820	1,642

Source: Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021
Land Use - 220 [Residential - Multifamily Housing (Low-Rise)]
Land Use - 221 [Residential - Multifamily Housing (Mid-Rise)]

TABLE 2
Net Site-Generated Traffic Summary

Existing - 78,317 SF Retail Space			LUC 821
Peak Hour Period	Enter	Exit	Total
Weekday Morning	84	51	135
Weekday Afternoon	199	207	406
Saturday Midday	253	234	487
Weekday	2,644	2,644	5,288
Saturday	3,175	3,174	6,349
Proposed - 360 Units Residential			LUC 220 & 221
Peak Hour Period	Enter	Exit	Total
Weekday Morning	35	116	151
Weekday Afternoon	104	63	167
Saturday Midday	74	72	146
Weekday	990	989	1,979
Saturday	822	820	1,642
Net Vehicular Trips (Proposed minus Existing Occupied Demand)			
Peak Hour Period	Enter	Exit	Total
Weekday Morning	-49	65	16
Weekday Afternoon	-95	-144	-239
Saturday Midday	-179	-162	-341
Weekday	-1,654	-1,655	-3,309
Saturday	-2,353	-2,354	-4,707

Source: Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021
 Land Use - 220 [Residential - Multifamily Housing (Low-Rise)]
 Land Use - 221 [Residential - Multifamily Housing (Mid-Rise)]
 Land Use - 821 [Shopping Plaza (40-150k)]

100 Durgin Lane Multi-family Redevelopment Water and Wastewater Demand Analysis

To: City of Portsmouth, Technical Advisory Committee
FROM: Neil A. Hansen, PE
 Patrick M. Crimmins, PE
COPY: 100 Durgin Lane Owner, LLC
DATE: April 22, 2024

The following memo is to provide an estimate of the average daily water and wastewater flows anticipated for the above-mentioned project for the purpose of allowing city staff to review capacity of the existing system. The flows have been calculated as a total development area.

The proposed project is located at 100 Durgin Lane and includes lots identified as Map 239 Lots 16, 16 & 18 on the City of Portsmouth Tax Maps. The site was previously home to Christmas Tree Shops and Bed, Bath and Beyond locations which are no longer in operation. The proposed project consists of the demolition of the existing Christmas Tree Shops and Bed, Bath and Beyond building and the construction of approximately 360 rental housing units in a mix of 3-story and 4-story buildings. The proposed sewer connection will be connected to the existing sewer manhole in Durgin Lane which has a 10" PVC outlet pipe.

As depicted in the table below, the average daily flow in gallons per day (GPD) has been calculated for the proposed project in accordance with Table 3-3: of Metcalf and Eddy, "Wastewater Engineering Treatment and Resource Reuse" as required under NHDES Env-Wq 700.

Overall Net Proposed Peak Gal/Day Design			
Use	Design Unit	Unit Design Flow (GPD)	Design Flow
Proposed:			
Studio Apartment	63 Units	120 GPD/Bdrm	7,560 GPD
1 Brdm Apartment	163 Units	120 GPD/Bdrm	19,560 GPD
2 Brdm Apartment	134 Units	120 GPD/Bdrm	32,160 GPD
Community Building	5,000 SF	5 GPD/100 SF	250 GPD
	5 Employees	10 GPD/Employee	50 GPD
Total Proposed:			59,580 GPD
Existing, To Be Removed:			
Shopping Center	632 Parking Spaces	2 GPD/Parking Space	1,264 GPD
	70 Employees	10 GPD/Employee	700 GPD
Total, To Be Removed			1,964 GPD
Total Net Flow			57,616 GPD

April 22nd, 2024

Portsmouth Planning Board

100 Durgin Lane
Portsmouth, NH

utile

Green Building Statement

Site / Landscape: This project is a redevelopment of an existing large chain “big box” retail use and associated parking lot, in proximity to additional shops and services along Durgin Lane and Woodbury Ave. The site design features footpaths and bike connections to and through the project to facilitate alternative transportation and provides distributed surface vehicle parking and indoor bike parking that meets the Portsmouth zoning code requirements.

Currently the site is predominantly impervious surface parking and building footprint. The proposed site plan reduces the impervious surface by approximately 9,500 SF, and distributes the required parking into smaller parcels separated by vegetated buffers. Stormwater will be managed by localized rain gardens near each parking zone. The landscape plan will be supportive of the existing ecosystem, utilizing swaths of low/no irrigation grasses and regionally appropriate shade and shrub trees. Additionally the project provides two acres of publicly accessible community green space.

Exterior Wall Systems: Although the final specifications of the exterior wall systems are still being developed, it will meet or exceed the 2018 IECC standards for energy efficiency utilizing either a continuous applied weather barrier or integral system with taped seams to provide excellent air sealing capabilities with cavity insulation and continuous exterior insulation outboard of the weather barrier. The exterior cladding will be a mix of cement board panel and board and batten siding with portions of clear finish wood siding installed over a drainage mat in a ventilated rain screen system.

Window Systems: All window systems in the project will meet or exceed 2018 IECC standards for u-value, shading coefficient and solar heat gain coefficient, carefully selected and sized to provide ample daylight to the residents.

Roofing Systems: The roofing will primarily be a light colored, low-slope TPO membrane roofing system over continuous exterior insulation that meets or exceeds the code requirements.

General Systems: The proposed project will be an entirely electric project with no fossil fuels on site. The buildings will be ‘solar ready’ with infrastructure in place for potential future PV arrays and infrastructure will be provided for future electric vehicle charging and the project team will continue studying if some of these elements can be delivered “Day 1.”

April 22nd, 2024

Portsmouth Planning Board

100 Durgin Lane
Portsmouth, NH

utile

HVAC Systems: The dwelling units will be provided with individualized split electric heat pump systems for space heating and cooling which will be supplemented with individualized ERVs to provide filtered, pre-conditioned makeup air for improved indoor air quality.

Plumbing Systems: Domestic hot water heating will be provided by efficient air source heat pump water heaters. The project will utilize low-flow plumbing fixtures.

Lighting Systems: Interior lighting systems will use LED fixtures and Occupancy sensors where required. Exterior lighting will be selected and located to minimize light trespass onto adjacent properties and will be energy efficient LED fixtures.

Appliances: All appliances for the project will be EnergyStar rated whenever possible.

Sincerely,

Brett Benston, AIA
Principal
Utile, Inc.

Intertek Project No. R2107.01

April 22, 2024

Brett Bentson, AIA, LEED AP
Principal
Utile
115 Kingston Street
Boston, MA 02111

**RE: Highway Noise Overlay District Analysis
100 Durgin Lane
Portsmouth, New Hampshire**

Dear Brett:

We have completed a noise analysis of the 100 Durgin Lane development per the requirements of Section 10.670 of Highway Noise Overlay District (HNOD) within the City of Portsmouth Zoning Ordinance¹. This report provides the results of the analysis as listed in Section 10.675.

Project Understanding

The project consists of a 26-acre redevelopment with about half of the new development planned to be housing with a 10,000 sf community building, parking and open space. The housing will consist of 15 4-story elevator and 3-story walk-up buildings each with 24 residences for a total of 360 market-rate rental apartments. The buildings are planned to be a standard wood-framed construction.

The 100 Durgin Lane development also includes common outdoor areas for the people to enjoy the outdoors. A layout of the development is shown in Figure 1.

The project will be adjacent to State Route 4, which is a multi-lane highway, directly west of the site. The Zoning Ordinance for the City of Portsmouth includes a Highway Noise Overlay District. The requirements of this ordinance will apply to this project and are discussed below.

Applicable Criteria

The City of Portsmouth Highway Noise Overlay District includes sound level limits for Noise Sensitive Land Uses within Section 10.673. These Standards are summarized in Table 1.

TABLE 1. CITY OF PORTSMOUTH HIGHWAY NOISE OVERLAY DISTRICT STANDARDS (SECTION 10.673)	
Structures and Uses	Loudest Traffic Hour Sound Level
Interior of dwelling, institutional residence or residential care facility, hospital or lodging establishment	45 dBA
Interior of other Noise Sensitive Use	55 dBA
Uses with outdoor activity areas measured at edge of the active use area closest to the highway	65 dBA

¹ City of Portsmouth, New Hampshire Zoning Ordinance, Adopted by Portsmouth City Council December 21, 2009, effective date January 1, 2010, as amended through August 7, 2023.



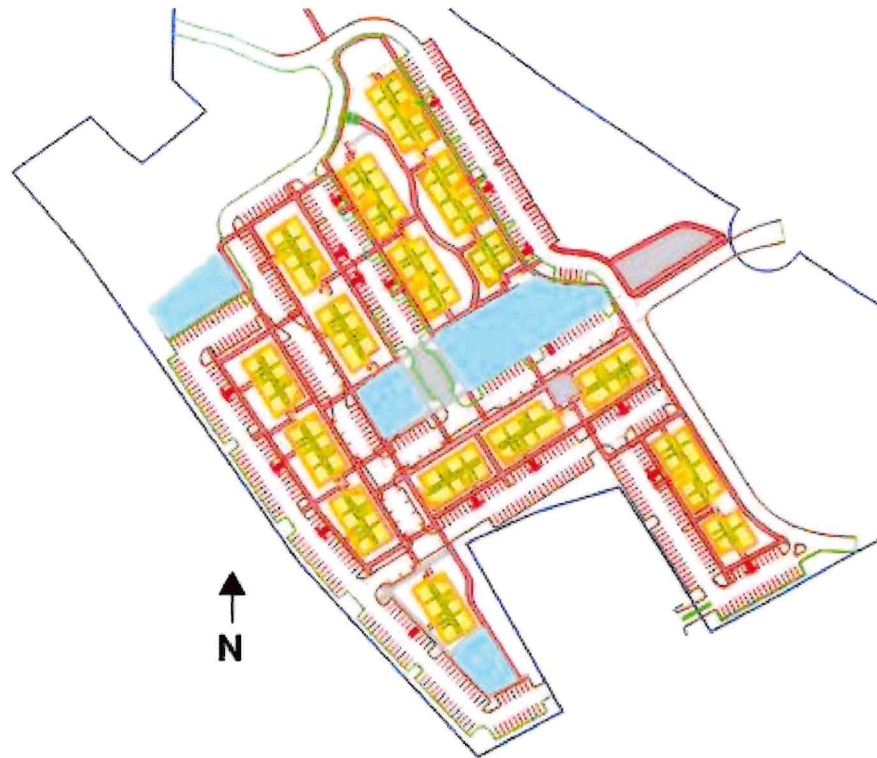


Figure 1. The proposed layout of 100 Durgin Lane with residential buildings (highlighted in yellow) and common outdoor areas (highlighted in blue).

The 100 Durgin Lane project will need to achieve 45 dBA within the residential dwellings and 65 dBA for outdoor activity areas. To compare the exterior sound predictions with a goal for the residential dwellings, we note that residential buildings have historically been assumed to provide a sound level reduction of 20 dBA, meaning that the allowable exterior sound level would also be 65 dBA without requiring noise mitigation.

Noise Analysis

In accordance with the Highway Noise Overlay District requirements, we conducted a noise analysis of the proposed project using Federal Highway Administration (FHWA) Transportation Noise Model (TNM) Version 2.5 computer software. The following describes the methodology of the modeling, results, and mitigation.

METHOD

The TNM software included three-dimensional geographical representation of roadways within the vicinity, topography, ground types, tree zones, existing buildings on neighboring land uses, and the future project buildings.

Table 2 lists the roadways included in the analysis, along with Annual Average Daily Traffic (AADT) acquired from the New Hampshire Department of Transportation website². Using guidelines from the U.S.

² <https://nhdot.public.ms2soft.com/tcds/tsearch.asp?loc=Nhdot&mod=TCDS>



Department of Housing and Urban Development (HUD)³, we assumed 85% of the AADT is related to daytime traffic between the hours of 7:00 a.m. and 10:00 p.m. (15 hours total) to obtain traffic volumes for a single hour to enter into the analysis.

TABLE 2. ROADWAYS AND ANNUAL AVERAGE DAILY TRAFFIC (AADT) COUNTS INCLUDED IN THE NOISE ANALYSIS.

North/South Roadways	Year Data Collected	NB Personal Automobiles	NB Heavy Trucks	SB Personal Automobiles	SB Heavy Trucks
Highway 4	2022	32,430	2,180	29,299	1,971
AF Brady Off Ramp	2022	1,897	127	-	-
AF Brady On Ramp	2022	1,547	104	-	-
Newington Street / Gosling Road Off Ramp	2022	6,006	404	4,263	286
Newington St / Gosling Road On Ramp	2022	3,739	252	4,972	335
East/West Roadways	Year Data Collected	EB Personal Automobiles	EB Heavy Trucks	WB Personal Automobiles	WB Heavy Trucks
Newington Street	2022	503*	34*	503*	34*
Gosling Road	2022	528	36	463	31

NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound

*Directional AADT were not available, so the total AADT was divided evenly between the two directions.

Figure 1 is a graphical representation of the noise analysis model in plan view. In TNM, rows of buildings are typically modeled as “building rows” where the input is the average height of the buildings and the percentage of blockage provided by the buildings (typically anywhere from 20% to 80%) is included. For our analysis, we modeled the first row of buildings at 100 Durgin Lane with individual barriers representing each building to get a more detailed assessment of the noise exposure over the façades of the buildings and vicinity. Barriers were also used to represent the following buildings on other land use properties:

- South of 100 Durgin Lane
 - Home Depot
 - Hampton Inn
- North of 100 Durgin Lane
 - New Frontier Church
 - Motel 6

Building rows were used to represent the buildings at the Gosling Meadows development north of the site.

The default ground type was “lawn” while ground zones were included in the model to represent paved parking lots and driveways on the future site, as well as parking lots and driveways on properties in the vicinity, represented by the black enclosed areas within Figure 2.

³ “The Noise Guidebook,” U.S. Department of Housing and Urban Development, March 2009.

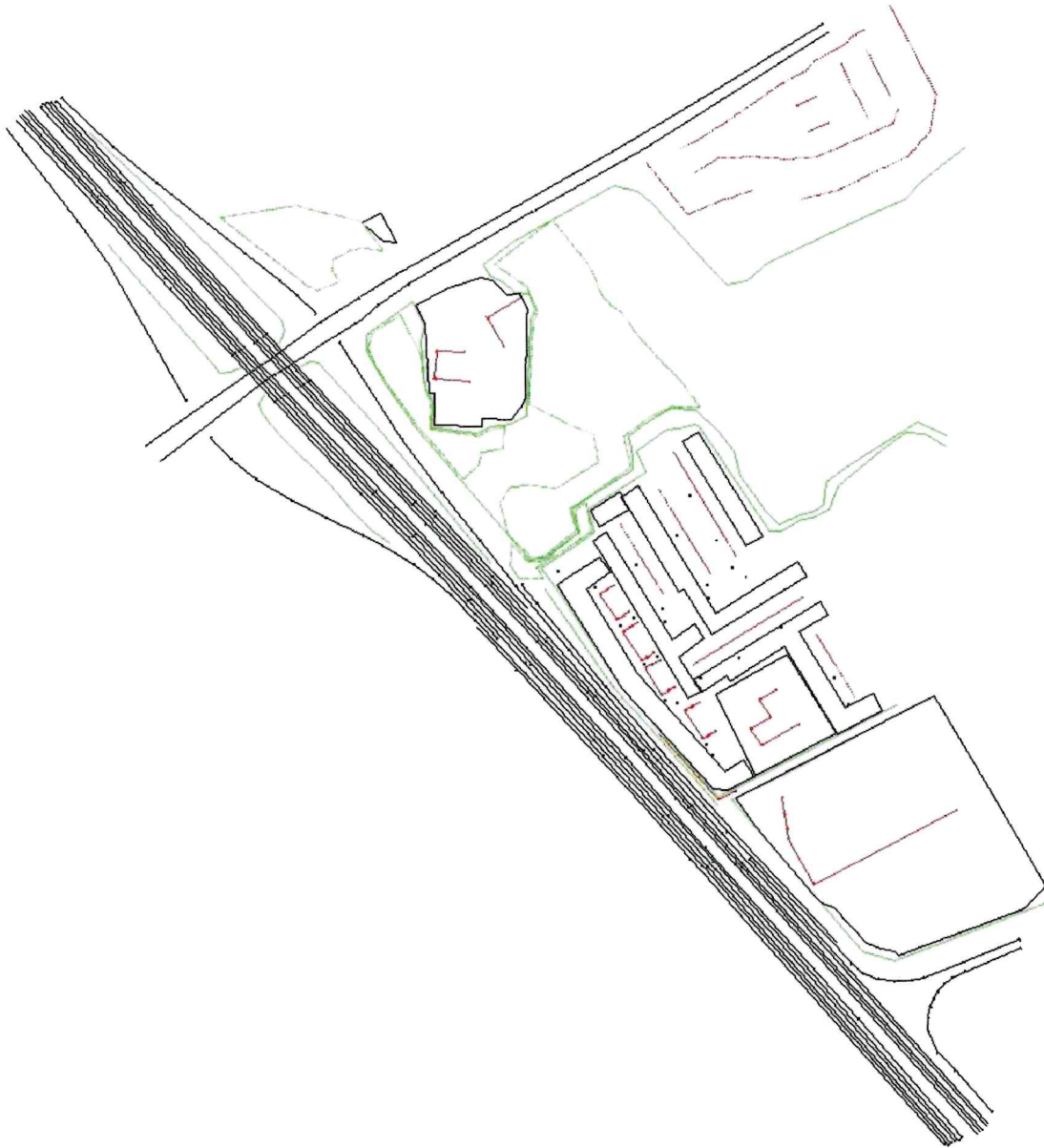
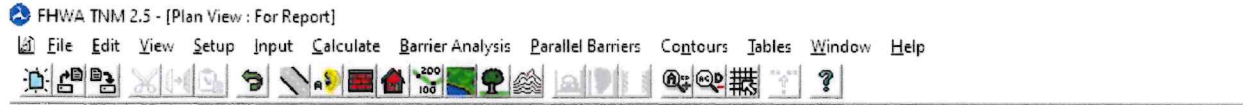


Figure 2. Graphical representation of the TNM Noise Model for 100 Durgin Lane.

RESULTS

Noise levels from the Route 4 traffic to the proposed development were calculated at twenty-five individual receiver locations located throughout the Project site, as numbered in Figure 3. The locations were selected to represent the noise exposure at the future Project buildings. Receiver numbers 1, 10, 13, 19, and 23 were located within the planned open common areas. Calculations were made for all receivers



at a height of five feet above the local grade. It is not uncommon for upper floors to have higher noise levels than lower floors due increased exposure to the roadways at those higher elevations. Therefore, additional calculations were made at the mid-level elevations of the top floors of the buildings. The calculated noise levels at all receivers are listed in Table 3.

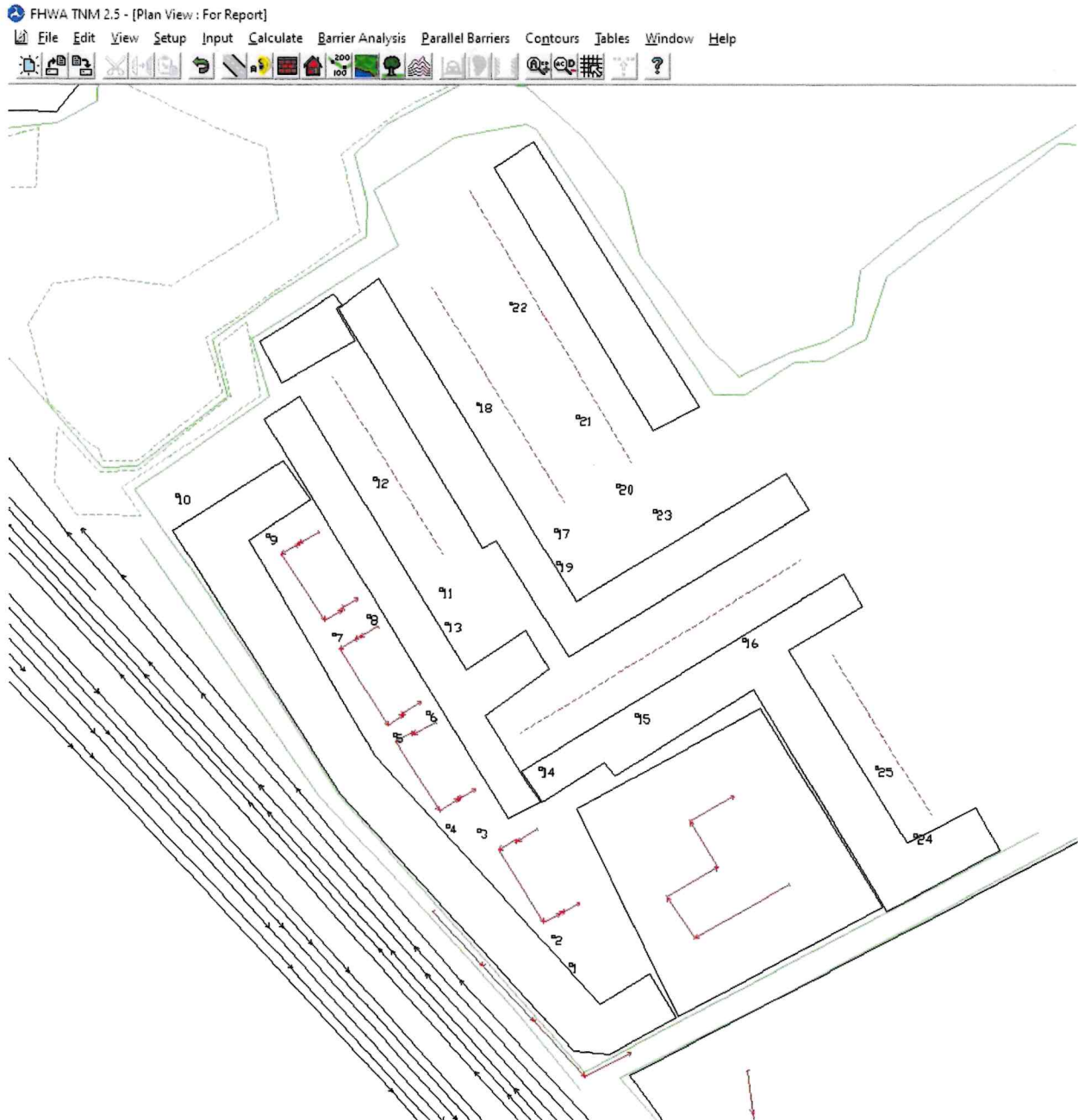


Figure 3. Receivers, numbered 1 through 25, included in the noise analysis.



TABLE 3. PREDICTED UNADJUSTED NOISE LEVELS FOR INDIVIDUAL RECEIVERS AT 100 DURGIN LANE.

Prediction Location (Description)	HNOD dBA Goal*	dBA @ 5 ft Above Grade	dBA @ Mid-level of Top Floor
Receiver 01 (Common Area 1)	65	69	-
Receiver 02 (Building 6)	65	68	72
Receiver 03 (Between Buildings 6&7)	65	66	71
Receiver 04 (Building 7)	65	67	72
Receiver 05 (Between Buildings 7&8 Front)	65	67	71
Receiver 06 (Between Buildings 7&8 Back)	65	58	63
Receiver 07 (Between Buildings 8&9 Front)	65	67	70
Receiver 08 (Between Buildings 8&9 Back)	65	60	65
Receiver 09 (Building 9)	65	67	70
Receiver 10 (Common Area 2)	65	65	-
Receiver 11 (Building 10)	65	55	61
Receiver 12 (Building 11)	65	60	64
Receiver 13 (Common Area 3)	65	52	-
Receiver 14 (Building 5)	65	58	64
Receiver 15 (Building 4)	65	57	61
Receiver 16 (Building 3)	65	55	59
Receiver 17 (Building 12)	65	52	58
Receiver 18 (Building 13)	65	52	58
Receiver 19 (Common Area 4)	65	53	-
Receiver 20 (Building 14)	65	50	56
Receiver 21 (Building 15)	65	49	57
Receiver 22 (Building 16)	65	49	59
Receiver 23 (Common Area 4 Middle)	65	50	-
Receiver 24 (Building 1)	65	57	60
Receiver 25 (Building 2)	65	55	59

*Exterior noise levels only

60, 65, and 70 dBA Noise Contours

Unadjusted 60, 65, and 70 dBA noise contours (without any mitigation) for the loudest traffic hour sound levels are overlaid upon the site diagram in Figure 4. The contours in the figure are based upon sound pressure levels calculated at an elevation of 5 feet, which is representative of noise impacts for receivers and building floors at the ground level. Based upon the results for individual receivers discussed above, the sound pressure levels of the contours can be assumed to increase approximately 1 dBA per building floor to represent the noise impacts at subsequent floor levels above the ground level floor.



Figure 4. Unadjusted 60, 65, and 70 dBA noise contours (5 ft elevation) overlaid upon the Project site diagram based upon Year 2022 traffic data.

IMPACTS AND MITIGATION

The predicted sound pressure levels reported in Table 3 and the contours shown in Figure 4 are reported for the exterior sound exposure at the designated locations. The following sections discuss the noise impacts and mitigation for the outdoor activity areas and the residential dwellings.

Outdoor Activity Areas

The City of Portsmouth Zoning Ordinance defines Outdoor Activity Areas as “residential yards, gardens, patios, pools, etc.; private and public play areas.” The 100 Durgin Lane development is planning to provide several common outdoor areas for the community as shown in Figure 1. The sound pressure level goal for these outdoor areas is 65 dBA.



The TNM predictions for individual receivers, as listed in Table 3, indicate that all but one of the common outdoor areas will have a sound level of 65 dBA or lower at the edge closest to the highway and therefore do not require mitigation to meet the goal of 65 dBA for those areas. However, the predictions indicate a sound level of 69 dBA at the edge closest to the highway for the common outdoor area at the south end of the site, close to the highway. As a result, mitigation will be needed for that area.

Common Area with Predicted Sound Exposure above 65 dBA

Noise mitigation for the outdoor area at the south end of the site will be provided via a solid barrier to be placed along the partial extent of the site property line as indicated in Figure 5. The barrier will need to be constructed of sufficient materials to prevent airflow. The height and extent of the barrier was determined within TNM using the barrier analysis feature within the software. The analysis indicated that to reduce the sound level at the outdoor area to 65 dBA or lower, the height of the barrier will need to be such that the top of the barrier is at least six (6) feet above the grade level of the outdoor area.



Figure 5. Planned extent of noise barrier along southern property line.

The adjusted 60, 65, and 70 dBA noise contours (with the noise barrier discussed above) for the loudest traffic hour sound levels with the sound barrier described above are overlaid upon the site diagram in Figure 6. As with the unadjusted contours in Figure 4, the adjusted contours (with mitigation) are based upon sound pressure levels calculated at an elevation of 5 feet while the sound pressure levels of the contours can be assumed to increase approximately 1 dBA per building floor to represent the noise impacts at subsequent floor levels above the ground level floor.

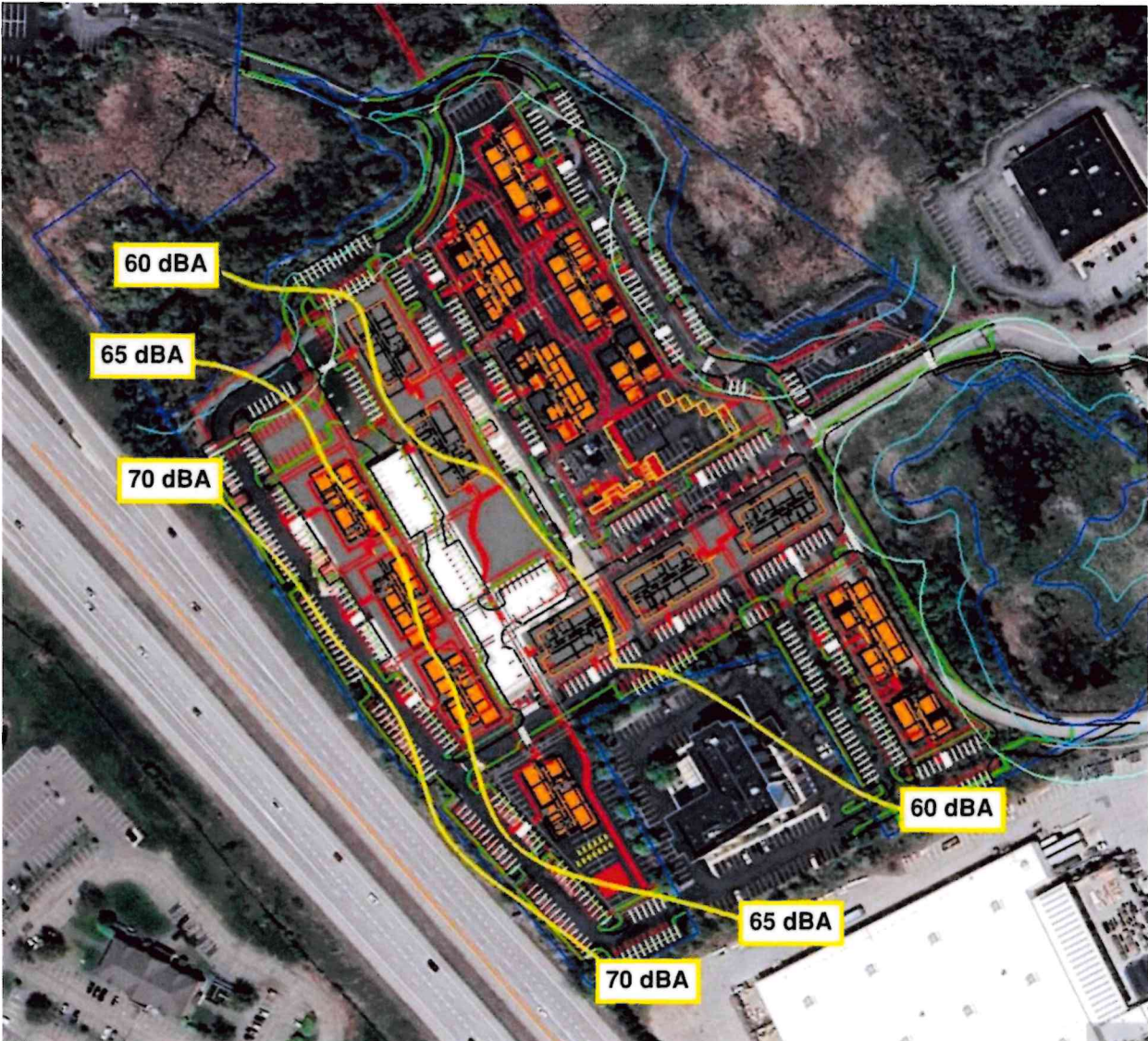


Figure 6. Adjusted 60, 65, and 70 dBA noise contours (5 ft elevation) overlaid upon the Project site diagram based upon Year 2022 traffic data, with mitigation barrier.

Residential Dwellings

The residential buildings of the 100 Durgin Lane development are predicted to have a range of sound level exposures from State Route 4. Most of the residential buildings (Locations 11 through 25) are predicted to have exterior sound level exposures of 64 dBA or less, whereas residences along the southern edge of the development are predicted to be exposed to a range of exterior sound levels from 60 to 72 dBA. As a reminder, the interior sound pressure level goal for residences is 45 dBA.

As discussed earlier in this report, residential buildings are historically expected to provide 20 dBA of noise reduction, prior to modern building practices that focus on energy efficiency. This 20 dBA reduction is the value used by the various federal agencies, including FHWA and the FAA. This means that the predicted exterior sound levels of 65 dBA or less would result in interior sound levels that meet the 45 dBA interior



sound level goal for the HNOD inside residential dwellings. Based on the sound level predictions, most of the residential buildings are exposed to sound levels that do not require any noise mitigation to meet the Highway Noise Overlay District interior sound level goal.

The anticipated exterior wall and window assemblies of the project and the higher range of sound exposures are discussed below.

Project Exterior Wall Assembly

The project is expecting to use an exterior wall assembly that consists of the following components (from exterior to interior):

- Fiber cement board and batten siding
- Drainage matt (cedar breather or similar)
- 1½-inch exterior foam insulation
- 7/16-inch Zip sheathing
- 2x6 wood stud framing
- Fiberglass batt insulation (R-19) in stud cavity
- 5/8-inch gypsum wallboard

Based on these components, we estimate this assembly will provide approximately OITC 30, which would provide a sound level reduction of approximately 30 dBA.

Project Window Assembly

The project is expecting that the exterior window assemblies will be a casement vent model Pella Impervia. Pella's product data indicates that this product has a range of OITC values from 24 to 32 depending on the glazing that is chosen.

Project Composite Exterior Envelope Assembly

The sound reduction provided by the exterior envelope for the residential dwellings will be proportional to the areas and the performance of exterior wall and window systems. This combined performance is referred to as the "composite" sound insulation. For this calculation, we have estimated that the windows make up no more than about 20% of the exterior envelope area. Using window glazing with a rating of OITC 25 and the OITC 30 wall assembly, we calculate the composite exterior envelope rating to be OITC 29, which equates to a sound level reduction of 29 dBA.

Buildings with Predicted Sound Exposure above 65 dBA

Based on the composite exterior envelope performance, sound level exposures of up to 74 dBA are estimated to achieve the interior goal of 45 dBA.

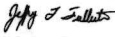
With these constructions, we find that the modern building envelope that this project is planning suffices for the "superinsulated" construction that is needed to achieve the interior sound level of 45 dBA. We find that no further mitigation is needed for meeting the requirements of the Highway Noise Overlay District.



We trust this provides the information that you need at this time. Please feel free to contact us by email or phone (Jeffrey.Fullerton@intertek.com, 857-523-6576) or (James.Phillips@intertek.com, 510-697-9437) should you have any questions or require further information.

Sincerely,

Architectural Testing, Inc., an Intertek company


Digitally signed by Jeffrey Fullerton
Reason: I am approving this document
Date: 2024.04.22 14:51:55-04'00'

Jeffrey Fullerton, INCE Bd. Cert.
Department Manager, Acoustics
Building Science Solutions



James Phillips, MS, FASA
Senior Consultant
Building Science Solutions

JF/JP/mds



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: 100 Durgin Lane Owner, LLC Date Submitted: April 22, 2024

Application # (in City's online permitting): LU 24-

Site Address: 100 Durgin Lane Map: 239 Lot: 13-2, 16, & 18

Application Requirements			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Complete application form submitted via the City's web-based permitting program (2.5.2.1(2.5.2.3A))	Enclosed	N/A
<input checked="" type="checkbox"/>	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			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Statement that lists and describes "green" building components and systems. (2.5.3.1B)	Enclosed	
<input checked="" type="checkbox"/>	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)	Existing Conditions & Building Floor Plans	N/A
<input checked="" type="checkbox"/>	Tax map and lot number, and current zoning of all parcels under Site Plan Review. (2.5.3.1D)	Site Plan C-300	N/A

Site Plan Review Application Required Information			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. (2.5.3.1E)	Enclosed	N/A
<input checked="" type="checkbox"/>	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 Plans	N/A
<input checked="" type="checkbox"/>	Names, addresses and telephone numbers of all professionals involved in the site plan design. (2.5.3.1G)	Cover Sheet	N/A
<input checked="" type="checkbox"/>	List of reference plans. (2.5.3.1H)	Existing Conditions Plans	N/A
<input checked="" type="checkbox"/>	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			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	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 Plans	N/A
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. (2.5.4.1E)	Wetlands Delineation Report	N/A
<input checked="" type="checkbox"/>	Title (name of development project), north point, scale, legend. (2.5.4.2A)	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Date plans first submitted, date and explanation of revisions. (2.5.4.2B)	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Individual plan sheet title that clearly describes the information that is displayed. (2.5.4.2C)	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	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

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	<p>1. Existing Conditions: (2.5.4.3A)</p> <ul style="list-style-type: none"> • 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	
<input checked="" type="checkbox"/>	<p>2. Buildings and Structures: (2.5.4.3B)</p> <ul style="list-style-type: none"> • 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 Plans C-300, C-301, C-302	
<input checked="" type="checkbox"/>	<p>3. Access and Circulation: (2.5.4.3C)</p> <ul style="list-style-type: none"> • 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 Plans C-300, C-301, C-302	
<input checked="" type="checkbox"/>	<p>4. Parking and Loading: (2.5.4.3D)</p> <ul style="list-style-type: none"> • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided). 	Site Plans C-300, C-301, C-302	
<input checked="" type="checkbox"/>	<p>5. Water Infrastructure: (2.5.4.3E)</p> <ul style="list-style-type: none"> • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii). 	Utility Plans C-501, C-502	
<input checked="" type="checkbox"/>	<p>6. Sewer Infrastructure: (2.5.4.3F)</p> <ul style="list-style-type: none"> • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period. 	Utility Plans C-501, C-502	

<input checked="" type="checkbox"/>	7. Utilities: (2.5.4.3G) <ul style="list-style-type: none"> The size, type and location of all above & below ground utilities; Size type and location of generator pads, transformers and other fixtures. 	Utility Plans C-501, C-502	
<input checked="" type="checkbox"/>	8. Solid Waste Facilities: (2.5.4.3H) <ul style="list-style-type: none"> The size, type and location of solid waste facilities. 	Building Floor Plans	
<input checked="" type="checkbox"/>	9. Storm water Management: (2.5.4.3I) <ul style="list-style-type: none"> 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 & Drainage Plans C-401, C-402	
<input checked="" type="checkbox"/>	10. Outdoor Lighting: (2.5.4.3J) <ul style="list-style-type: none"> Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan. 	Photometrics Plan L3-00	
<input checked="" type="checkbox"/>	11. Indicate where dark sky friendly lighting measures have been implemented. (10.1)	Photometrics Plans L3-00	
<input checked="" type="checkbox"/>	12. Landscaping: (2.5.4.3K) <ul style="list-style-type: none"> Identify all undisturbed area, existing vegetation and that which is to be retained; Location of any irrigation system and water source. 	Landscape Plans L2-00	
<input checked="" type="checkbox"/>	13. Contours and Elevation: (2.5.4.3L) <ul style="list-style-type: none"> Existing/Proposed contours (2 foot minimum) and finished grade elevations. 	Grading & Drainage Plans C-401, C-402	
<input checked="" type="checkbox"/>	14. Open Space: (2.5.4.3M) <ul style="list-style-type: none"> Type, extent and location of all existing/proposed open space. 	Site Plans C-300, C-301, C-302	
<input checked="" type="checkbox"/>	15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)	Existing Conditions Plan Sheets	
<input checked="" type="checkbox"/>	16. Character/Civic District (All following information shall be included): (2.5.4.3P) <ul style="list-style-type: none"> 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). 	N/A	
<input checked="" type="checkbox"/>	17. Special Flood Hazard Areas (2.5.4.3Q) <ul style="list-style-type: none"> 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. 	N/A	

Other Required Information


<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Traffic Impact Study or Trip Generation Report, as required. (3.2.1-2)	Enclosed	
<input checked="" type="checkbox"/>	Indicate where Low Impact Development Design practices have been incorporated. (7.1)	Grading and Drainage Plan Sheet C-103	
<input checked="" type="checkbox"/>	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	
<input checked="" type="checkbox"/>	Stormwater Management and Erosion Control Plan. (7.4)	Enclosed	
<input checked="" type="checkbox"/>	Inspection and Maintenance Plan (7.6.5)	Enclosed	

Final Site Plan Approval Required Information

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	All local approvals, permits, easements and licenses required, including but not limited to: <ul style="list-style-type: none"> • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. (2.5.3.2A)	Cover Sheet	
<input checked="" type="checkbox"/>	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: <ul style="list-style-type: none"> • 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	
<input checked="" type="checkbox"/>	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)	The applicant is currently working with Eversource to get a will-serve letter.	

Final Site Plan Approval Required Information

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	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	
<input checked="" type="checkbox"/>	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-300	N/A
<input checked="" type="checkbox"/>	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	
<input checked="" type="checkbox"/>	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-300	N/A

Applicant's Signature:  Date: 4/22/24



City of Portsmouth, New Hampshire

Subdivision Application Checklist

This subdivision application checklist is a tool designed to assist the applicant in the planning process and for preparing the application for Planning Board review. 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 subdivision review requirements. Please refer to the Subdivision review regulations for full details.

Applicant Responsibilities (Section III.C): Applicable fees are due upon application submittal along with required number of copies of the Preliminary or final plat and supporting documents and studies. Please consult with Planning staff for submittal requirements.

Owner: Oak Street Investment Grade Net Lease Fund Series 2021-2 LLC Date Submitted: _____

Applicant: _____

Phone Number: _____ E-mail: _____

Site Address 1: _____ Map: _____ Lot: _____

Site Address 2: _____ Map: _____ Lot: _____

Lots 13-2, 16, & 18

Application Requirements			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page or Plan Sheet/Note #)	Waiver Requested
<input type="checkbox"/>	Completed Application form. (III.C.2-3)		N/A
<input type="checkbox"/>	All application documents, plans, supporting documentation and other materials provided in digital Portable Document Format (PDF) on compact disc, DVD or flash drive. (III.C.4)		N/A

Requirements for Preliminary/Final Plat				
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Required for Preliminary / Final Plat	Waiver Requested
<input type="checkbox"/>	Name and address of record owner, any option holders, descriptive name of subdivision, engineer and/or surveyor or name of person who prepared the plat. (Section IV.1/V.1)	Cover Sheet	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	N/A

Requirements for Preliminary/Final Plat				
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Required for Preliminary / Final Plat	Waiver Requested
<input type="checkbox"/>	<p>Preliminary Plat Names and addresses of all adjoining property owners. (Section IV.2)</p> <p>Final Plat Names and addresses of all abutting property owners, locations of buildings within one hundred (100) feet of the parcel, and any new house numbers within the subdivision. (Section V.2)</p>	Existing Conditions Plans	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	N/A
<input type="checkbox"/>	North point, date, and bar scale. (Section IV.3/V3)	Required on all Plan Sheets	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	N/A
<input type="checkbox"/>	Zoning classification and minimum yard dimensions required. (Section IV.4/V.4)	Site Plan C-300	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	N/A
<input type="checkbox"/>	<p>Preliminary Plat Scale (not to be smaller than one hundred (100) feet = 1 inch) and location map (at a scale of 1" = 1000'). (Section IV.5)</p> <p>Final Plat Scale (not to be smaller than 1"=100'), Location map (at a scale of 1"=1,000') showing the property being subdivided and its relation to the surrounding area within a radius of 2,000 feet. Said location map shall delineate all streets and other major physical features that my either affect or be affected by the proposed development. (Section V.5)</p>	<p>Existing Conditions Plans</p> <p>Lot Line Adjustment Exhibit</p>	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	N/A
<input type="checkbox"/>	Location and approximate dimensions of all existing and proposed property lines including the entire area proposed to be subdivided, the areas of proposed lots, and any adjacent parcels in the same ownership. (Section IV.6)	<p>Existing Conditions Plans</p> <p>Lot Line Adjustment Exhibit</p>	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	
<input type="checkbox"/>	Dimensions and areas of all lots and any and all property to be dedicated or reserved for schools, parks, playgrounds, or other public purpose. Dimensions shall include radii and length of all arcs and calculated bearing for all straight lines. (Section V.6/ IV.7)	Lot Line Adjustment Exhibit	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	N/A
<input type="checkbox"/>	Location, names, and present widths of all adjacent streets, with a designation as to whether public or private and approximate location of existing utilities to be used. Curbs and sidewalks shall be shown. (Section IV.8/V.7)	<p>Existing Conditions Plan Site Plan C-300</p> <p>Utilities Plans C-501, C-502</p>	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	

Requirements for Preliminary/Final Plat				
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Required for Preliminary / Final Plat	Waiver Requested
<input type="checkbox"/>	Location of significant physical features, including bodies of water, watercourses, wetlands, railroads, important vegetation, stone walls and soils types that may influence the design of the subdivision. (Section IV.9/V.8)	Existing Conditions Plans	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	
<input type="checkbox"/>	Preliminary Plat Proposed locations, widths and other dimensions of all new streets and utilities, including water mains, storm and sanitary sewer mains, catch basins and culverts, street lights, fire hydrants, sewerage pump stations, etc. (Section IV.10) Final Plat Proposed locations and profiles of all proposed streets and utilities, including water mains, storm and sanitary sewer mains, catchbasins and culverts, together with typical cross sections. Profiles shall be drawn to a horizontal scale of 1"=50' and a vertical scale of 1"=5', showing existing centerline grade, existing left and right sideline grades, and proposed centerline grade. (Section V.9)	Existing Conditions Plans Site Plan Sheet C-301, C-302 Grading, Drainage, & Erosion Control Plan C-401, C-402 Utilities Plan Sheet C-501, C-502	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	
<input type="checkbox"/>	When required by the Board, the plat shall be accompanied by profiles of proposed street grades, including extensions for a reasonable distance beyond the subject land; also grades and sizes of proposed utilities. (Section IV.10)	N/A	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	
<input type="checkbox"/>	Base flood elevation (BFE) for subdivisions involving greater than five (5) acres or fifty (50) lots. (Section IV.11)	N/A	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	
<input type="checkbox"/>	For subdivisions of five (5) lots or more, or at the discretion of the Board otherwise, the preliminary plat shall show contours at intervals no greater than two (2) feet. Contours shall be shown in dotted lines for existing natural surface and in solid lines for proposed final grade, together with the final grade elevations shown in figures at all lot corners. If existing grades are not to be changed, then the contours in these areas shall be solid lines. (Section IV.12/ V.12)	Existing Conditions Plans Grading, Drainage, and Erosion Control Plans C-401, C-402	<input checked="" type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	

Requirements for Preliminary/Final Plat				
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Required for Preliminary / Final Plat	Waiver Requested
<input type="checkbox"/>	Dates and permit numbers of all necessary permits from governmental agencies from which approval is required by Federal or State law. (Section V.10)	Cover Sheet	<input type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	
<input type="checkbox"/>	For subdivisions involving greater than five (5) acres or fifty (50) lots, the final plat shall show hazard zones and shall include elevation data for flood hazard zones. (Section V.11)	N/A	<input type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	
<input type="checkbox"/>	Location of all permanent monuments. (Section V.12)		<input type="checkbox"/> Preliminary Plat <input checked="" type="checkbox"/> Final Plat	

General Requirements¹

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input type="checkbox"/>	1. Basic Requirements: (VI.1)	Existing Conditions Plans	
<input type="checkbox"/>	a. Conformity to Official Plan or Map		
<input type="checkbox"/>	b. Hazards		
<input type="checkbox"/>	c. Relation to Topography	Lot Line Adjustment Exhibit	
<input type="checkbox"/>	d. Planned Unit Development		
<input type="checkbox"/>	2. Lots: (VI.2)		
<input type="checkbox"/>	a. Lot Arrangement	Lot Line Adjustment Exhibit	
<input type="checkbox"/>	b. Lot sizes		
<input type="checkbox"/>	c. Commercial and Industrial Lots		
<input type="checkbox"/>	3. Streets: (VI.3)	N/A	
<input type="checkbox"/>	a. Relation to adjoining Street System	No new streets proposed	
<input type="checkbox"/>	b. Street Rights-of-Way		
<input type="checkbox"/>	c. Access		
<input type="checkbox"/>	d. Parallel Service Roads		
<input type="checkbox"/>	e. Street Intersection Angles		
<input type="checkbox"/>	f. Merging Streets		
<input type="checkbox"/>	g. Street Deflections and Vertical Alignment		
<input type="checkbox"/>	h. Marginal Access Streets		
<input type="checkbox"/>	i. Cul-de-Sacs		
<input type="checkbox"/>	j. Rounding Street Corners		
<input type="checkbox"/>	k. Street Name Signs		
<input type="checkbox"/>	l. Street Names		
<input type="checkbox"/>	m. Block Lengths		
<input type="checkbox"/>	n. Block Widths		
<input type="checkbox"/>	o. Grade of Streets		
<input type="checkbox"/>	p. Grass Strips		
<input type="checkbox"/>	4. Curbing: (VI.4)	Site Plan Sheet C-301, C-302	
<input type="checkbox"/>	5. Driveways: (VI.5)	Site Plan Sheet C-301, C-302	
<input type="checkbox"/>	6. Drainage Improvements: (VI.6)	G,D & EC C-401, C-402	
<input type="checkbox"/>	7. Municipal Water Service: (VI.7)	Utilities Plans C-501, C-502	
<input type="checkbox"/>	8. Municipal Sewer Service: (VI.8)	Utilities Plans C-501, C-502	
<input type="checkbox"/>	9. Installation of Utilities: (VI.9)		
<input type="checkbox"/>	a. All Districts	Utilities Plans C-501, C-502	
<input type="checkbox"/>	b. Indicator Tape		
<input type="checkbox"/>	10. On-Site Water Supply: (VI.10)	N/A	
<input type="checkbox"/>	11. On-Site Sewage Disposal Systems: (VI.11)	N/A	
<input type="checkbox"/>	12. Open Space: (VI.12)	Landscape Plans L1-00 - L3-00	
<input type="checkbox"/>	a. Natural Features		
<input type="checkbox"/>	b. Buffer Strips		
<input type="checkbox"/>	c. Parks		
<input type="checkbox"/>	d. Tree Planting		
<input type="checkbox"/>	13. Flood Hazard Areas: (VI.13)	N/A	
<input type="checkbox"/>	a. Permits		
<input type="checkbox"/>	b. Minimization of Flood Damage		
<input type="checkbox"/>	c. Elevation and Flood-Proofing Records		
<input type="checkbox"/>	d. Alteration of Watercourses		
<input type="checkbox"/>	14. Erosion and Sedimentation Control (VI.14)	G,D & EC C-401, C-402	

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input type="checkbox"/>	15. Easements (VI.15) a. Utilities b. Drainage	Utility & Drainage Easement Plan Sheet C-601	
<input type="checkbox"/>	16. Monuments: (VI.16)		
<input type="checkbox"/>	17. Benchmarks: (VI.17)		
<input type="checkbox"/>	18. House Numbers (VI.18)		

Design Standards			
	Required Items for Submittal	Indicate compliance and/or provide explanation as to alternative design	Waiver Requested
<input type="checkbox"/>	1. Streets have been designed according to the design standards required under Section (VII.1). a. Clearing b. Excavation c. Rough Grade and Preparation of Sub-Grade d. Base Course e. Street Paving f. Side Slopes g. Approval Specifications h. Curbing i. Sidewalks j. Inspection and Methods	Site Plan Sheet C-300 - C-302 Grading, Drainage, & Erosion Control Plan C-401, C-402 Utilities Plan Sheet C-501, C-502	
<input type="checkbox"/>	2. Storm water Sewers and Other Drainage Appurtenances have been designed according to the design standards required under Section (VII.2). a. Design b. Standards of Construction	Grading, Drainage, & Erosion Control Plan C-401, C-402	
<input type="checkbox"/>	3. Sanitary Sewers have been designed according to the design standards required under Section (VII.3). a. Design b. Lift Stations c. Materials d. Construction Standards	Utilities Plan Sheet C-501, C-502	
<input type="checkbox"/>	4. Water Mains and Fire Hydrants have been designed according to the design standards required under Section (VII.4). a. Connections to Lots b. Design and Construction c. Materials d. Notification Prior to Construction	Utilities Plan Sheet C-501, C-502	

Applicant's/Representative's Signature:  Date: _____

¹ See City of Portsmouth, NH Subdivision Rules and Regulations for details.
Subdivision Application Checklist/January 2018

Project		Catalog #		Type	
Prepared by		Notes		Date	



McGraw-Edison

GALN Galleon II

Area / Site Luminaire

Product Features



Product Certifications



Interactive Menu

- Ordering Information [page 2](#)
- Mounting Details [page 3](#)
- Optical Distributions [page 6](#)
- Product Specifications [page 6](#)
- Energy and Performance Data [page 7](#)
- Control Options [page 12](#)

Quick Facts

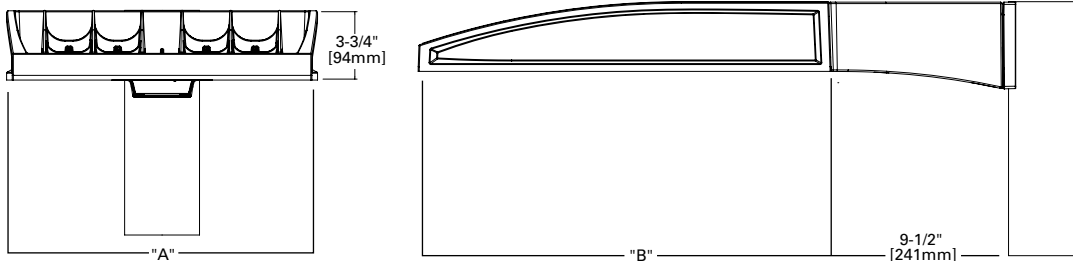
- Lumen packages range from 3,300 - 73,500 (33W - 552W)
- 17 optical distributions
- Efficacy up to 159 lumens per watt

Connected Systems

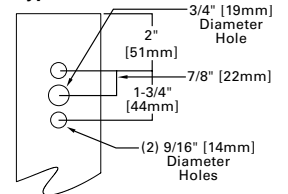
- WaveLinx Lite
- WaveLinx

Dimensional Details

Standard Pole Mount Arm



Pole Drilling Pattern
Type "N"



Number of Light Squares	Width "A"	Housing Length "B"	Weight with Standard or QM Arm	EPA with Standard or QM Arm
1-4	16"	22"	29 lb	0.95
5-6	22"	22"	39 lb	0.95
7-9	22"	28-1/8"	48 lb	1.1

NOTES:
For arm selection requirements and additional line art, see Mounting Details section.


NOTES:
1. Visit <https://www.designlights.org/search/> to confirm qualification. Not all product variations are DLC qualified.
2. IDA Certified (3000K CCT and warmer only, fixed mounting options)

Ordering Information

SAMPLE NUMBER: GALN-SA4C-740-U-T4FT-GM

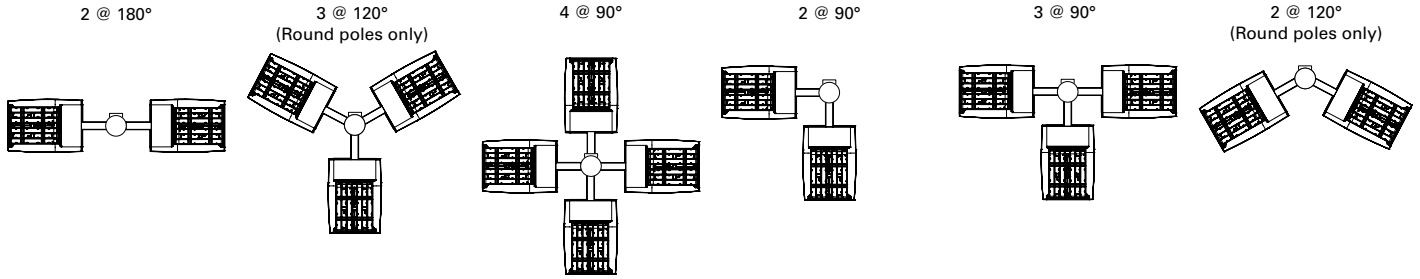
Product Family ^{1,2}	Light Engine		Color Temperature	Voltage	Distribution	Mounting	Finish
	Configuration	Drive Current					
GALN =Galleon II BAA-GALN =Galleon II Buy American Act Compliant ²⁶ TAA-GALN =Galleon II Trade Agreements Act Compliant ²⁶	SA1 =1 Square SA2 =2 Squares SA3 =3 Squares SA4 =4 Squares SA5 =5 Squares SA6 =6 Squares SA7 =7 Squares SA8 =8 Squares SA9 =9 Squares	A =600mA B =800mA C =1000mA D =1200mA ^{4,16} Z =Configured ²²	722 =70CRI, 2200K 727 =70CRI, 2700K 730 =70CRI, 3000K 735 =70CRI, 3500K 740 =70CRI, 4000K 750 =70CRI, 5000K 760 =70CRI, 6000K 827 =80CRI, 2700K 830 =80CRI, 3000K 835 =80CRI, 3500K 840 =80CRI, 4000K 930 =90CRI, 3000K 935 =90CRI, 3500K 940 =90CRI, 4000K 950 =90CRI, 5000K AMB =Amber, 590nm ^{14,16}	U =120-277V H =347V-480V ^{7,29} 1=120V 2=208V 3=240V 4=277V 8=480V ^{7,29} 9=347V ⁷ DV =277V-480V DuraVolt Drivers ^{28,29,30}	T1 =Type I T2 =Type II T2R =Type II Roadway T3 =Type III T3R =Type III Roadway T4FT =Type IV Forward Throw T4W =Type IV Wide 5NQ =Type V Narrow 5MQ =Type V Square Medium 5WQ =Type V Square Wide SL2 =Type II w/Spill Control SL3 =Type III w/Spill Control SL4 =Type IV w/Spill Control SLL =90° Spill Light Eliminator Left SLR =90° Spill Light Eliminator Right RW =Rectangular Wide Type I AFL =Automotive Frontline	[Blank] =Standard Pole Mount Arm QU =Quick Mount Universal Arm QM =Pole Mount Arm with Quick Mount Adaptor PA =Pole Mount, Adjustable SP =3" Slipfitter, Adjustable ⁸ SP2 =2-3/8" Slipfitter, Adjustable ⁸ QMA =Quick Mount Mast Arm, Fixed MA =Mast Arm, Fixed WM =Wall Mount, Fixed WA =Wall Mount, Adjustable UP =Upswept Arm	AP =Grey BZ =Bronze BK =Black DP =Dark Platinum GM =Graphite Metallic WH =White RALXX =Custom Color
Options (Add as Suffix)			Controls and Systems Options (Add as Suffix)		Accessories (Order Separately) ²⁷		
DIM =External 0-10V Dimming Leads ¹⁹ F =Single Fuse (120, 277 or 347V Specify Voltage) FF =Double Fuse (208, 240 or 480V Specify Voltage) 2LK =20kV UL 1449 fused surge protective device ¹⁰ 2L =Two Circuits ¹⁰ HA =50°C High Ambient HSS =Installed House Side Shield ¹⁷ GRSBK =Glare Reducing Shield, Black ²² GRSWH =Glare Reducing Shield, White ²² LCF =Light Square Trim Painted to Match Housing ²⁵ TH =Tool-less Door Hardware ⁵ CC =Coastal Construction finish ³ L90 =Optics Rotated 90° Left R90 =Optics Rotated 90° Right AHD145 =After Hours Dim, 5 Hours ²¹ AHD245 =After Hours Dim, 6 Hours ²¹ AHD255 =After Hours Dim, 7 Hours ²¹ AHD355 =After Hours Dim, 8 Hours ²¹ DALI =DALI Drivers			BPC =Button Type Photocontrol. Must specify voltage 120V, 208V, 240V or 277V. ⁶ PR =NEMA 3-PIN Photocontrol Receptacle PR7 =NEMA 7-PIN Photocontrol Receptacle ²⁰ FADC =Field Adjustable Dimming Controller ³¹ PSC =Photocontrol Shorting Cap SPB2 =Dimming Motion Sensor, 9'-20' mounting ²³ SPB4 =Dimming Motion Sensor, 21'-40' mounting ²³ SPB2/X =Dimming Motion Sensor, limited square count, 9'-20' mounting ²³ SPB4/X =Dimming Motion Sensor, limited square count, 21'-40' mounting ²³ MS/DIM-L20 =Motion Sensor for Dimming Operation, 9'-20' Mounting ³³ MS/DIM-L40 =Motion Sensor for Dimming Operation, 21'-40' Mounting ³³ WLS2XX =WaveLinX Lite, SR Driver, Dimming Motion and Daylight, Bluetooth Programmable, 7' - 15' Mounting ^{18,12,34} WLS4XX =WaveLinX Lite, SR Driver, Dimming Motion and Daylight, Bluetooth Programmable, 15' - 40' Mounting ^{18,12,34} WPS2XX =WaveLinX Pro, SR Driver, Dimming Motion and Daylight, WAC Programmable, 7' - 15' Mounting ^{18,12,13,34} WPS4XX =WaveLinX Pro, SR Driver, Dimming Motion and Daylight, WAC Programmable, 15' - 40' Mounting ^{18,12,13,34} DIM10-L20 =Synapse Occupancy Sensor (9'-20' Mounting) ¹⁸ DIM10-L40 =Synapse Occupancy Sensor (21'-40' Mounting) ¹⁸		OA/RA1016 =NEMA Photocontrol Multi-Tap - 105-285V OA/RA1027 =NEMA Photocontrol - 480V OA/RA1201 =NEMA Photocontrol - 347V OA/RA1013 =Photocontrol Shorting Cap OA/RA1014 =120V Photocontrol MA1252 =10kV Surge Module Replacement MA1036-XX =Single Tenon Adapter for 2-3/8" O.D. Tenon MA1037-XX =2@180° Tenon Adapter for 2-3/8" O.D. Tenon MA1197-XX =3@120° Tenon Adapter for 2-3/8" O.D. Tenon MA1188-XX =4@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1189-XX =2@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1190-XX =3@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1191-XX =2@120° Tenon Adapter for 2-3/8" O.D. Tenon MA1038-XX =Single Tenon Adapter for 3-1/2" O.D. Tenon MA1039-XX =2@180° Tenon Adapter for 3-1/2" O.D. Tenon MA1192-XX =3@120° Tenon Adapter for 3-1/2" O.D. Tenon MA1193-XX =4@90° Tenon Adapter for 3-1/2" O.D. Tenon MA1194-XX =2@90° Tenon Adapter for 3-1/2" O.D. Tenon MA1195-XX =3@90° Tenon Adapter for 3-1/2" O.D. Tenon SRA238 =Adapter kit for mounting 3" SP arm to 2-3/8" O.D. vertical tenon FSIR-100 =Wireless Configuration Tool for MS/DIM ³³ LS/HSS =Field Installed House Side Shield ^{9,17} LS/GRSBK-2PK =Glare Reducing Shield, Black ^{9,22} LS/GRSWH-2PK =Glare Reducing Shield, White ^{9,22} LS/PFS =Perimeter Shield, Black ¹⁵ WOLC-7P-10A =WaveLinX Outdoor Control Module ^{11,18}		
<p>NOTES:</p> <ol style="list-style-type: none"> Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654. Not available with TH option. Drive current 1200mA not available with color temperatures 722, 727, 827, 830 or 930 when the HSS option is selected TH option not 3G rated. Not available with Coastal Construction (CC) option. Not available with voltage options H, 8 or 9. Requires the use of an internal step down transformer when combined with sensor options. Not available in combination with the HA high ambient and sensor options at 1A. SP arm limited to 3" O.D. vertical tenon. SP2 limited to 2-3/8" O.D. vertical tenon. One required for each Light Square. 2L is not available with SPB at 347V or 480V. Not available with WaveLinX or Enlighted sensors, or 20kV surge option Requires PR7. Replace XX with sensor color (WH, BZ or BK.) WAC Gateway required to enable field-configurability. Order WAC-PoE and WPOE-120 (10V to PoE injector) power supply if needed. WAC not required for LC Bluetooth sensors. Narrow-band 590nm +/-5nm for wildlife and observatory use. Choose drive current A; supplied at 500mA drive current only. Exact luminaire wattage available in IES files. Available with 5WQ, 5MQ, SL2, SL3 and SL4 distributions. Can be used with HSS option. Set of 4 pcs. One set required per Light Square. Not available with HA option. Not for use with T1, 5NQ, 5MQ, 5WQ or RW optics. Cannot be used with other control options. Low voltage control lead brought out 18" outside fixture. Not available with DALI or integrated controls options Not available if any SPB, LWR, or WaveLinX sensor is selected. Motion sensor has an integral photocell. Requires the use of BPC photocontrol or the PR7 or PR photocontrol receptacle with photocontrol accessory. Not for use with T1, T4FT, T4W or SL4 optics. Sensor configuration mobile application required for configuration. See controls page for details. Replace X with number of Light Squares controlled by the SPB, referencing the "SPB/X Availability Table" on the controls page. Not available with HSS, GRSWH or GRSBK. Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to www.designlights.org website for more information. Components shipped separately may be separately analyzed under domestic preference requirements. For BAA or TAA requirements, Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information. DuraVolt drivers feature added protection from power quality issues such as loss of neutral, transients and voltage fluctuations. Visit www.sigify.com/duravolt for more information. 480V not to be used with ungrounded or impedance grounded systems. Not available in 1 square configuration at 800mA or below. Not available with any control option except SPB. Cannot be used with PR7 or other motion response control options. Use GALN Product Configurator to specify lumen output, drive current and wattage. Not available with AMB. Uses the FSP-211 motion sensor. The FSIR-100 configuration tool is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Cooper Lighting Solutions for more information. Controls system is not available with photocontrol receptacles (PR, PR7) or other controls systems (FADC, SPBx). 							

LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

Product Family	Camera Type	Data Backhaul
L =LumenSafe Technology 	D =Standard Dome Camera H =Hi-Res Dome Camera Z =Remote PTZ Camera	C =Cellular, No SIM A =Cellular, AT&T V =Cellular, Verizon S =Cellular, Sprint R =Cellular, Rogers W =Wi-Fi Networking w/ Omni-Directional Antenna E =Ethernet Networking

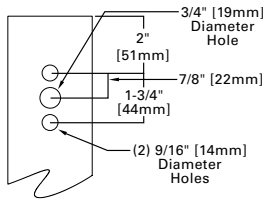
Mounting Details

Pole Configuration Options

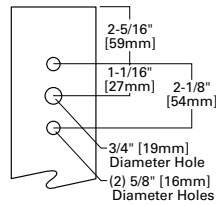


Pole Drilling Patterns

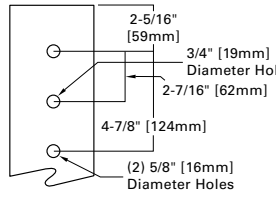
Type "N"



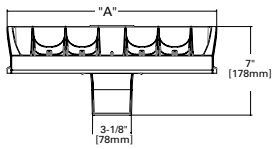
Type "R"



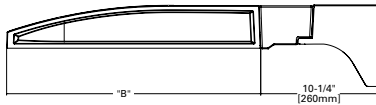
Type "M"



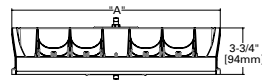
Quick Mount Universal Arm (QU)



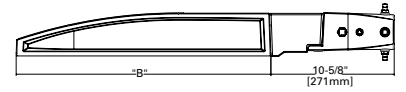
*NOTE: Universal bolt pattern compatible with Type N through Type M drilling patterns



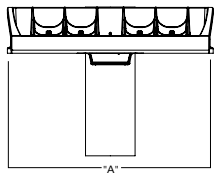
Quick Mount Mast Arm (QMA)



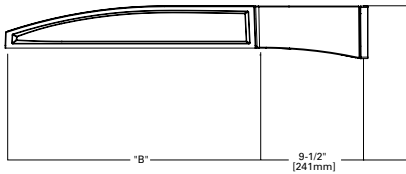
*NOTE: Fits 2-3/8" O.D. tenon



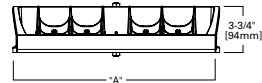
Pole Mount Arm with Quick Mount Adaptor (QM)



*NOTE: Use Type N drilling pattern



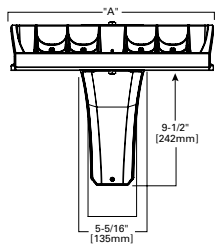
Mast Arm, Fixed (MA)



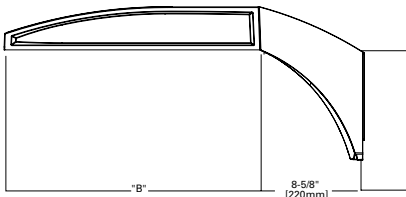
*NOTE: Fits 2-3/8" O.D. tenon



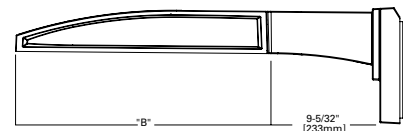
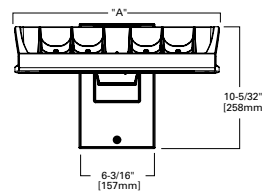
Upswept Arm (UP)



*NOTE: Universal bolt pattern compatible with Type N through Type M drilling patterns

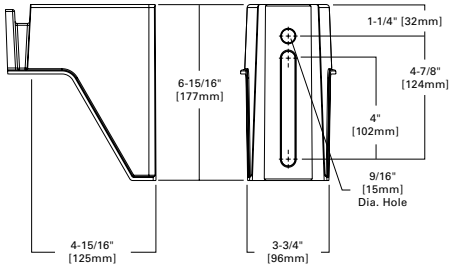


Wall Mount, Fixed (WM)

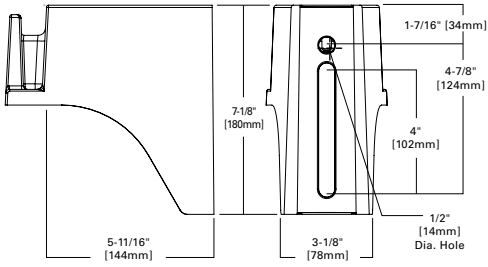


Mounting Details

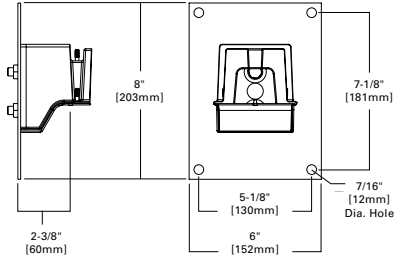
SA=QM Pole Mount Arm



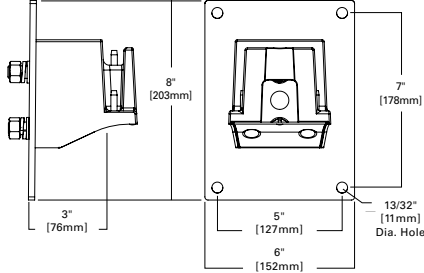
SA=QM Pole Mount Arm



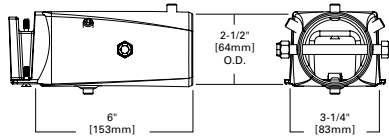
WM=QM Wall Mount Arm



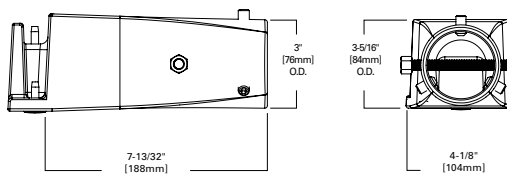
WM=QM Wall Mount Arm



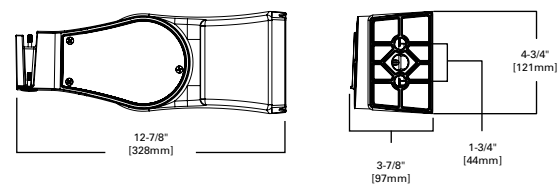
MA=QM Mast Arm



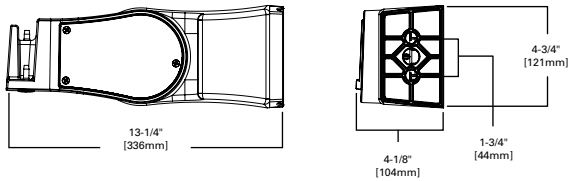
MA=QM Mast Arm



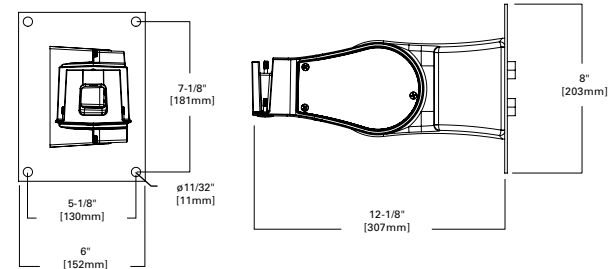
ADJA=Adjustable Arm Pole Mount



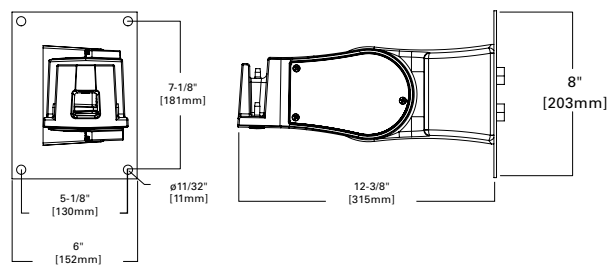
ADJA=Adjustable Arm Pole Mount



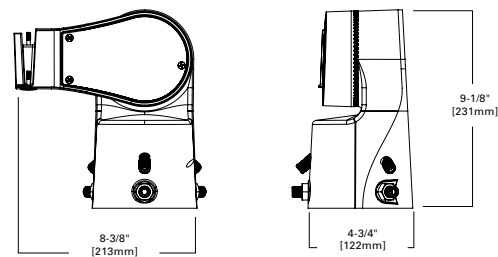
ADJA-WM=Adjustable Arm Wall Mount



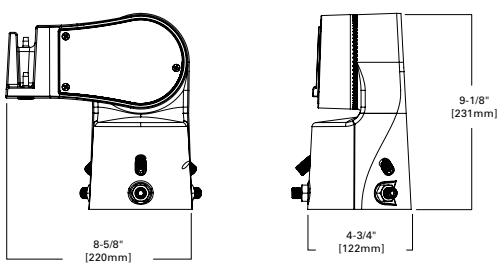
ADJA-WM=Adjustable Arm Wall Mount



ADJS=Adjustable Slipfitter 3

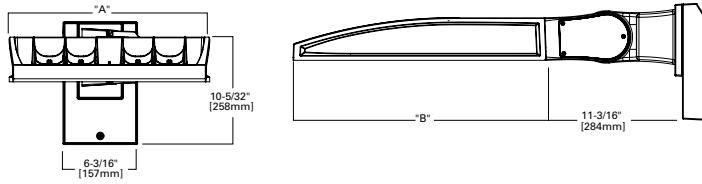


ADJS=Adjustable Slipfitter 3



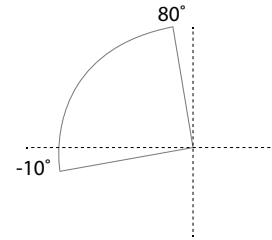
Mounting Details

Wall Mount, Adjustable (WA)

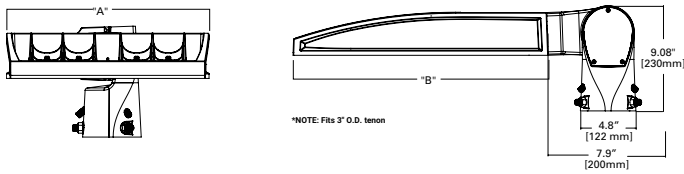


Adjustable Arm Range of Motion

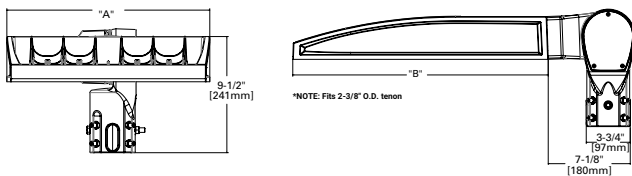
- Includes WA, SP, SP2 and PA mounting options
- Adjustable in increments of 5°
- Must maintain downward facing orientation



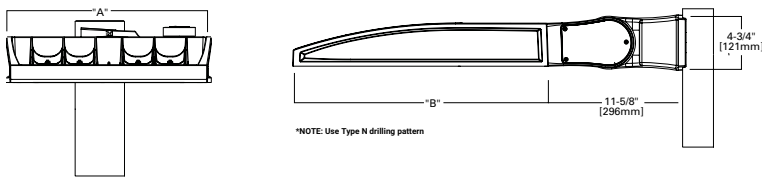
3" Slipfitter, Adjustable (SP)



2-3/8" Slipfitter, Adjustable (SP2)



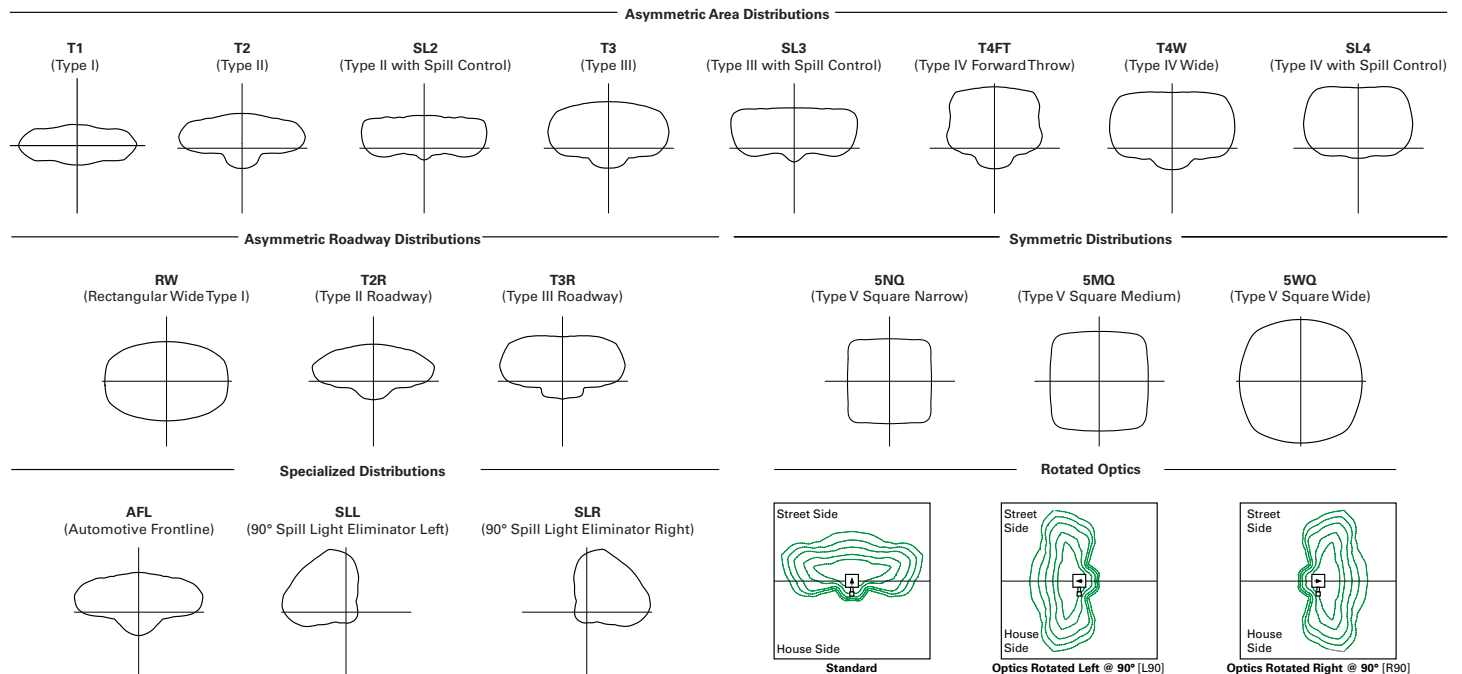
Pole Mount, Adjustable Arm (PA)



Fixture Weights and EPAs

Tilt Angle (Degrees)	Number of Light Squares	Weight	1 @ 90°	2 @ 180°	2 @ 90°	2 @ 120°	3 @ 90°	3 @ 120°	4 @ 90°
0°	1-4	33.5 lb (15.2 kg)	0.85	1.70	1.46	1.66	2.31	2.25	2.35
	5-6	43.5 lb (19.7 kg)	0.86	1.71	1.62	1.80	2.49	2.35	2.50
	7-9	52.5 lb (23.8 kg)	0.98	1.95	1.75	1.98	2.73	2.55	2.76
15°	1-4	33.5 lb (15.2 kg)	1.10	1.71	1.95	2.26	2.81	3.30	2.87
	5-6	43.5 lb (19.7 kg)	1.42	1.71	2.27	2.72	3.13	3.63	3.15
	7-9	52.5 lb (23.8 kg)	1.69	1.96	2.67	3.22	3.65	4.38	3.72
30°	1-4	33.5 lb (15.2 kg)	1.72	1.81	2.58	3.21	3.44	4.59	3.53
	5-6	43.5 lb (19.7 kg)	2.26	2.29	3.11	4.00	3.97	5.27	4.00
	7-9	52.5 lb (23.8 kg)	2.75	2.85	3.73	4.83	4.71	6.45	4.81
45°	1-4	33.5 lb (15.2 kg)	2.25	2.36	3.10	4.00	3.96	5.63	4.08
	5-6	43.5 lb (19.7 kg)	2.96	2.99	3.81	5.06	4.67	6.49	4.71
	7-9	52.5 lb (23.8 kg)	3.63	3.76	3.73	6.17	5.59	8.03	5.73
60°	1-4	33.5 lb (15.2 kg)	2.63	2.77	3.49	4.58	4.34	6.21	4.48
	5-6	43.5 lb (19.7 kg)	3.46	3.51	4.32	5.84	5.19	7.01	5.22
	7-9	52.5 lb (23.8 kg)	4.27	4.44	5.25	7.15	6.23	8.80	6.40

Optical Distributions



Product Specifications

Construction

- Die-cast aluminum housing and heat sink
- Three housing sizes, using 1 to 9 light squares

Optics

- High-efficiency injection-molded AccuLED Optics technology
- 17 optical distributions for area site and roadway applications
- 3 shielding options include HSS, GRS and PFS
- IDA Certified (3000K CCT and warmer only, fixed mounting options)

Electrical

- Removable power tray assembly includes drivers, surge modules and control modules for ease of maintenance and serviceability
- Standard with 0-10V dimming
- Standard with 10kV surge module, optional 20kV surge module
- Suitable for operation in -40°C to 40°C ambient

environments. Optional 50°C high ambient (HA) configuration

- Luminaire available with the field adjustable dimming controller (FADC) to manually adjust wattage and reduce the total lumen output and light levels. Comes pre-set to the highest position at the lumen output selected

Mounting

- Arms are factory installed, enabling closed-housing installation
- All arms suitable for round or square pole installation
- All arms provide clearance for multiple fixture installations at 90°

Finish

- 6 standard finishes use super durable TGIC polyester powder coat paint, providing 2.5 mil nominal thickness and salt-spray tested to 3,000 hours per ASTM B117
- RAL and custom color matches available

- Coastal Construction (CC) option salt-spray tested to 5,000 hours per ASTM B117, achieving a scribe rating of 9 per ASTM D1654

Typical Applications

- Outdoor, Parking Lots, Walkways, Roadways, Building Areas

Warranty

- Five year limited warranty

Energy and Performance Data

Lumen Maintenance (TM-21)

Drive Current	Ambient Temperature	25,000 hours*	50,000 hours*	60,000 hours*	100,000 hours**	Theoretical L70 hours**
Up to 1A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.7%	98.3%	98.1%	97.4%	> 1.9M
	50°C	98.2%	97.2%	96.8%	95.2%	> 851,000
1.2A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.5%	97.9%	97.7%	96.7%	> 1.3M

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

* Supported by IES TM-21 standards
 ** Theoretical values represent estimations commonly used; however, refer to the IES position on LED Product Lifetime Prediction, IES PS-10-18, explaining proper use of IES TM-21 and LM-80.

FADC Settings

SA1-SA3 (A, B, C, D Drive Current)

FADC Position	Percent of Typical Lumen Output
1	25%
2	48%
3	56%
4	65%
5	75%
6	80%
7	85%
8	90%
9	95%
10	100%

Note: +/-5% typical value

FADC Settings

SA4-SA6 (A, B, C, D Drive Current)

FADC Position	Percent of Typical Lumen Output
1	14%
2	25%
3	32%
4	43%
5	49%
6	57%
7	65%
8	72%
9	80%
10	100%

Note: +/-5% typical value

FADC Settings

SA7-SA9 (A, B, C, D Drive Current)

FADC Position	Percent of Typical Lumen Output
1	19%
2	38%
3	47%
4	63%
5	74%
6	85%
7	95%
8	97%
9	100%
10	100%

Note: +/-5% typical value

Performance Table, Drive Current "A" (615mA)

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		33	63	93	121	154	182	215	244	274
Input Current @ 120V		0.283	0.529	0.778	1.058	1.310	1.556	1.839	2.089	2.335
Input Current @ 208V		0.165	0.309	0.460	0.618	0.771	0.919	1.082	1.240	1.379
Input Current @ 240V		0.143	0.270	0.398	0.540	0.671	0.796	0.944	1.078	1.194
Input Current @ 277V		0.125	0.237	0.352	0.473	0.581	0.705	0.818	0.962	1.057
Input Current @ 347V		0.098	0.181	0.272	0.362	0.454	0.544	0.636	0.738	0.816
Input Current @ 480V		0.073	0.133	0.200	0.267	0.335	0.400	0.470	0.554	0.600
Optics										
T1	4000K Lumens	4,619	9,180	13,628	18,059	22,861	27,070	31,796	36,863	41,385
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	140	146	147	149	148	149	148	151	151
T2	4000K Lumens	4,654	9,249	13,730	18,194	23,032	27,273	32,034	37,138	41,694
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	141	147	148	150	150	150	149	152	152
T2R	4000K Lumens	4,716	9,372	13,913	18,437	23,340	27,637	32,462	37,634	42,251
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4
	Lumens per Watt	143	149	150	152	152	152	151	154	154
T3	4000K Lumens	4,589	9,120	13,538	17,940	22,711	26,892	31,587	36,620	41,112
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G4
	Lumens per Watt	139	145	146	148	147	148	147	150	150
T3R	4000K Lumens	4,735	9,411	13,970	18,513	23,436	27,751	32,596	37,790	42,425
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	143	149	150	153	152	152	152	155	155
T4FT	4000K Lumens	4,617	9,176	13,622	18,051	22,851	27,058	31,782	36,847	41,366
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	140	146	146	149	148	149	148	151	151
T4W	4000K Lumens	4,631	9,203	13,662	18,104	22,918	27,138	31,876	36,955	41,488
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	140	146	147	150	149	149	148	151	151
SL2	4000K Lumens	4,619	9,180	13,627	18,058	22,860	27,069	31,795	36,861	41,383
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5
	Lumens per Watt	140	146	147	149	148	149	148	151	151
SL3	4000K Lumens	4,586	9,115	13,531	17,931	22,699	26,879	31,571	36,602	41,091
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	139	145	145	148	147	148	147	150	150
SL4	4000K Lumens	4,529	9,002	13,363	17,708	22,417	26,544	31,178	36,146	40,580
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	137	143	144	146	146	146	145	148	148
5NQ	4000K Lumens	4,829	9,598	14,247	18,880	23,901	28,301	33,242	38,539	43,266
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3
	Lumens per Watt	146	152	153	156	155	155	155	158	158
5MQ	4000K Lumens	4,853	9,645	14,318	18,974	24,020	28,442	33,407	38,731	43,482
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	147	153	154	157	156	156	155	159	159
5WQ	4000K Lumens	4,843	9,625	14,288	18,934	23,969	28,382	33,337	38,649	43,390
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	147	153	154	156	156	156	155	158	158
SLL/SLR	4000K Lumens	3,989	7,927	11,768	15,594	19,741	23,375	27,456	31,831	35,736
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	121	126	127	129	128	128	128	130	130
RW	4000K Lumens	4,774	9,488	14,085	18,665	23,628	27,979	32,863	38,100	42,774
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	145	151	151	154	153	154	153	156	156
AFL	4000K Lumens	4,673	9,286	13,785	18,268	23,126	27,384	32,164	37,290	41,864
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
	Lumens per Watt	142	147	148	151	150	150	150	153	153

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Performance Table, Drive Current "B" (800mA)

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		44	82	121	164	204	243	286	325	364
Input Current @ 120V		0.367	0.689	1.014	1.378	1.704	2.027	2.393	2.716	3.041
Input Current @ 208V		0.213	0.401	0.594	0.802	0.997	1.188	1.400	1.605	1.782
Input Current @ 240V		0.184	0.347	0.510	0.694	0.860	1.021	1.210	1.386	1.531
Input Current @ 277V		0.160	0.303	0.449	0.605	0.757	0.898	1.065	1.242	1.347
Input Current @ 347V		0.125	0.235	0.355	0.471	0.592	0.710	0.828	0.958	1.065
Input Current @ 480V		0.092	0.172	0.258	0.344	0.432	0.517	0.605	0.706	0.775
Optics										
T1	4000K Lumens	5,748	11,423	16,957	22,470	28,446	33,683	39,563	45,867	51,494
	BUG Rating	B2-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	131	139	140	137	139	139	138	141	141
T2	4000K Lumens	5,790	11,508	17,083	22,638	28,658	33,935	39,859	46,210	51,879
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	132	140	141	138	140	140	139	142	143
T2R	4000K Lumens	5,868	11,662	17,311	22,941	29,041	34,388	40,391	46,827	52,572
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5
	Lumens per Watt	133	142	143	140	142	142	141	144	144
T3	4000K Lumens	5,710	11,347	16,845	22,322	28,258	33,461	39,303	45,565	51,155
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5
	Lumens per Watt	130	138	139	136	139	138	137	140	141
T3R	4000K Lumens	5,892	11,710	17,383	23,035	29,161	34,530	40,558	47,020	52,788
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	134	143	144	140	143	142	142	145	145
T4FT	4000K Lumens	5,745	11,418	16,949	22,460	28,433	33,668	39,546	45,847	51,471
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	139	140	137	139	139	138	141	141
T4W	4000K Lumens	5,762	11,451	16,999	22,526	28,517	33,767	39,662	45,982	51,622
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	140	140	137	140	139	139	141	142
SL2	4000K Lumens	5,747	11,422	16,956	22,469	28,444	33,681	39,561	45,865	51,491
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	131	139	140	137	139	139	138	141	141
SL3	4000K Lumens	5,707	11,342	16,836	22,311	28,244	33,444	39,283	45,542	51,129
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	130	138	139	136	138	138	137	140	140
SL4	4000K Lumens	5,636	11,201	16,627	22,034	27,893	33,028	38,794	44,976	50,493
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	128	137	137	134	137	136	136	138	139
5NQ	4000K Lumens	6,009	11,942	17,727	23,492	29,739	35,214	41,362	47,953	53,835
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	137	146	147	143	146	145	145	148	148
5MQ	4000K Lumens	6,039	12,001	17,816	23,609	29,887	35,389	41,568	48,191	54,103
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	137	146	147	144	147	146	145	148	149
5WQ	4000K Lumens	6,026	11,976	17,778	23,559	29,824	35,315	41,480	48,090	53,989
	BUG Rating	B3-U0-G1	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	137	146	147	144	146	145	145	148	148
SLL/ SLR	4000K Lumens	4,963	9,863	14,642	19,403	24,563	29,085	34,163	39,607	44,465
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	113	120	121	118	120	120	119	122	122
RW	4000K Lumens	5,940	11,806	17,526	23,224	29,400	34,813	40,891	47,407	53,222
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	135	144	145	142	144	143	143	146	146
AFL	4000K Lumens	5,814	11,555	17,153	22,730	28,775	34,073	40,021	46,398	52,090
	BUG Rating	B1-U0-G1	B2-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4
	Lumens per Watt	132	141	142	139	141	140	140	143	143

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Performance Table, Drive Current "C" (1050mA)

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		57	108	160	213	269	321	377	429	481
Input Current @ 120V		0.478	0.905	1.338	1.810	2.244	2.675	3.150	3.584	4.013
Input Current @ 208V		0.279	0.532	0.780	1.064	1.313	1.559	1.845	2.093	2.339
Input Current @ 240V		0.243	0.458	0.664	0.916	1.123	1.328	1.582	1.788	1.991
Input Current @ 277V		0.213	0.404	0.582	0.808	0.997	1.164	1.401	1.589	1.745
Input Current @ 347V		0.164	0.322	0.471	0.644	0.795	0.943	1.117	1.269	1.414
Input Current @ 480V		0.121	0.235	0.341	0.469	0.579	0.681	0.814	0.923	1.022
Optics										
T1	4000K Lumens	7,101	14,113	20,950	27,763	35,146	41,616	48,882	56,671	63,623
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	125	131	131	130	131	130	130	132	132
T2	4000K Lumens	7,154	14,219	21,107	27,970	35,408	41,927	49,247	57,094	64,098
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	132	132	131	132	131	131	133	133
T2R	4000K Lumens	7,250	14,408	21,389	28,344	35,881	42,487	49,905	57,857	64,954
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	127	133	134	133	133	132	132	135	135
T3	4000K Lumens	7,054	14,020	20,812	27,580	34,914	41,342	48,560	56,297	63,203
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	124	130	130	129	130	129	129	131	131
T3R	4000K Lumens	7,280	14,468	21,477	28,461	36,029	42,663	50,111	58,096	65,222
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	128	134	134	134	134	133	133	135	136
T4FT	4000K Lumens	7,098	14,107	20,941	27,751	35,130	41,598	48,860	56,646	63,594
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	131	131	130	131	130	130	132	132
T4W	4000K Lumens	7,119	14,148	21,003	27,832	35,233	41,720	49,004	56,812	63,781
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	131	131	131	131	130	130	132	133
SL2	4000K Lumens	7,101	14,112	20,949	27,761	35,144	41,614	48,879	56,668	63,619
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	125	131	131	130	131	130	130	132	132
SL3	4000K Lumens	7,051	14,013	20,802	27,566	34,897	41,321	48,535	56,269	63,172
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	124	130	130	129	130	129	129	131	131
SL4	4000K Lumens	6,963	13,839	20,543	27,223	34,463	40,808	47,932	55,569	62,386
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	122	128	128	128	128	127	127	130	130
5NQ	4000K Lumens	7,424	14,755	21,903	29,025	36,743	43,508	51,104	59,247	66,515
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
	Lumens per Watt	130	137	137	136	137	136	136	138	138
5MQ	4000K Lumens	7,461	14,828	22,012	29,169	36,926	43,725	51,359	59,542	66,846
	BUG Rating	B3-U0-G1	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	Lumens per Watt	131	137	138	137	137	136	136	139	139
5WQ	4000K Lumens	7,445	14,797	21,966	29,108	36,849	43,633	51,250	59,417	66,705
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	131	137	137	137	137	136	136	139	139
SLL/SLR	4000K Lumens	6,132	12,187	18,091	23,973	30,348	35,936	42,210	48,935	54,938
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	108	113	113	113	113	112	112	114	114
RW	4000K Lumens	7,340	14,587	21,653	28,694	36,325	43,013	50,522	58,573	65,757
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	129	135	135	135	135	134	134	137	137
AFL	4000K Lumens	7,183	14,276	21,193	28,084	35,552	42,098	49,448	57,327	64,359
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G4
	Lumens per Watt	126	132	132	132	132	131	131	134	134

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Performance Table, Drive Current "D" (1200mA)

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		65	125	184	245	309	368	433	493	552
Input Current @ 120V		0.546	1.041	1.535	2.082	2.578	3.070	3.619	4.114	4.605
Input Current @ 208V		0.318	0.610	0.893	1.219	1.504	1.786	2.113	2.397	2.679
Input Current @ 240V		0.276	0.523	0.758	1.046	1.282	1.516	1.806	2.041	2.274
Input Current @ 277V		0.241	0.460	0.662	0.920	1.133	1.325	1.593	1.807	1.987
Input Current @ 347V		0.187	0.370	0.543	0.740	0.915	1.085	1.285	1.459	1.628
Input Current @ 480V		0.138	0.269	0.391	0.537	0.663	0.782	0.932	1.057	1.173
Optics										
T1	4000K Lumens	7,814	15,529	23,053	30,549	38,672	45,793	53,787	62,358	70,007
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	120	124	125	125	125	124	124	126	127
T2	4000K Lumens	7,872	15,645	23,225	30,777	38,962	46,135	54,189	62,824	70,530
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	125	126	126	126	125	125	127	128
T2R	4000K Lumens	7,977	15,854	23,535	31,188	39,482	46,751	54,913	63,663	71,472
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	127	128	127	128	127	127	129	129
T3	4000K Lumens	7,762	15,427	22,901	30,348	38,418	45,491	53,433	61,947	69,546
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	123	124	124	124	124	123	126	126
T3R	4000K Lumens	8,010	15,920	23,632	31,317	39,645	46,944	55,139	63,925	71,767
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	127	128	128	128	128	127	130	130
T4FT	4000K Lumens	7,810	15,522	23,043	30,535	38,655	45,772	53,763	62,330	69,976
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	120	124	125	125	125	124	124	126	127
T4W	4000K Lumens	7,833	15,568	23,110	30,625	38,769	45,907	53,921	62,513	70,182
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	125	126	125	125	125	125	127	127
SL2	4000K Lumens	7,813	15,528	23,052	30,547	38,670	45,790	53,784	62,354	70,003
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	120	124	125	125	125	124	124	126	127
SL3	4000K Lumens	7,758	15,419	22,889	30,332	38,398	45,468	53,406	61,916	69,511
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	123	124	124	124	124	123	126	126
SL4	4000K Lumens	7,662	15,228	22,605	29,955	37,921	44,903	52,742	61,146	68,646
	BUG Rating	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	118	122	123	122	123	122	122	124	124
5NQ	4000K Lumens	8,169	16,235	24,101	31,938	40,431	47,874	56,232	65,193	73,190
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	126	130	131	130	131	130	130	132	133
5MQ	4000K Lumens	8,210	16,316	24,221	32,097	40,632	48,113	56,512	65,517	73,554
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	126	131	132	131	131	131	131	133	133
5WQ	4000K Lumens	8,192	16,282	24,170	32,029	40,546	48,011	56,393	65,379	73,399
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	126	130	131	131	131	130	130	133	133
SLL/SLR	4000K Lumens	6,747	13,410	19,906	26,379	33,394	39,542	46,445	53,846	60,451
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	104	107	108	108	108	107	107	109	110
RW	4000K Lumens	8,076	16,050	23,826	31,574	39,970	47,329	55,592	64,450	72,356
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	124	128	129	129	129	129	128	131	131
AFL	4000K Lumens	7,904	15,709	23,320	30,902	39,120	46,323	54,410	63,079	70,817
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G4
	Lumens per Watt	122	126	127	126	127	126	126	128	128

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Control Options

0-10V (DIM)

This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (BPC, PR and PR7)

Optional button-type photocontrol (BPC) and photocontrol receptacles (PR and PR7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PR7 receptacle.

After Hours Dim (AHD)

This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a "dusk-to-dawn" period has been calculated from the photocontrol input. Specify the desired dimming profile for a simple, factory-shipped dimming solution requiring no external control wiring. Reference the After Hours Dim supplemental guide for additional information.

Dimming Occupancy Sensor (SPB and MS/DIM-LXX)

These passive infrared (PIR) sensors are factory installed in the luminaire housing. When the SPB (FSP-321 or FSP-311) or MS/DIM (FSP-211) sensor options are selected, the occupancy sensor is connected to a dimming driver and the luminaire dims when no motion is detected. After a set period of time, the luminaire turns off, and when motion is detected, the luminaire returns to full light output. Both sensors are factory preset to dim down to approximately 10% power with a time delay of five minutes. The MS/DIM sensor requires the FSIR-100 programming tool to adjust factory defaults. The SPB sensor default parameters are listed in the table below and can be configured utilizing the Sensor Configuration mobile application for iOS and Android devices. The SPB/X is configured to control only the specified number of light squares (See SPB/X Availability Table below.) An integral photocontrol can be activated with the app for "dusk-to-dawn" control or daylight harvesting - the factory default is off. Four sensor colors are available; Bronze, Black, Gray and White, and are automatically selected based on the luminaire finish as indicated by the table below.

SPB sensor finish matched to luminaire finish		
Luminaire Finish		SPB Sensor Finish*
WH	White	White
BK	Black	Black
GM	Graphite Metallic	Black
BZ	Bronze	Bronze
AP	Gray	Gray
DP	Dark Platinum	Gray

*SPB bezel color automatically selected based on luminaire finish

SPB/X Availability Table	
Fixture Square Count	Available SPB/X Square Count
1	Not Available
2	Not Available
3	Not Available
4	2
5	2 or 3
6	3
7	2, 3, 4 or 5
8	2, 3, 5 or 6
9	3 or 6

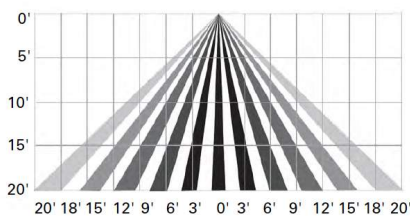
Default Program Settings (Out of the Box Functionality)

Occupancy Sensor				
Setting	MS/DIM	SPB	WaveLinX Lite (WLS4 / WLS2)	WaveLinX (WPS)
High Mode %	100%	100%	100%	100%
Low Mode %	10%	10%	50%	50%
Time Delay	5 min	5 min	15 min	15 min
Cut Off Delay	1 hr	1 hr	Disabled	Disabled
Photocell Enabled	No	No	Yes	Yes

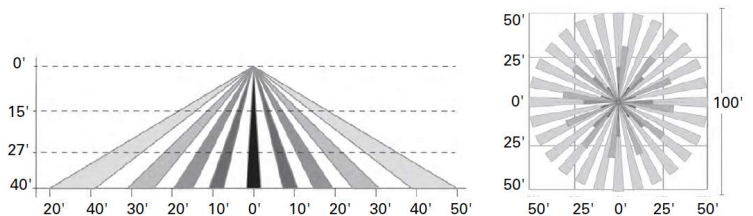
WaveLinX Wireless Control and Monitoring System

Operates on a wireless mesh network based on IEEE 802.15.4 standards enabling wireless control of outdoor lighting. WaveLinX (WPS2 to WPS4) outdoor wireless sensors offer passive infrared (PIR) occupancy and photocell for closed loop daylight harvesting, and can be factory or field-installed. Sensors are factory preset to dim down to 50% after 15 minutes of no motion detected. Two lens options are available for mounting heights of 7' to 40'. Use the WaveLinX mobile application for set-up and configuration. At least one Wireless Area Controller (WAC) is required for full functionality and remote communication (including adjustment of any factory pre-sets). WaveLinX Lite (WLS4 and WLS2) outdoor wireless sensors provide PIR occupancy and photocell for closed loop daylight harvesting, and can be factory or field-installed. Sensors are factory preset to dim down to 50% after 15 minutes of no motion detected. Two lens options are available for mounting heights of 7' to 40'. Use the WaveLinX Lite mobile application for set-up and configuration. WAC not required. WaveLinX Outdoor Control Module (WOLC-7P-10A) accessory provides a photocontrol enabling astronomic or time-based schedules to provide ON, OFF and dimming control of fixtures utilizing a 7-PIN receptacle. The out-of-box functionality is ON at dusk and OFF at dawn.

For mounting heights up to 15' (WPS2 and WLS2)



For mounting heights up to 40' (WPS4 and WLS4)



LumenSafe Integrated Network Security Camera (LD)

Cooper Lighting Solutions brings ease of camera deployment to a whole new level. No additional wiring is needed beyond providing line power to the luminaire. A variety of networking options allows security integrators to design the optimal solution for active surveillance. As the ideal solution to meet the needs for active surveillance, the LumenSafe integrated network camera is a streamlined, outdoor-ready fixed dome that provides HDTV 1080p video. This IP camera is optimally designed for deployment in the video management system or security software platform of choice.

Synapse (DIM10)

SimplySNAP integrated wireless controls system by Synapse. Includes factory installed DIM10 Synapse control module and FSP-201 motion sensor; requires additional Synapse system components for operation. Contact Synapse at www.synapsewireless.com for product support, warranty and terms and conditions.

FA

BODY OF LIGHT



SHAPE OF LIGHT



INTELLIGENCE OF LIGHT

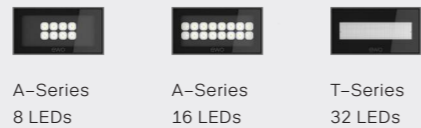


FA770
FA770-W
FA1070



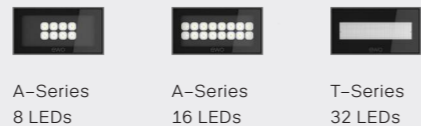
A-Series FA770 1-4 LU A-Series FA1070 5-6 LU T-Series FA770 2-4 LU T-Series FA1070 5-6 LU

FA170



A-Series 8 LEDs A-Series 16 LEDs T-Series 32 LEDs

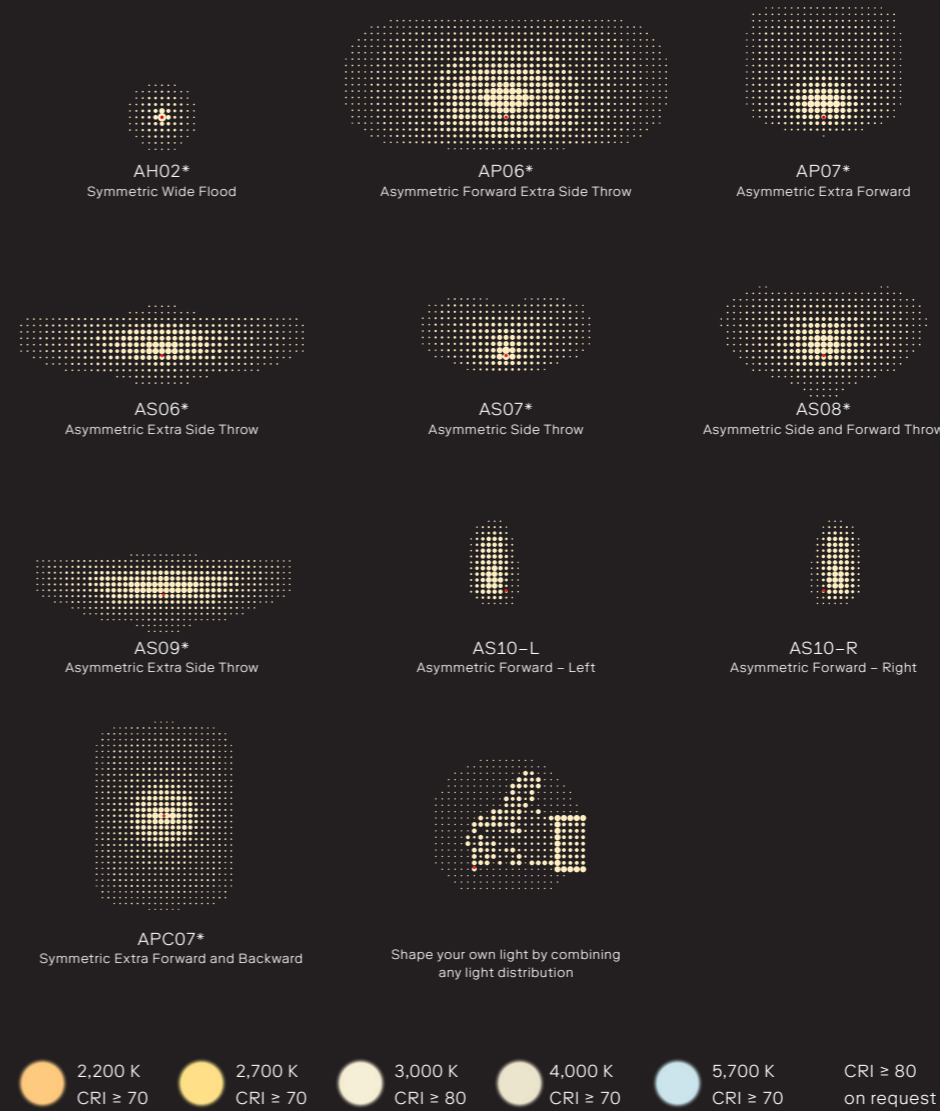
FA100-C,
FA100-WD,
FA100-U



A-Series 8 LEDs A-Series 16 LEDs T-Series 32 LEDs

A
SERIES

Precision lens optics
* also available in satiné version



AH02* Symmetric Wide Flood AP06* Asymmetric Forward Extra Side Throw AP07* Asymmetric Extra Forward
AS06* Asymmetric Extra Side Throw AS07* Asymmetric Side Throw AS08* Asymmetric Side and Forward Throw
AS09* Asymmetric Extra Side Throw AS10-L Asymmetric Forward - Left AS10-R Asymmetric Forward - Right
APC07* Symmetric Extra Forward and Backward Shape your own light by combining any light distribution

2,200 K CRI ≥ 70 2,700 K CRI ≥ 70 3,000 K CRI ≥ 80 4,000 K CRI ≥ 70 5,700 K CRI ≥ 70 CRI ≥ 80 on request

T
SERIES

ewoLighTile: low glare light-guiding panels



TS11 Asymmetric Side and Forward Throw TP08 Asymmetric Extra Forward

Tunable White CRI ≥ 80 RGBW

A
SERIES

Control protocols

ON/OFF	ON OFF
DALI 2	DALI
1-10 V	1-10V
ewo connexx	XX
Zhaga Book 18	Z
Line Switch	LS

Programming options

CLO	Constant Lumen Output
AC/DC	Emergency power supply
Stand-alone	

T
SERIES

Control protocols

DALI 2 T8	T8 DALI
-----------	------------

Programming options

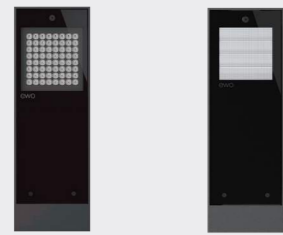
Night dimming

FA770
FA770-W
FA1070

Public space
Roads and traffic
Pedestrian path
Accent lighting



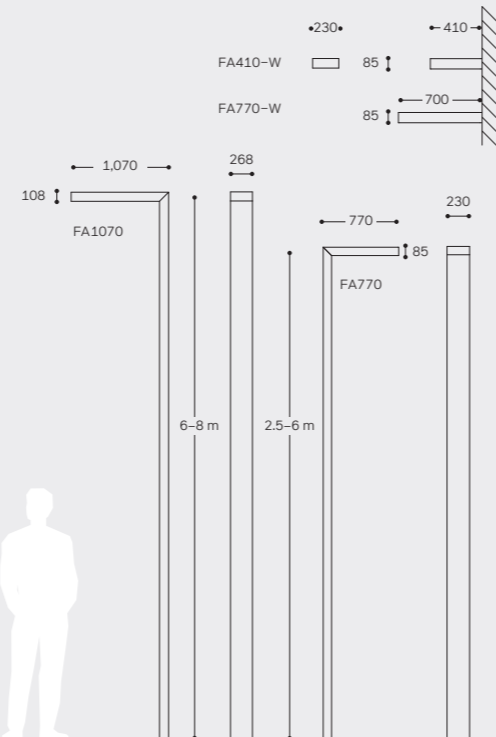
- DB 703 Anthracite
- ewo colours



A-Series 1-6 lighting units
T-Series 2-6 lighting units

Configurator

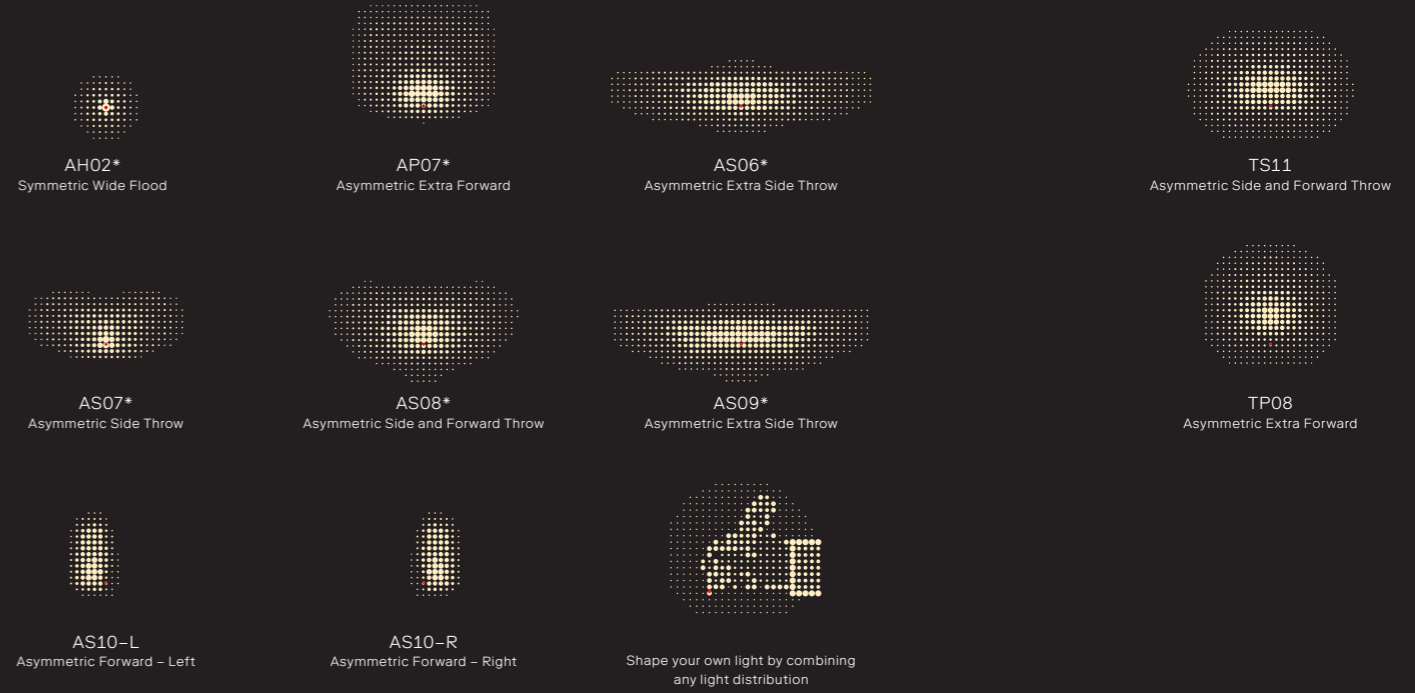
- IP66 RoHS IK08



Precision lens optics
* also available in satiné version



ewoLightTile: low glare light-guiding panels



- 2,200 K CRI ≥ 70
- 2,700 K CRI ≥ 70
- 3,000 K CRI ≥ 80
- 4,000 K CRI ≥ 70
- 5,700 K CRI ≥ 70
- CRI ≥ 80 on request
- Tunable White CRI ≥ 80
- RGBW

Housing

Housing material	Extruded aluminium profile (optional COR-TEN steel)	
Housing finish	Polyester powder coating (ewoECP upon request**)	
Finish standard colour	Silver grey (RAL 9007 / DB 702)*	
Glass	Safety glass (ESG)	
Mounting options	Pole, wall	

* other colours on request
** ewo three steps process (high quality alloy, pre-treatment, primer) to ensure extreme corrosion resistance (except 1070)

Measurements

Model	LPH [m] ①	l _p ②	-l _p ③	Weight [kg] ④
FA770	2.5-6	0.18	1.38	95.0*
FA770-W	/	0.16	0.06	14.5
FA1070	6-8	0.29	2.14	176.0**

① in 0.5 m steps ② projected windage area [m²] ③ max. weight
④ lateral windage area [m²] ④④ pole included
* single version with aluminium pole LPH = 6 m and telescopic element with anchor cage
** single version with aluminium pole LPH = 8 m and telescopic element with anchor cage

Performance

Optics	AH02	AP07	AS06	AS07	AS08	AS09	AS10-L	AS10-R	TS11	TP08
MacAdam ellipses (SDCM)				≤ 5 SDCM					≤ 5 SDCM	

Model	FA770/-W	FA1070	FA770/-W	FA1070
Light units	1-5	5-6	2-4	5-6
Luminous flux [lm]	1,000-18,800	4,700-19,100	4,100	5,500

Electrical

	A-Series	T-Series
Protection class	I/II	I
Voltage [V], [Hz]	220-240, 50/60	220-240, 50/60
Current feed max. [mA]	700*	225
LED power max. [W]	160	71

* FA1070 max. 550 mA

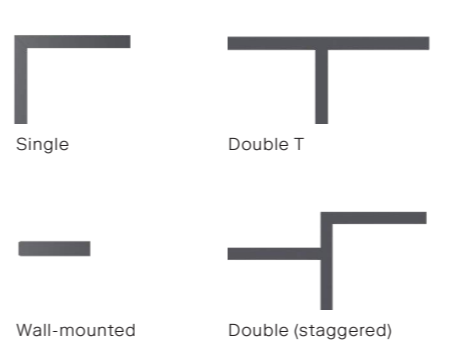
Operating conditions

Lifetime	Visit the configurator for specific lifetime options
----------	--

Driver

	A-Series	T-Series
Control options	ON OFF DALI 1-10V X Z Lys	T8 DALI
Programming [optional]	Constant Lumen Output (CLO) Emergency power supply (AC/DC) Stand-alone	
Control accessories	Further accessories on request	
Software	connexx light management software for remote management of intelligent luminaire clusters	

Available designs (also available as pendant)

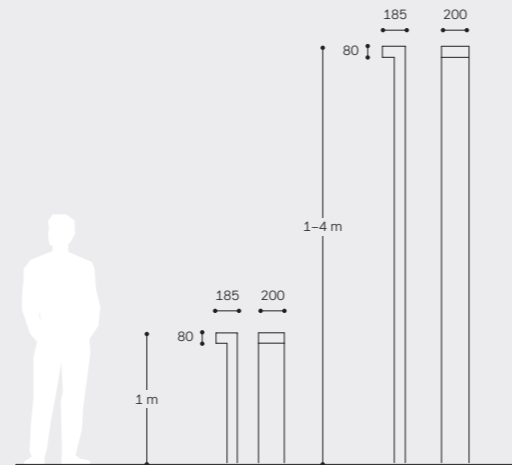
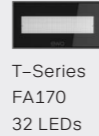
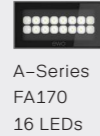


Product variations



BOLLARDS
FA170

Pedestrian path
Accent lighting



Configurator

CE RoHS IK09*
*(IK10 on request, COR-TEN IK08)

Housing

Housing material	Aluminum die-cast* (A-Series: optional COR-TEN)
Housing finish	Polyester powder coating (ewoECP upon request***)
Finish standard colour	Silver grey (RAL 9007 / DB 702)**
Glass	Safety glass (ESG)
Mounting options	Pole
Installation	Gelbox for throughwiring upon request * pole made of extruded aluminium profile ** other colours on request *** ewo three steps process (high quality alloy, pre-treatment, primer) to ensure extreme corrosion resistance

Measurements

Model	LPH [m] ①	l _p ②	-l _p ③	Weight [kg] ④
FA170	1	0.04	0.20	18.5*
FA170	1-4	0.04	0.80	46.5**

① in 0.5 m steps ② projected windage area [m²] ③ max. weight
④ lateral windage area [m²] ⑤ pole included

* single version with aluminium pole LPH = 1 m and buried base
** single version with aluminium pole LPH = 4 m and buried base

Electrical

	A-Series	T-Series
Protection class	I/II	I/II
Voltage [V], [Hz]	220-240, 50/60	220-240, 50/60
Current feed max. [mA]	500	225
LED power max. [W]	26	12

Operating conditions

Lifetime	Visit the configurator for specific lifetime options
----------	--

Driver

	A-Series	T-Series
Control options	ON OFF DALI 1-10V LS	T8 DALI
Programming [optional]	Constant Lumen Output (CLO) Emergency power supply (AC/DC) Stand-alone	
Control accessories	Further accessories on request	
Software	connexx light management software for remote management of intelligent luminaire clusters	



Precision lens optics
* also available in satiné version



ewoLighTile: low glare
light-guiding panels

Shape your own light by combining any light distribution

2,200 K CRI ≥ 70 2,700 K CRI ≥ 70 3,000 K CRI ≥ 80 4,000 K CRI ≥ 70 CRI ≥ 80 on request Tunable White CRI ≥ 80 RGBW

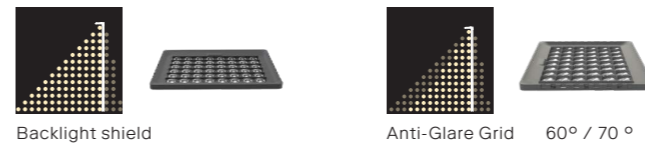
Performance

Optics	AH02	AP07	AS06	AS07	AS08	AS09	TS11	TP08
MacAdam ellipses (SDCM)					≤ 5 SDCM			≤ 5 SDCM

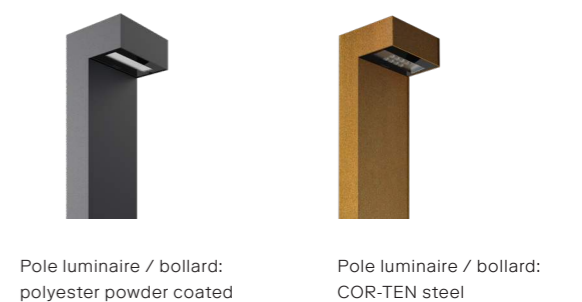
Model	FA170	FA170
Light units	1	1
Luminous flux [lm]	340-2,590	1,000

Accessories

ewoLightLayers (optical accessories)



Surface



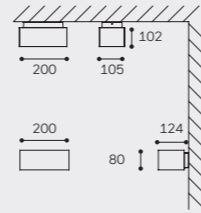
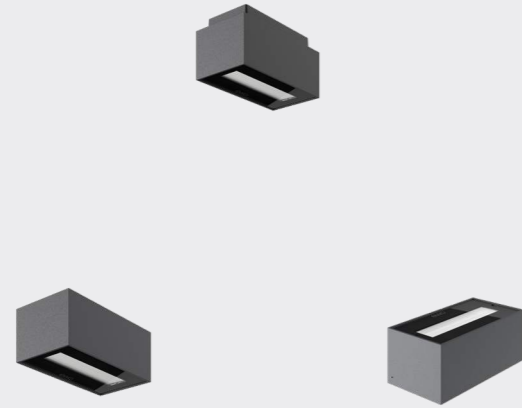
Available designs



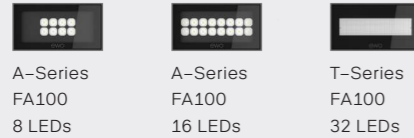
FA

WALL / CEILING

FA100-C
FA100-WD
FA100-WU



Configurator



IP66 RoHS IK09*
*(IK10 on request)

Housing

Housing material	Aluminum die-cast
Housing finish	Polyester powder coating (ewoECP upon request**)
Finish standard colour	Silver grey (RAL 9007 / DB 702)*
Glass	Safety glass (ESG)
Mounting options	Wall, ceiling
Installation	Gelbox for throughwiring upon request

* other colours on request
** ewo three steps process (high quality alloy, pre-treatment, primer) to ensure extreme corrosion resistance

Measurements

Model	LPH [m] ①	⊕ [Ⓜ] ②	-⊖ [Ⓜ] ③	Weight [kg] ④
FA100-WD	/	0.02	0.02	2.5
FA100-WU	/	0.02	0.02	2.5
FA100-C	/	/	0.02	2.5

② projected windage area [m²] ④ max. weight
③ lateral windage area [m²]

Electrical

	A-Series	T-Series
Protection class	I/II	I/II
Voltage [V], [Hz]	220-240, 50/60	220-240, 50/60
Current feed max. [mA]	500	225
LED power max. [W]	26	12

Operating conditions

Lifetime	Visit the configurator for specific lifetime options
----------	--

Driver

	A-Series	T-Series
Control options	ON OFF DALI 1-10V L/S	T8 DALI
Programming [optional]	Constant Lumen Output (CLO) Emergency power supply (AC/DC) Stand-alone	
Control accessories	Further accessories on request	
Software	connexx light management software for remote management of intelligent luminaire clusters	



Precision lens optics
* also available in satiné version



ewoLightTile: low glare
light-guiding panels

Shape your own light by combining any light distribution

2,200 K CRI ≥ 70 2,700 K CRI ≥ 70 3,000 K CRI ≥ 80 4,000 K CRI ≥ 70

CRI ≥ 80 on request Tunable White CRI ≥ 80 RGBW

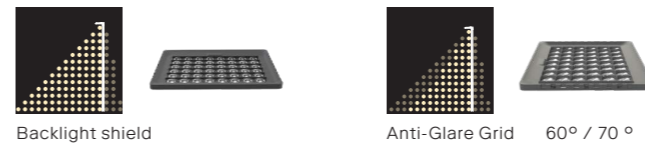
Performance

Optics	AH02	AP07	APC07	AS06	AS07	AS08	AS09	TS11	TP08
MacAdam ellipses (SDCM)						≤ 5 SDCM			≤ 5 SDCM

Model	FA100-WD	FA100-WU	FA100-C	FA100-WD	FA100-WU	FA100-C
Light units	1	1	1	1	1	1
Luminous flux [lm]	315-3,250	315-3,250	420-3,300	1,000	1,000	1,000

Accessories

ewoLightLayers (optical accessories)



Available designs





LED WATTAGE CHART

	16L	32L
700 milliamps	36w (4385-4720 Lumens)	71w (8770-9439 Lumens)
1050 milliamps	56w (6022-6482 Lumens)	106w (11797-12698 Lumens)

Form

- Elegant Rectilinear Extruded Aluminum Housing
- Corrosion Resistant Stainless Steel External Hardware
- Sleek, Low Profile Housing
- Spec Grade Performance
- Engineered For Optimum Thermal Management
- Anchor Base Plate For Easy Installation
- 8 Architectural Finishes
Standard, RAL Colors Available

Function

- Micro Optics IES Distributions T2, T3, T4, T5
- 0-10V Dimming Drivers
THD @ Max Load < 15%
Power factor @ Max Load < 0.95
- Amber, 2700K, 3000K, 3500K, 4000K, Or 5000K
- 16L to 32L LED Configuration
- 36-106 Watts (Single Head Wattage)
- CRI 70, 80, or 90
- Extruded Aluminum Heat Sink
- 5 Mils Powder Coat
- Aluminum Pole .250 Wall

Reliability

- Silicone Micro Optics
- 5 Year Standard Warranty
- IP67 Optics
- Reduces Energy Consumption And Costs Up To 65%
- Dark Sky Approved

BUY AMERICAN

To ensure the latest BAA/TAA/BABA Standards are being met, please select BAA, TAA, or BABA in the options section. Please contact the factory before placing an order for any NLS products requesting BAA (Buy American Act), TAA (Trade American Act), or BABA (Build America, Buy America).



Project Name:

Type:

TRC-2 ORDERING GUIDE

*Ordering information for Pole & Fixture

Cat#	Light Dist.	No. of LEDs	Milliamps	Kelvin Temp	Volts
Trac 2 (TRC-2)	Type 2 (T2)	16 (16L)	700 (7)	Amber 585-600nm (AMBER) ⑤ ⑦	120-277 (UNV)
	Type 3 (T3)	32 (32L)	1050 (1)	2700K, 70 CRI (27K7) ⑤	340-480 (HV)
	Type 4 (T4)			2700K, 80 CRI (27K8) ① ⑤	
	Type 5 (T5)			3000K, 70 CRI (30K7) ⑤	
				3000K, 80 CRI (30K8) ① ⑤	
				3500K, 80 CRI (35K8)	
				4000K, 70 CRI (40K7)	
				4000K, 80 CRI (40K8) ①	
				5000K, 70 CRI (50K7)	
				5000K, 80 CRI (50K8) ①	

Config.	Color	Control Options	Options	Pole Height
Single (SGL) └	Bronze Textured (BRZ)	Nema 7-Pin Receptacle (PE7) ⑥	Marine Grade Finish (MGF)	10' (10)
Double (D-180) └└	White Textured (WHT)	Button Photocell (PC) ⑥	House Side Shield (HSS)	12' (12)
MPF Triple (TRI) ② └└└	Smooth White Gloss (SWT)	FSP-211 with Motion Sensor (FSP-20) ④	Rotated Optic Left (ROL)	14' (14)
MPF Quad (QD) ② └└└└	Silver Textured (SVR)	9'-20" Heights (FSP-40) ④	Rotated Optic Right (ROR)	16' (16)
MPF (MPF) ② └└└└└	Black Textured (BLK)	21'-40' Heights	Buy American (BAA) ③	No Pole (NO)
Wall Mount (WM) └└└└└└	Smooth Black Gloss (SBK)	Custom Controls Integration (CCI) ⑥	Trade American (TAA) ③	Aluminum Pole 250 Wall Comes With 12" Anchor Base 1" Thick, 1" Anchor Bolts
	Graphite Textured (GPH)	No Options (NO)	Build America Buy American (BABA) ③	
	Grey (GRY)		No Options (NO)	
	Custom (CS)			

Notes:

- ① Consult Factory For Lead Time. Consult Factory For 90 CRI Requests.
- ② MPF Mid Pole Fixture. Consult Factory
- ③ Only Available When Ordering NLS Pole
- ④ Universal Voltage 120-277
- ⑤ 3000k or lower must be selected to meet International Dark-Sky Association certification.
- ⑥ Please contact Factory for Custom Control Integration requests (nLight, NX, WaveLinX, Crestron, DMX/RDM, Synapse, Casambi, Dali II, Avi-On, or other control systems)
- ⑦ Turtle Safe
- ⑧ Consult factory for all BAA/TAA/BABA requests



701 Kingshill Place, Carson, CA 90746
P: (310) 341-2037

nslighting.com

PRODUCT SPECIFICATIONS

ELECTRICAL

- 120-277 Volts (UNV) or 347-480 Volts (HV)
- 0-10V dimming driver
- Driver power factor at maximum load is $\geq .95$, THD maximum load is 15%
- LED Drivers Ambient Temp. Min is -40°C and Ambient Temp. Max ranges from 50°C to 55°C and, in some cases, even higher. Consult the factory for revalidation by providing the fixture catalog string before quoting and specifying it.
- All drivers, controls, and sensors housed in enclosed compartment
- CRI 70, 80, or 90
- Color temperatures: Amber, 2700K, 3000K, 3500K, 4000K, 5000K
- Surge Protection: 20KA supplied as standard.

CONSTRUCTION

- Extruded Aluminum
- Internal cooling fins
- Corrosion resistant external hardware
- One-piece silicone gasket ensures water tight seal for electronics compartment
- Two-piece silicone Micro Optic system ensures IP67 seal around each PCB

OPTIONS

- NEMA 7-Pin Receptacle (PE7). Only available when ordering NLS pole.
- PHOTO CELL (PC)
- DIMMING CONTROL (FSP-20) (FSP-40)
- MARINE GRADE FINISH (MGF)—A multi-step process creating protective finishing coat against harsh environments. Chemically washed in a 5 stage cleaning system. Pre-baked, Powder coated 3-5 mils of Zinc Rich Super Durable Polyester Primer. Oven Baked. Finished Powder Coating of Super Durable Polyester Powder Coat 3-5 mil thickness.
- SHIELD (HSS)—House Side Shield is designed for full property line cut-off.
- ROTATED OPTICS (ROL) (ROR)

CONTROL OPTIONS

- FSP-211 with Motion Sensor (FSP-XX)—Passive infrared (PIR) sensor providing multi-level control based on motion/daylight contribution.
- All control parameters adjustable via wireless configuration remote storing and transmitting sensor profiles.
 - FSP-20 mounting heights 9-20 feet
 - FSP-40 mounting heights 21-40 feet.
 - Includes 5 dimming event cycles, 0-10V dimming with motion sensing, re-programmable in the field.
 - Motion sensor mounted to access cover
 - FSIR-100 commissioning remote is required to change sensor settings. Please contact factory for ordering.
- NEMA 7-PIN RECEPTACLE (PE7)—An ANSI C136.41-2013 receptacle provides electrical and mechanical interconnection between photo control cell and luminaire. Dimming receptacle available two or four dimming contacts supports 0-10 VDC dimming methods or Digital Addressable Lighting Interface (DALI), providing reliable power interconnect.
- Controls Agnostic: Please contact factory for your preferred controls option. (nLight, NX, WaveLinX, Crestron, DMX/RDM, Synapse, Casambi, DALI II, Avi-On, or other control systems)

FINISH

- 3-5 mils electrostatic powder coat.
- NLS Lighting standard high-quality finishes prevent corrosion and protects against extreme environmental conditions

WARRANTY

Five-year limited warranty for drivers and LEDs.

OPTICS

Silicone optics high thermal stability and light output provide higher powered LEDs with minimized lumen depreciation. UV stability with scratch resistance increases exterior application durability. Silicone optics do not yellow, crack or brittle over time

LISTINGS

- Certified to UL 1598
- UL 8750
- CSA C22.2 No. 250.0
- IP65/ IP67 Rated
- IK10 Rated

BUY AMERICAN OPTION

While all of the NLS Lighting products listed in this document qualify for the Buy America(n) Act of 1933, we reserve the right to change our listings without notice.

The information provided above is for general informational purposes only. We encourage you to consult legal professionals for advice particular to your projects concerning BAA, TAA, BABA or Buy America.

Additional NLS Products that meet BAA, TAA standards can be found at the following link:

<https://nslighting.com/buy-american/>



The information and specifications on this document are subject to change without any notification. All values are design, nominal, typical or prorated values when measured under internal and external laboratory conditions.

NLS
LIGHTING

701 Kingshill Place, Carson, CA 90746
P: (310) 341-2037

nslighting.com

PRODUCT SPECIFICATIONS

TRAC 2 LUMEN CHART

TRAC LUMEN CHART

PART NUMBER	T2	LM/W	BUG	T3	LM/W	BUG	T4	LM/W	BUG	T5	LM/W	BUG	WATTS
TRC-2-16L-7-30K7	4,385	122	B1-U0-G1	4,409	122	B1-U0-G1	4,409	122	B1-U0-G1	4,495	125	B3-U0-G1	36
TRC-2-16L-7-40K7	4,604	128	B1-U0-G1	4,630	129	B1-U0-G1	4,630	129	B1-U0-G1	4,720	131	B3-U0-G1	36
TRC-2-16L-7-50K7	4,604	128	B1-U0-G1	4,630	129	B1-U0-G1	4,630	129	B1-U0-G1	4,720	131	B3-U0-G1	36
TRC-2-16L-1-30K7	6,022	108	B1-U0-G1	6,056	108	B1-U0-G1	6,056	108	B1-U0-G1	6,174	110	B3-U0-G1	56
TRC-2-16L-1-40K7	6,323	113	B1-U0-G1	6,359	114	B1-U0-G1	6,359	114	B1-U0-G1	6,482	116	B3-U0-G1	56
TRC-2-16L-1-50K7	6,323	113	B1-U0-G1	6,359	114	B1-U0-G1	6,359	114	B1-U0-G2	6,482	116	B3-U0-G1	56
TRC-2-32L-7-30K7	8,770	124	B2-U0-G2	8,819	124	B2-U0-G2	8,819	124	B2-U0-G2	8,990	127	B3-U0-G2	71
TRC-2-32L-7-40K7	9,208	130	B2-U0-G2	9,259	130	B2-U0-G2	9,259	130	B2-U0-G2	9,439	133	B3-U0-G2	71
TRC-2-32L-7-50K7	9,208	130	B2-U0-G2	9,259	130	B2-U0-G2	9,259	130	B2-U0-G2	9,439	133	B3-U0-G2	71
TRC-2-32L-1-30K7	11,797	111	B2-U0-G2	11,863	112	B2-U0-G2	11,863	112	B2-U0-G2	12,094	114	B4-U0-G2	106
TRC-2-32L-1-40K7	12,387	117	B2-U0-G2	12,456	118	B2-U0-G2	12,456	118	B2-U0-G2	12,698	120	B4-U0-G2	106
TRC-2-32L-1-50K7	12,387	117	B2-U0-G2	12,456	118	B2-U0-G2	12,456	118	B2-U0-G2	12,698	120	B4-U0-G2	106

3000k or lower must be selected to meet International Dark-Sky Association certification.

TRAC 2 LUMEN CHART HSS

PART NUMBER	T2 HSS	LM/W	BUG	T3 HSS	LM/W	BUG	T4 HSS	LM/W	BUG	WATTS
TRC-2-16L-7-30K7	3,227	90	B1-U0-G1	3,120	87	B0-U0-G1	3,018	84	B0-U0-G1	36
TRC-2-16L-7-40K7	3,389	94	B1-U0-G1	3,276	91	B0-U0-G1	3,169	88	B0-U0-G1	36
TRC-2-16L-7-50K7	3,389	94	B1-U0-G1	3,276	91	B0-U0-G1	3,169	88	B0-U0-G1	36
TRC-2-16L-1-30K7	4,433	79	B1-U0-G1	4,285	77	B0-U0-G1	4,145	74	B1-U0-G1	56
TRC-2-16L-1-40K7	4,654	83	B1-U0-G1	4,499	80	B1-U0-G1	4,353	78	B1-U0-G1	56
TRC-2-16L-1-50K7	4,654	83	B1-U0-G1	4,499	80	B1-U0-G1	4,353	78	B1-U0-G1	56
TRC-2-32L-7-30K7	6,454	91	B1-U0-G1	6,239	88	B1-U0-G2	6,036	85	B1-U0-G2	71
TRC-2-32L-7-40K7	6,777	95	B1-U0-G2	6,551	92	B1-U0-G2	6,338	89	B1-U0-G2	71
TRC-2-32L-7-50K7	6,777	95	B1-U0-G2	6,551	92	B1-U0-G2	6,338	89	B1-U0-G2	71
TRC-2-32L-1-30K7	8,683	82	B1-U0-G2	8,394	79	B1-U0-G2	8,120	77	B1-U0-G2	106
TRC-2-32L-1-40K7	9,117	86	B1-U0-G2	8,813	83	B1-U0-G2	8,526	80	B1-U0-G2	106
TRC-2-32L-1-50K7	9,117	86	B1-U0-G2	8,813	83	B1-U0-G2	8,526	80	B1-U0-G2	106

Lumen Maintenance Data

Ambient Temperature	Drive Current	L90 Hours*	L70 Hours**	30,000 Hours*	50,000 Hours*	60,000 Hours*	100,000 Hours**
25°C	Up to 700mA	58,000	173,000	95.7%	91.6%	89.6%	82.1%
	1050mA	48,000	143,000	94.3%	89.5%	87.2%	78.5%

*Reported extrapolations per IESNA TM-21 **Projected extrapolations per IESNA TM-21

POLE EPA DATA

Catalog Number	Shaft Length, ft	Wall thickness, in.	Shaft dim., in.	Base Plate, in.	Bolt Circle, in.	Bolts	80 mph	Max. wt. (lb)	90 mph	Max. wt. (lb)	100 mph	Max. wt. (lb)	110 mph	Max. wt. (lb)	115 mph	Max. wt. (lb)	120 mph	Max. wt. (lb)	130 mph	Max. wt. (lb)	140 mph	Max. wt. (lb)	150 mph	Max. wt. (lb)	160 mph	Max. wt. (lb)	170 mph	Max. wt. (lb)	180 mph	Max. wt. (lb)
TRAC-10-250-12BC-136	10	0.250	4x6	12" sq	12	1"x36"	20.0	500	20.0	500	20.0	500	20.0	500	20.0	500	20.0	500	18.0	450	14.9	373	12.6	315	10.7	268	9.2	230	7.6	190
TRAC-12-250-12BC-136	12	0.250	4x6	12" sq	12	1"x36"	20.0	500	20.0	500	20.0	500	20.0	500	18.9	473	17.1	428	14.0	350	11.5	288	9.4	235	7.7	193	6.5	163	5.3	133
TRAC-14-250-12BC-136	14	0.250	4x6	12" sq	12	1"x36"	20.0	500	20.0	500	20.0	500	16.9	423	15.2	380	13.5	338	10.8	270	8.6	215	6.9	173	5.6	140	4.5	113	3.5	88
TRAC-16-250-12BC-136	16	0.250	4x6	12" sq	12	1"x36"	20.0	500	20.0	500	16.6	415	12.9	323	11.4	285	10.0	250	7.8	195	6.0	150	4.4	110	3.5	88	2.4	60	1.8	-



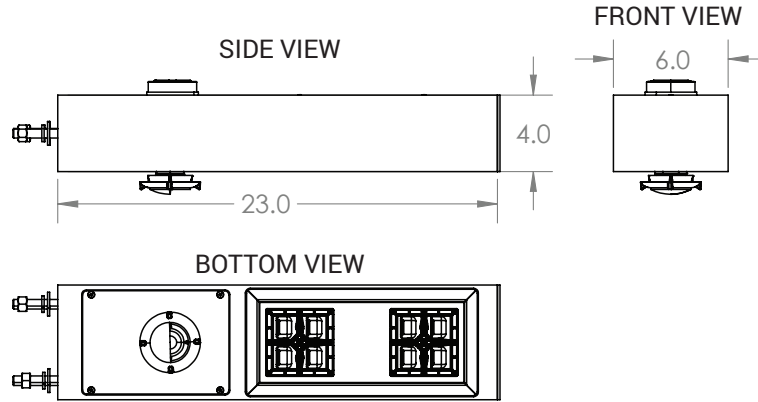
701 Kingshill Place, Carson, CA 90746
P: (310) 341-2037

nslighting.com

PRODUCT SPECIFICATIONS

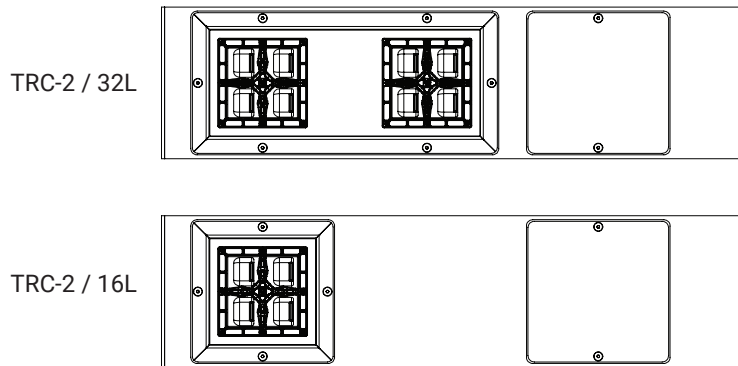
MODEL	WIDTH	DEPTH	LENGTH	WEIGHT	EPA	SGL	DBL
TRAC - 2	6"	4"	23"	16		.8	1.5

DIMENSIONS

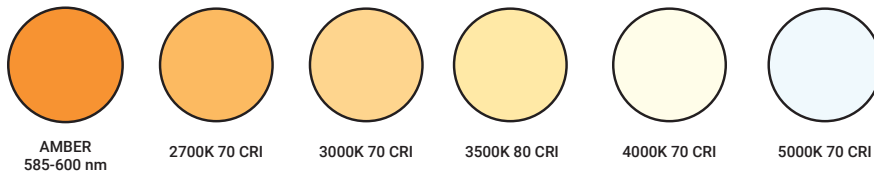


OPTICAL CONFIGURATIONS

Rotatable Optics (ROR) Rotated Right, (ROL) Rotated Left options available. Optics field and factory rotatable.



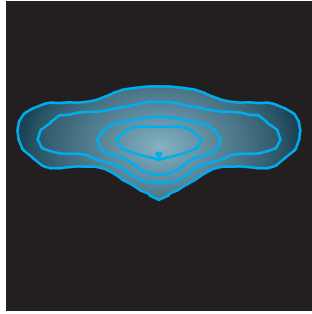
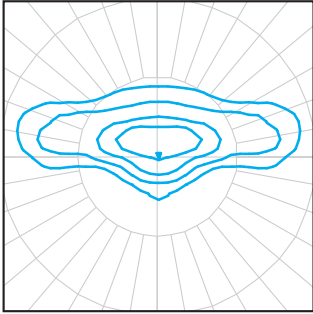
LED KELVIN RANGE



Color	Dominant or Peak Wavelength Range (nm)	
	Minimum	Maximum
Amber	585	600

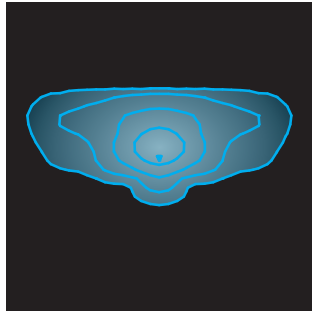
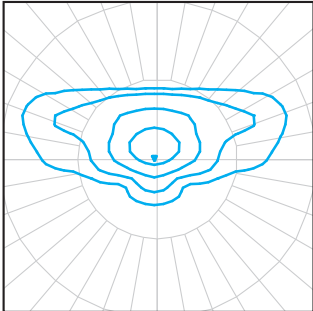
PRODUCT SPECIFICATIONS

IES DISTRIBUTIONS



T2 Optic

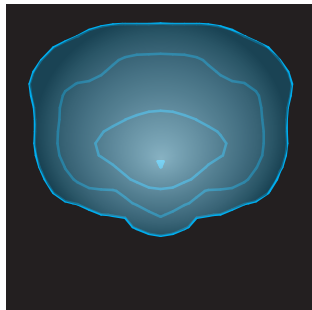
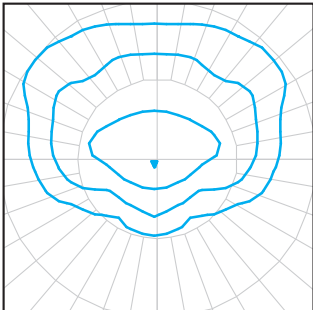
The Type II distribution is used for narrow pathways and trails, narrow entrances of shopping centers, parking lots and office complex's.



T3 Optic

The type III distribution is meant for roadway lighting, general parking areas and other areas where a larger area of lighting is required. Type III lighting needs to be placed to the side of the area, allowing the light to project outward and fill the area. This produces a filling light flow.

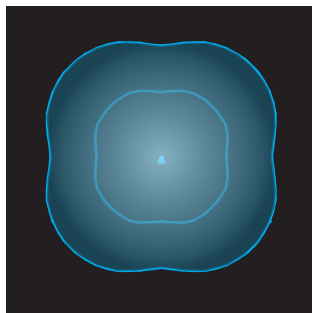
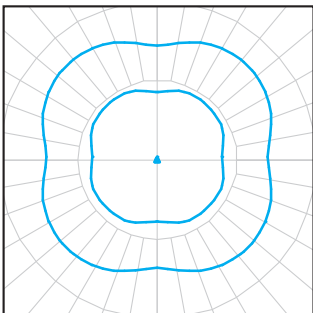
Type III light distributions have a preferred lateral width of 40 degrees. This distribution is intended for luminaires mounted at or near the side of medium width roadways or areas, where the width of the roadway or area does not exceed 2.75 times the mounting height.



T4 Optic

The type IV distribution produces a semicircular light meant for mounting on the sides of buildings and walls. It's best for illuminating the perimeter of parking areas and businesses. The intensity of the Type IV lighting has the same intensity at angles from 90 degrees to 270 degrees.

Type IV light distributions have a preferred lateral width of 60 degrees. This distribution is intended for side-of-road mounting and is generally used on wide roadways where the roadway width does not exceed 3.7 times the mounting height.



T5 Optic - Symmetrical

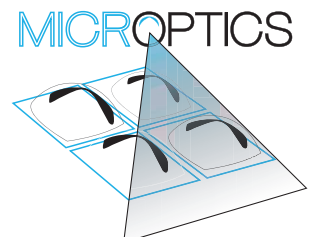
Type V produces a symmetrical distribution that has the same intensity at all angles. This distribution has a uniform symmetry of candlepower that is essentially the same at all lateral angles. It is meant for large, commercial parking lot lighting as well as areas where sufficient, evenly distributed light is necessary

SILICONE OPTICS

NLS Lighting Silicone Micro Optical System technology takes quality and performance to the highest level. Vandal resistant, superior clarity—Micro Optics have become the best and lasting solution in the industry.

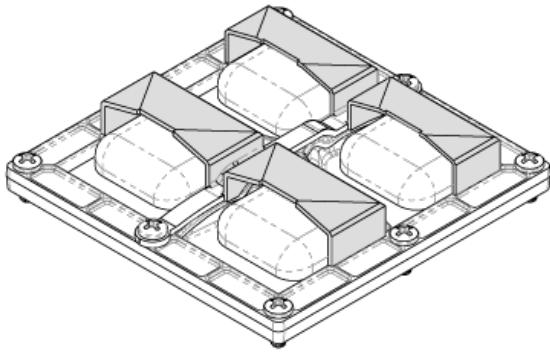
BENEFITS

- Produces superior 96% clarity
- Heat resistant to 150° C, 50% higher than acrylic
- Ecologically friendly—no glare
- Vandal-resistant
- Does not brittle, crack, or yellow over time

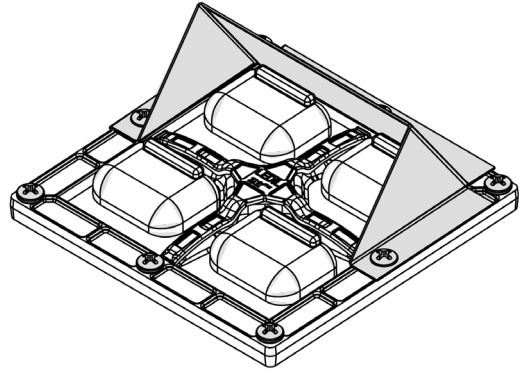


PRODUCT SPECIFICATIONS

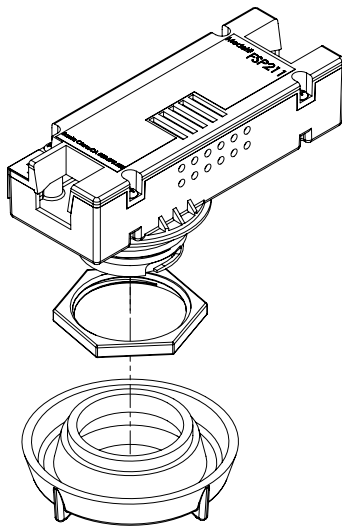
HOUSE SIDE SHIELD



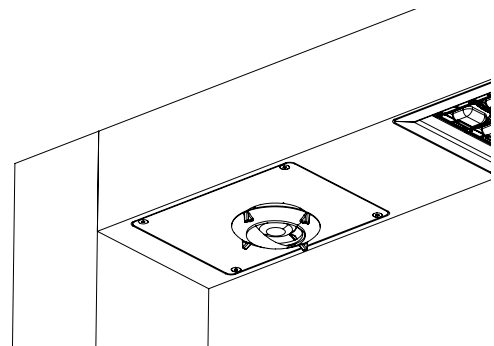
AUTOMOTIVE HOUSE SIDE SHIELD



FSP-211



Motion Sensor Placement



TRAC POLE RECTANGULAR ALUMINUM POLE

SHAFT

Rectangular Aluminum Pole (RAP) shaft (.250 Wall) is 6061 T6 Extruded Aluminum, 4 X 6 inch to provide a seamless transition into the Trac fixture. Poles have ground lug welded inside hand-hole opposite side of the pole extrusion. Pole Extrusion is conjoined to Anchor Base by welding internal and external to pole shaft. For custom configuration consult Factory.

ANCHOR BOLTS

All anchor bolts are fully hot dipped galvanized and come with two galvanized nuts and washers per bolt. Anchor bolts are not included for Custom Bolt Circle. Anchor Bolts are "J" style, with a 4" hook at the end for added strength. 1" Anchor Bolts are 1" diameter x 36" long with a 4" long "J" hook.

ANCHOR BASE

Base plates are machined from 6061 Aluminum, 12" square, 1" thick with 1" anchor bolts.

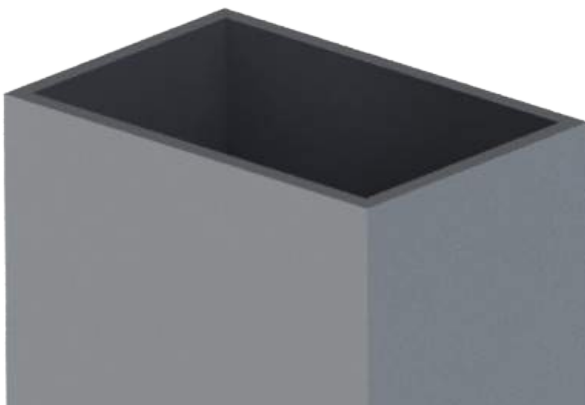
HAND HOLE COVER AND POLE CAP

All poles come with removable machined aluminum pole cap. All poles caps are powder coated to match the pole. All base covers are made of aluminum and powder coated to match the pole. Hand Hole is constructed of 3"x 5" rectangular aluminum tubing which is welded to pole shaft for added strength. Hand Hole covers are provided with internal bridge support and also powder coated to match pole finish.

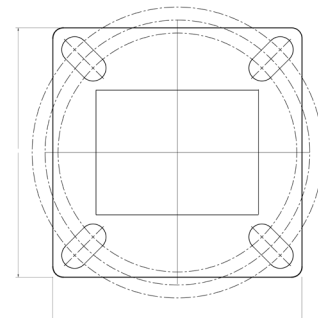
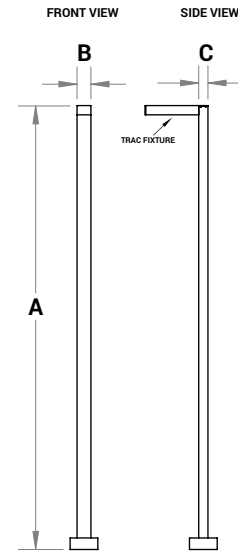
FINISH

All poles have minimum 3 to 5 mils powder coat finish. All poles are sandblasted prior to powder coat application.

RECTANGULAR ALUMINUM POLE DETAIL



- * Anchor Bolts are NOT included with Custom Bolt Circle.
- * Do NOT pour concrete referencing this drawing. Consult Factory.
- * Must Specify 4-Bolt Pattern.
- * Customer responsible for doing calculations if NLS pole is not ordered.



12" Base

*Consult Factory for Bolt Circle Template

DIMENSION	RAP
A	10-16 ft. or Custom Height
B	6 in.
C	4 in.

Job Name: _____	Client Name: _____
Job Location - City: _____ State: _____	Created By: _____ Date: _____
Product: DS330 Quote: _____	Customer Approval: _____ Date: _____

SPECIFICATIONS

Pole Shaft - The pole shaft is fabricated from hot rolled welded steel tubing of one-piece construction with a minimum yield strength of 55 KSI.

Pole Top - A removable pole cap is provided for poles receiving drilling patterns for side-mount luminaire arm assemblies. For top mount luminaire and/or bracket consult the factory. Consult the luminaire manufacturer for correct tenon size or drill pattern. Other pole top options include pole cap only (PC) or plain top (PL) which is typical when the pole top diameter matches the necessary slip fit dimensions.

Handhole - A reinforced handhole with grounding provision is provided at 1'-6" from the base end of the pole assembly. Each handhole includes an easy to install, self-contained Swing Latch handhole cover assembly. U.S. Patent Swing Latch cover is fabricated from durable polycarbonate/ABS blend plastic. All pole assemblies are provided with a 2.50" x 5.00" rectangular handhole. Handhole dimensions are nominal.

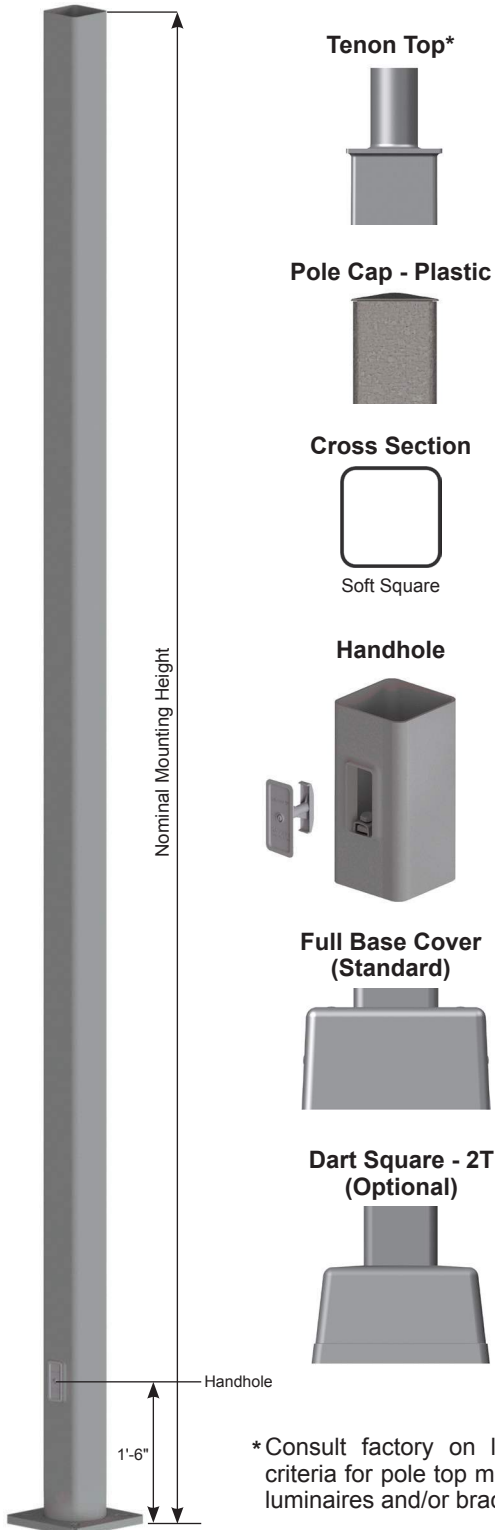
Base Cover - A two-piece full base cover fabricated from ABS plastic is provided with each pole assembly. Additional base cover options, including the dart square (2T) cast aluminum cover, are available upon request.

Anchor Bolts - Anchor bolts conform to ASTM F1554 Grade 55 and are provided with two hex nuts and two flat washers. Bolts have an "L" bend on one end and are galvanized a minimum of 12" on the threaded end.

Hardware - All structural fasteners are galvanized high strength carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

Finish - Standard finishes are either Galvanized (GV) or Finish Painted (FP). Additional finish options including Finish Paint over Galvanizing (FPGV) or any of the V-PRO™ Finish Coating Systems are available upon request. See the product ordering code for color options.

Design Criteria - Please reference Design Criteria Specification for appropriate design conditions.



*Consult factory on loading criteria for pole top mounted luminaires and/or brackets.

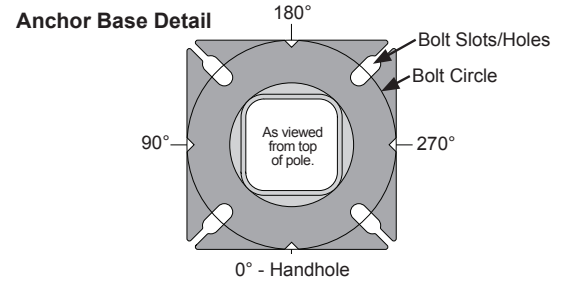
DS330

Fatigue Resistant Soft Square Steel Post

Job Name: _____	Client Name: _____
Job Location - City: _____ State: _____	Created By: _____ Date: _____
Product: DS330 Quote: _____	Customer Approval: _____ Date: _____

ANCHORAGE DATA

POLE		BASE PLATE				ANCHOR BOLTS			
POLE BASE SQUARE (IN)	WALL THK (GA)	BOLT CIRCLE		SQUARE (IN)	THK (IN)	DIA x LENGTH x HOOK (IN)	PROJECTION (IN)	± (IN)	
		DIA (IN)	± (IN)						
4.00	11	8.50	0.50	8.25	0.750	0.75 x 17.00 x 3.00	3.50	0.25	
4.00	7	8.50	0.50	8.25	0.875	0.75 x 17.00 x 3.00	3.63	0.25	
5.00	11	11.00	1.00	11.00	1.000	0.75 x 17.00 x 3.00	3.75	0.25	
5.00	7	11.00	1.00	11.00	1.000	0.75 x 17.00 x 3.00	3.75	0.25	
6.00	7	12.00	1.00	12.50	1.000	1.00 x 36.00 x 4.00	4.25	0.25	



DESIGNATION, LOAD AND DIMENSIONAL DATA

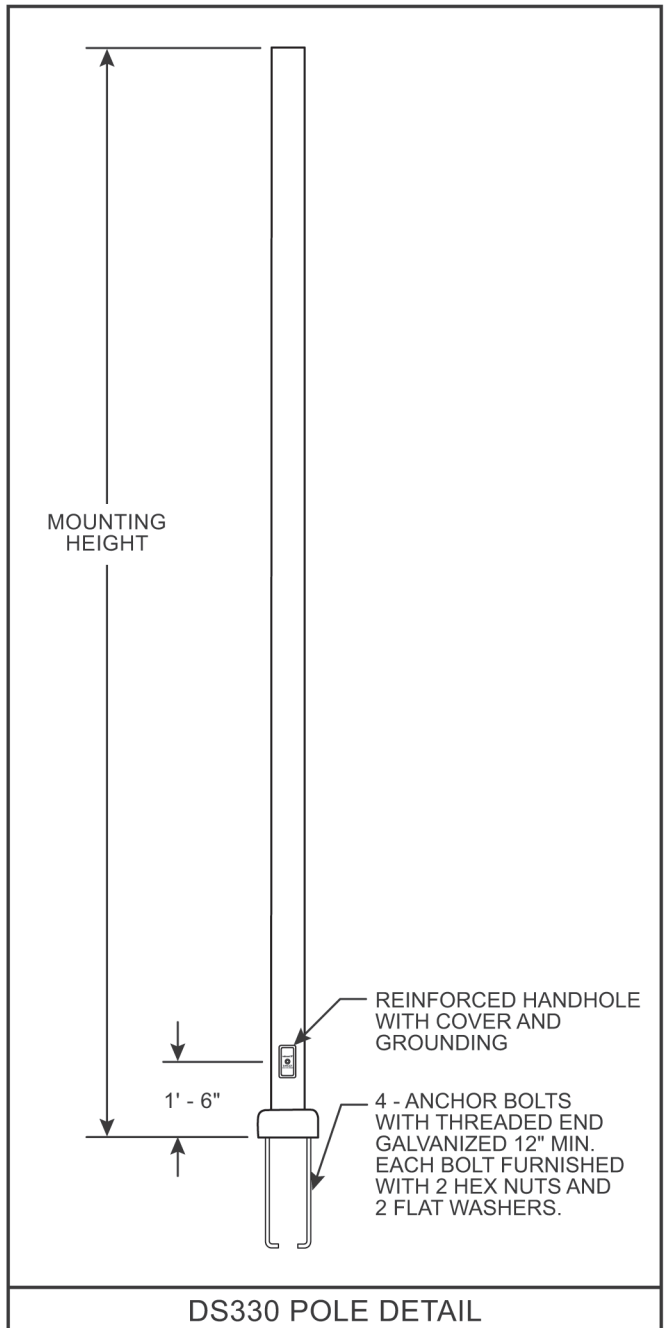
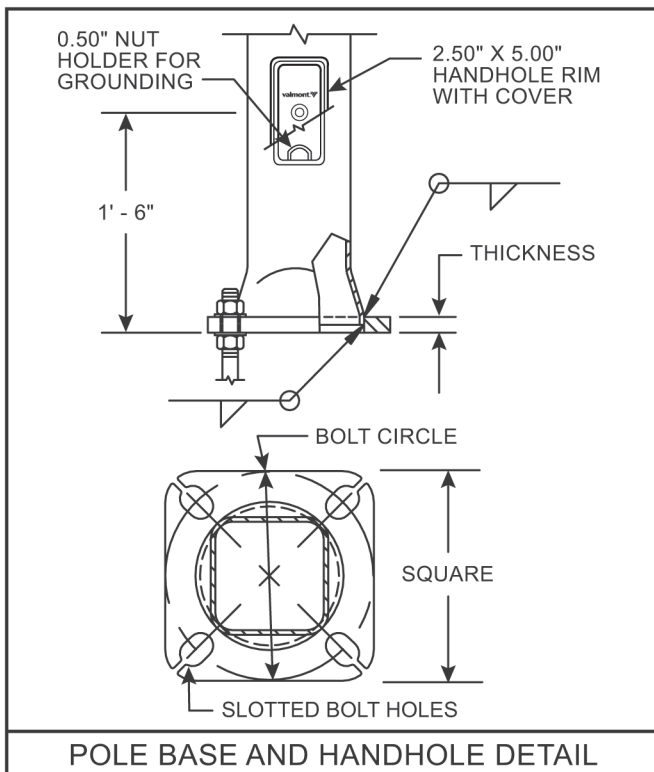
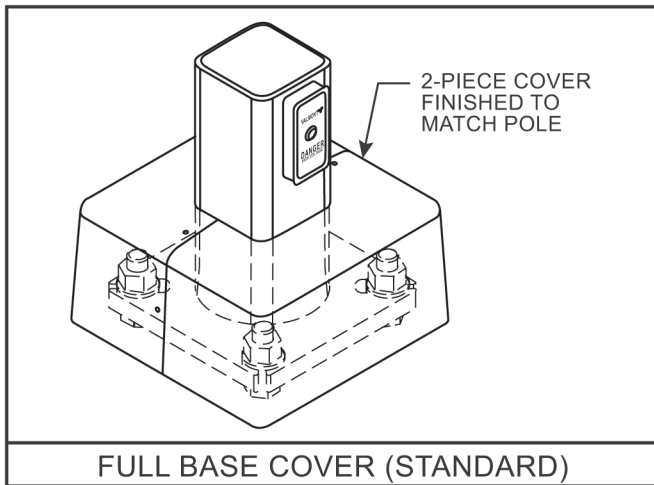
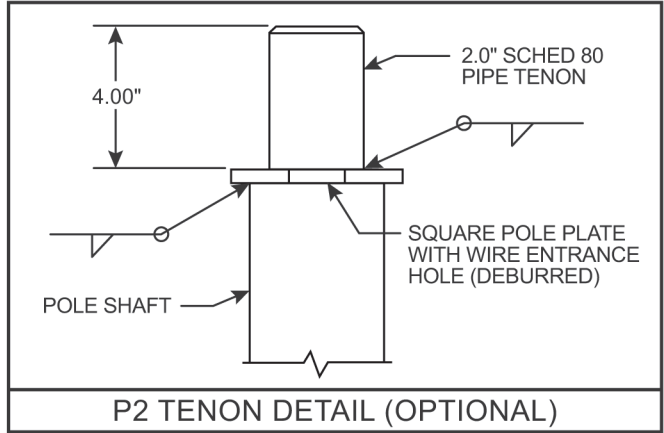
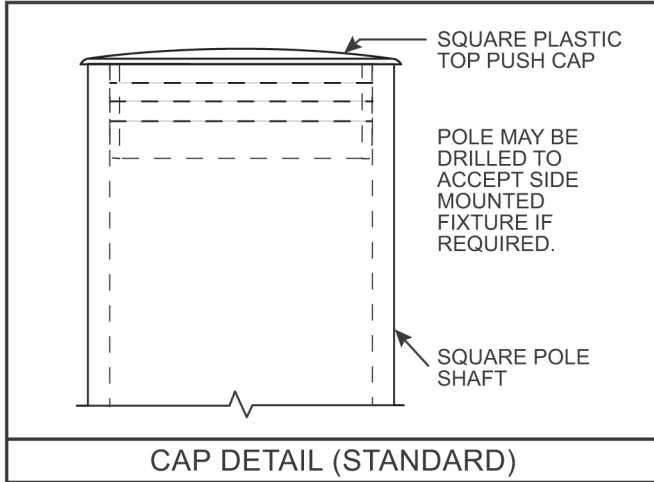
NOMINAL MOUNTING HEIGHT	DESIGN INFORMATION						POLE DIMENSIONS ³				DESIGNATION
	80 MPH w/1.3 GUST		90 MPH w/1.3 GUST		100 MPH w/1.3 GUST		SHAFT BASE SQUARE ³ (IN)	SHAFT TOP SQUARE (IN)	WALL THK (GA)	STRUCTURE WEIGHT ² (LBS)	
	MAX EPA ¹ (SQFT)	MAX WEIGHT ¹ (LBS)	MAX EPA ¹ (SQFT)	MAX WEIGHT ¹ (LBS)	MAX EPA ¹ (SQFT)	MAX WEIGHT ¹ (LBS)					
10'-0"	30.6	765	23.8	595	18.9	473	4.00	4.00	11	75	400Q100
12'-0"	24.4	610	18.8	470	14.8	370	4.00	4.00	11	90	400Q120
14'-0"	19.9	498	15.1	378	11.7	293	4.00	4.00	11	100	400Q140
16'-0"	15.9	398	11.8	295	8.9	223	4.00	4.00	11	115	400Q160
18'-0"	12.6	315	9.2	230	6.7	168	4.00	4.00	11	125	400Q180
20'-0"	9.6	240	6.7	167	4.5	150	4.00	4.00	11	140	400Q200
	17.7	443	12.7	343	9.4	235	5.00	5.00	11	185	500Q200
	28.1	703	21.4	535	16.2	405	5.00	5.00	7	265	500W200
25'-0"	4.8	150	2.6	100	1.0	50	4.00	4.00	11	170	400Q250
	10.8	270	7.7	188	5.4	135	4.00	4.00	7	245	400W250
	9.8	245	6.3	157	3.7	150	5.00	5.00	11	225	500Q250
	18.5	463	13.3	333	9.5	238	5.00	5.00	7	360	500W250
30'-0"	6.7	168	4.4	110	2.6	65	4.00	4.00	7	291	400W300
	4.7	150	2.0	50	N/A	N/A	5.00	5.00	11	265	500Q300
	10.7	267	6.7	167	3.9	100	5.00	5.00	7	380	500W300
	19.0	475	13.2	330	9.0	225	6.00	6.00	7	520	600W300
35'-0"	5.9	150	2.5	100	N/A	N/A	5.00	5.00	7	440	500W350
	12.4	310	7.6	190	4.2	105	6.00	6.00	7	540	600W350
40'-0"	7.2	180	3.0	75	N/A	N/A	6.00	6.00	7	605	600W400

- Maximum EPA (Effective Projected Area) and weight values are based on side mounted fixtures only. Consult factory on loading criteria for pole top mounted luminaires and/or brackets. Variations from sizes above are available upon inquiry at the factory. Satisfactory performance of poles is dependent upon the pole being properly attached to a supporting foundation of adequate design.
- Structure weight is a nominal value which includes the shaft and base plate only.
- Belled-bottom will have reduced thickness due to the cold-working process. However, the belled-bottom meets or exceeds the structural capacity of the original square section. In addition, the rounded section provides better fatigue resistance.

PRODUCT ORDERING CODES

MODEL	DESIGNATION	FIXTURE MOUNTING	FINISH SYSTEM	STANDARD COLOR OPTIONS	BASE COVER	ANCHOR BOLTS	SUPPLEMENTAL INFO
DS330	Select Correct Designation from the Load and Dimensional Data Chart.	Drill Mounting (See Orientation) D1 = (1) Drillings @ 270° D2 = (2) Drillings @ 90° & 270° D4 = (4) Drillings @ 0°, 90°, 180°, & 270° D5 = (2) Drillings @ 180° & 270° D6 = (3) Drillings @ 90°, 180°, & 270° Tenon Mounting P2 = 2.38" OD x 4" tenon P4 = 4.00" OD x 6" tenon P5 = 2.88" OD x 4" tenon P6 = 2.88" OD x 5" tenon P7 = 2.38" OD x 5" tenon P9 = Special Size (Specify) Other Options PC = Pole Cap PL = Plain Top (No Cap)	GV = Galvanized FP = Finish Painted ----- FPGV = Finish Paint over Galvanizing VP30 = V-PRO™ 30 System VP32 = V-PRO™ 32 System VP53 = V-PRO™ 53 System VP54 = V-PRO™ 54 System VP57 = V-PRO™ 57 System VP100 = V-PRO™ 100 System VP105 = V-PRO™ 105 System	GV = Galvanized BK = Black DB = Dark Bronze MB = Medium Bronze WH = White LG = Light Gray CB = Bronze DG = Dark Green ST = Sandstone HTG = Hunter Green SG = Slate Gray SL = Silver SC = Special Color (Specify)	FBC = Full Base Cover ----- 2T = Square Dart Cover	AB = With Anchor Bolts LAB = Without Anchor Bolts	

DS330 - Fatigue Resistant Square Non-Tapered Steel Pole



SPC7207 12/17 valmontstructures.com carries the most current spec information and supersedes these guidelines.

LITESPHERE 2.0



tivoli®



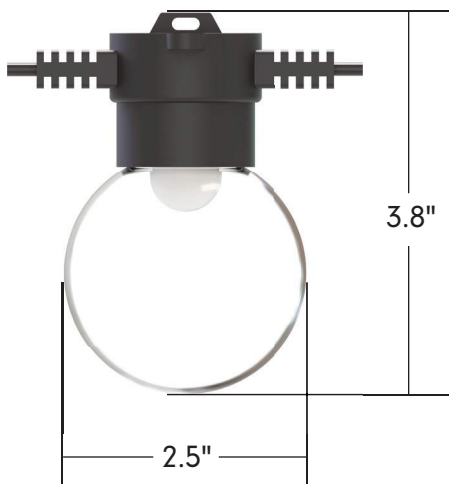
Project: _____ TYPE: _____

Product Features

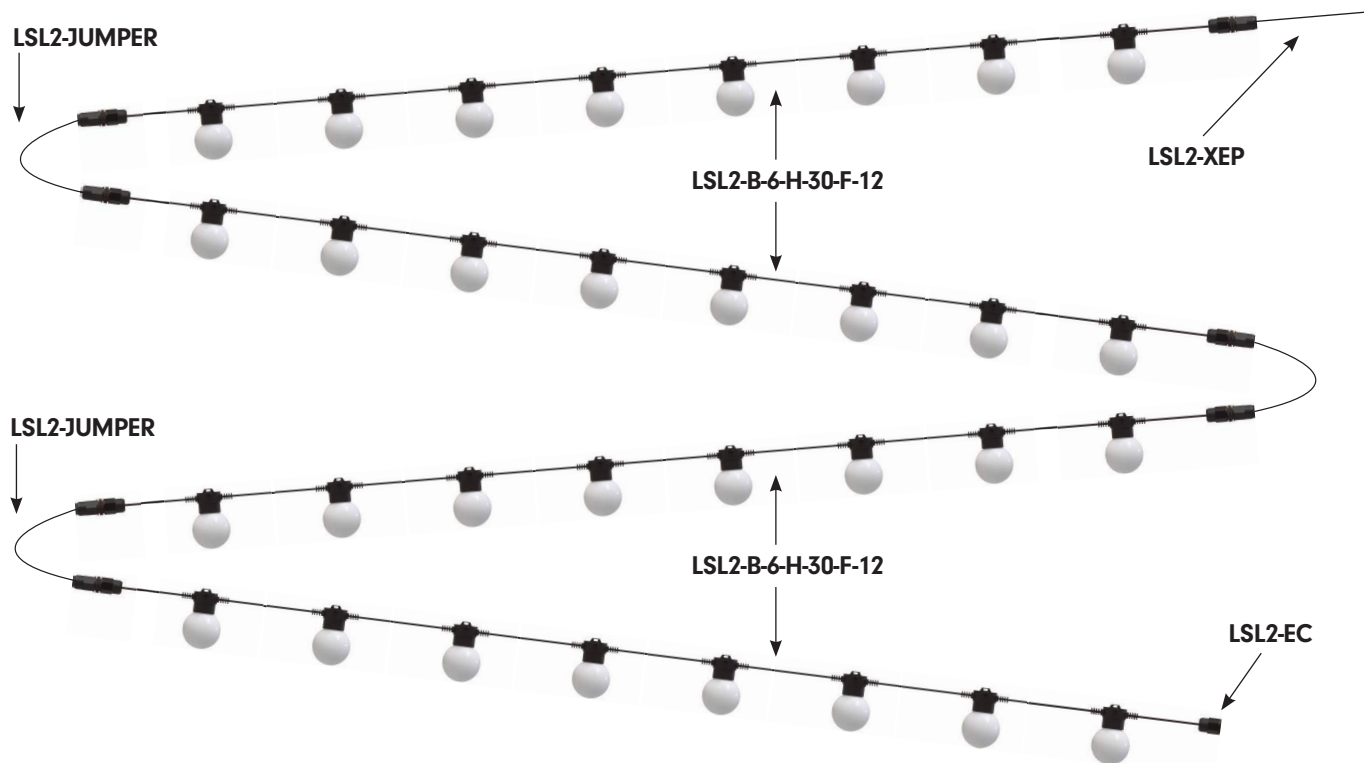
- Tivoli's next evolution of Litesphere delivers a robust specification-grade strand with factory molded standard spacing for consistent quality from start to finish
- Litesphere 2.0 design provides optional suspended mounting or a twist-off cap for surface applications
- 12V DC Low voltage system for long runs
- IP67
- cULus
- 3 Year warranty



Dimensions



System Configuration Example



Strand Order Guide

Note: For suspension application, a catenary cable is required for proper installation. Please contact Tivoli for recommendations on unique mounting applications.

Product	Wire	Spacing	LED Type	LED Color	Globe	Voltage
LSL2 Litesphere 2.0	B Black W White	06 6" OC 12 12" OC 18 18" OC 24 24" OC 36 36" OC 48 48" OC	V Very High Output H High Output S Standard Output	19 1900K 27 2700K 30 3000K 35 3500K 40 4000K 50 5000K* AM Amber* RB Royal Blue* RD Red* GN Green* YL Yellow*	C Clear F Frosted O Opal R Red N Orange Y Yellow G Green B Blue P Purple Z Varried Colors	12 12V DC

*Available in VHO LED only

Power Lead Order Guide

Figure A - All Litesphere 2.0 are evenly cut between globes according to specified spacing.
 Figure B - Power leads are added to the end cut, extending the total length of the power lead.

LSL2-XEP-X-XX

X = B (Black), W (White)
 XX = 05 (5'), 10 (10'), 15 (15'), 20 (20'), 25 (25')
 For custom length consult factory

Figure A

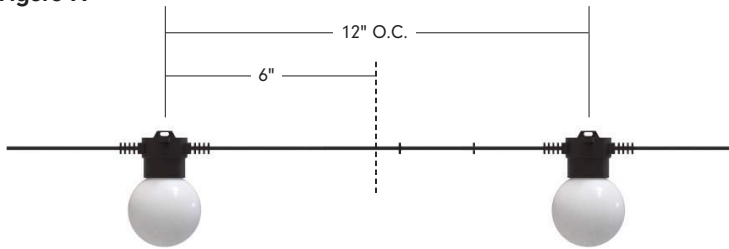
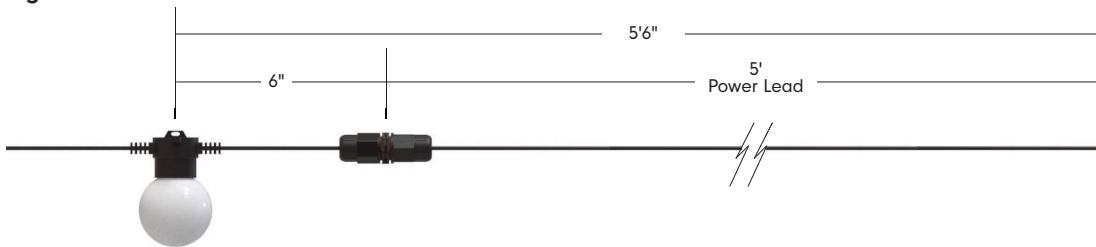


Figure B



Jumper Order Guide

Figure A - All Litesphere 2.0 are evenly cut between globes according to specified spacing.
 Figure B - Jumpers are added between the cuts, extending the total length of wire between globes.

LSL2-JUMPER-X-XX

X = B (Black), W (White)
 XX = 05 (5'), 10 (10')
 For custom length, consult factory

Figure A

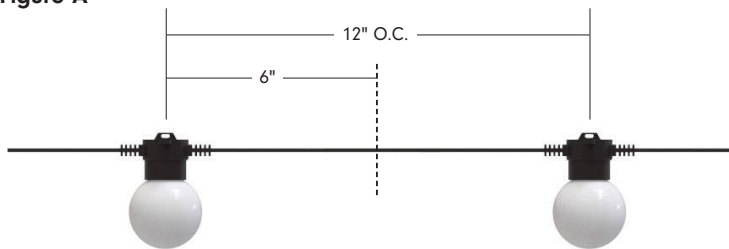
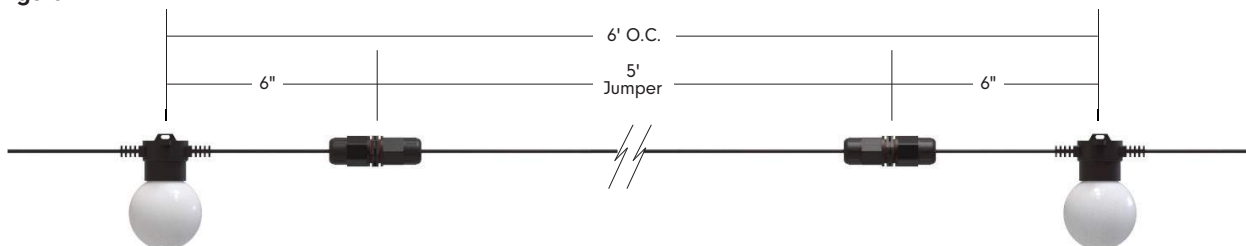


Figure B



Specifications

Output - Standard Brightness	6"	12"	18"	24"	36"	48"
Lumens/ft	11	6	4	3	2	N/A
Watts/ft	0.17	0.09	0.06	0.04	0.03	0.02
Maximun Electrical Run	130'	180'	230'	250'	275'	275'

Output - High Output	6"	12"	18"	24"	36"	48"
Lumens/ft	29.9	15	10	7	5	N/A
Watts/ft	0.46	0.23	0.15	0.12	0.08	0.05
Maximun Electrical Run	80'	110'	130'	150'	175'	200'

Output - Very High Output	6"	12"	18"	24"	36"	48"
Lumens/ft	180	90.2	60	45	30	N/A
Watts/ft	1.92	0.96	0.64	0.48	0.32	0.24
Maximun Electrical Run	30'	55'	70'	80'	90	100'

Output - Based on 3000K Clear Globe

Efficacy Standard Brightness (40), High Output (46), Very High Output (94)

Electrical

Input Voltage 12V DC

Power Consumption (W/LED) Standard Brightness (.09), High Output (.23), Very High Output (.96)

Control

Control System 0-10V, ELV, MLV, DMX 512 (Dim to 1% with an Infinity power supply and a 0-10V Lutron Diva dimmer)

Physical

Dimensions 2.5"W x 3.8"H

Socket Housing PVC

American Wire Gauge 14 AWG

Globe PE

Mounting Surface Mount, Suspended

Operating Temperature -20°C to 50°C (-4°F to 122°F)

Storage Temperature -40°C to 80°C (-40°F to 176°F)

Certification and Testing

Certification cULus

Environment Wet Location

Lumen Maintenance (L70) Hours 70,000

IP Rating IP67

Warranty 3 Years

Specifications

EPA	6"	12"	18"	24"	36"	48"
Standard	0.10	0.06	0.05	0.04	N/A	N/A
Hat 8"	N/A	0.53	0.37	0.28	N/A	N/A
Hat 13"	N/A	N/A	0.93	0.71	N/A	N/A
Dish 10"	N/A	0.82	0.55	0.42	N/A	N/A
Flower 10"	N/A	0.82	0.55	0.42	N/A	N/A
Flower 13"	N/A	N/A	0.93	0.71	N/A	N/A

Weights	6"	12"	18"	24"	36"	48"
lb/ft	0.33	0.28	0.24	0.20	0.17	0.13
lb/ft with catenary cable	0.35	0.30	0.26	0.22	0.19	0.15

Mounting Options

SURFACE/FLUSH

For surface mount applications, remove the top suspension-plate by turning counter-clockwise until off. Place socket flush against the desired surface and mount using proper screws according to substrate.



SUSPENDED

Suspended mounting will use a combination of LS-Cable, LS-Locks with LS-UVZP. Tension the cable wire with our LS-TT (Tension Tool) for desired sag (Please adhere to local city code for suspended application).

Note: For suspension application, a catenary cable is required for proper installation. Please contact Tivoli for recommendations on unique mounting applications.



Mounting Accessories



LS-CABLE-60 Catenary Cable Kit - 60'
(1/8" galvanized cable includes 2 cable locks for use with loads up to 200lbs)

LS-CABLE-110 Catenary Cable Kit - 110'
(1/8" galvanized cable includes 2 cable locks for use with loads up to 200lbs)

LS-CABLE-500 Catenary Cable Kit - 500'
(1/8" galvanized cable for use with loads up to 200lbs)



LS-LOCK-X Cable Lock
X = 2 (2 Locks), 4 (4 locks) Includes (1) cable release key. Cable Lock for 1/8th inch cable, Heavy-duty lockable fasteners support loads up to 200 lbs. Can be easily adjusted without the use of tools.



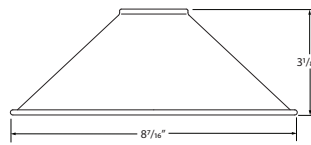
LS-TT
Catenary Cable Tensioning Tool up to 880lbs with minimal effort due to the 6:1 gear drive mechanism. Integral torque gauge controls the load applied to the wire, giving consistent tension every time and optimizing the life of the wire.



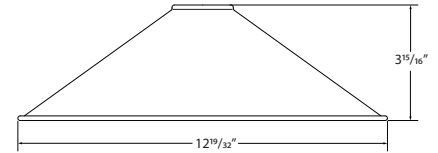
LS-UVZP-BK-XX
XX = 30 (30pcs), 50 (50pcs)
Black UV resistant, heavy duty ties.
Maximum weight up to 100 lbs./per tie.

Light Shades

HAT



SHADE-HT-BK-BK-8
Light Shade - HAT
8.3" Black Top, Black Bottom
Weight: 0.38 lb

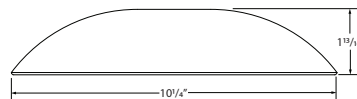


SHADE-HT-BK-BK-13*
Light Shade - HAT
12.6" Black Top, Black Bottom
Weight: 1.06 lb

SHADE-HT-BK-CO-13 *
Light Shade - HAT
12.6" Black Top, Copper Bottom
Weight: 1.06 lb

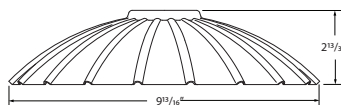
*Consult factory for lead time and MOQ

DISH

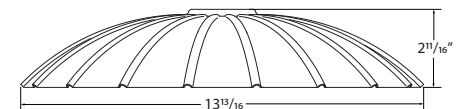


SHADE-DS-BK-BK-10
Light Shade - DISH
10.2" Black Top, Black Bottom
Weight: 0.72 lb

FLOWER



SHADE-FL-BK-BK-10
Light Shade - FLOWER
9.8" Light Shade, Black Top, Black Bottom
Weight: 0.54 lb



SHADE-FL-BK-BK-13
Light Shade - FLOWER
13.8" Light Shade, Black Top, Black Bottom
Weight: 1.1 lb

Accessories



SHADE-ADP-LSL2-XX-01 2.0 Light Shade Adapter

X = BK (Black), WH (White)
PVC Black Adapter - Sold individually.

SHADE-ADP-LSL2-XX-25 2.0 Light Shade Adapter

X = BK (Black), WH (White)
PVC Black Adapter Kit - Sold in packs of 25

SHADE-ADP-LSL2-XX-50 2.0 Light Shade Adapter

X = BK (Black), WH (White)
PVC Black Adapter Kit - Sold in packs of 50

Replacement Parts



Very High Output



Standard & High Output



LSL-19-V-12
12V Wedge base
1900K
LSL-27-V-12
12V Wedge base
2700K
LSL-30-V-12
12V Wedge base
3000K
LSL-35-V-12
12V Wedge base
3500K
LSL-40-V-12
12V Wedge base
4000K
LSL-50-V-12
12V Wedge base
5000K

LSL-AM-V-12
12V Wedge base
Amber
LSL-RD-V-12
12V Wedge base
Red
LSL-RB-V-12
12V Wedge base
Royal Blue
LSL-GN-V-12
12V Wedge base
Green
LSL-YL-V-12
12V Wedge base
Yellow

STANDARD
LSL-19-S-12
12V Wedge base
1900K
LSL-27-S-12
12V Wedge base
2700K
LSL-30-S-12
12V Wedge base
3000K
LSL-35-S-12
12V Wedge base
3500K
LSL-40-S-12
12V Wedge base
4000K

HIGH OUTPUT
LSL-19-H-12
12V Wedge base
1900K
LSL-27-H-12
12V Wedge base
2700K
LSL-30-H-12
12V Wedge base
3000K
LSL-35-H-12
12V Wedge base
3500K
LSL-40-H-12
12V Wedge base
4000K

LST-CG
Clear globe
LST-FG
Frosted globe
LST-OG
Opal globe
LST-OR
Orange globe
LST-YG
Yellow globe
LST-GG
Green globe
LST-BG
Blue globe
LST-PG
Purple globe

LSL2-EC-X
X = B (black), W (white)
Litesphere 2.0 End-Cap
Weight: 0.0375 lb
sold each

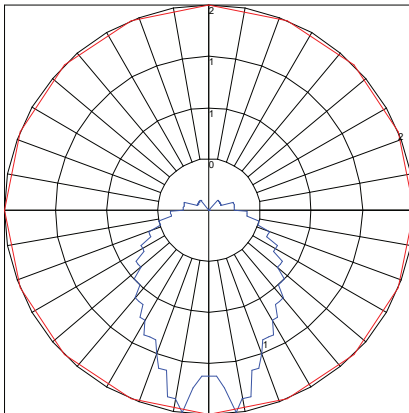
Photometrics

Frosted Globe - Based on 3000K LED

Standard Brightness

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

POLAR GRAPH AND MAXIMUM CANDELA INTENSITY		
Maximum Candela	Location - Horizontal Angle	Location - Vertical Angle
1.6	0	7.5

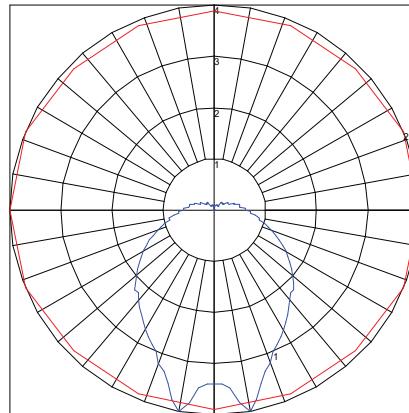


Maximum Candela = 1.6 Located At Horizontal Angle = 0, Vertical Angle = 7.5
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (7.5) (Through Max. Cd.)

High Output

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

POLAR GRAPH AND MAXIMUM CANDELA INTENSITY		
Maximum Candela	Location - Horizontal Angle	Location - Vertical Angle
4	0	10

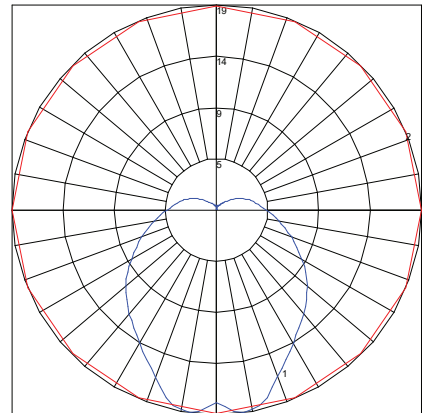


Maximum Candela = 4 Located At Horizontal Angle = 0, Vertical Angle = 10
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (10) (Through Max. Cd.)

Very High Output

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

POLAR GRAPH AND MAXIMUM CANDELA INTENSITY		
Maximum Candela	Location - Horizontal Angle	Location - Vertical Angle
18.5	0	7.5



Maximum Candela = 18.5 Located At Horizontal Angle = 0, Vertical Angle = 7.5
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (7.5) (Through Max. Cd.)

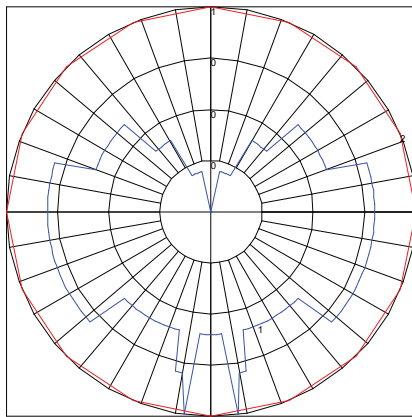
Photometrics

Opal Globe - Based on 3000K LED

Standard Brightness

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

POLAR GRAPH AND MAXIMUM CANDELA INTENSITY		
Maximum Candela	Location - Horizontal Angle	Location - Vertical Angle
0.5	0	7.5

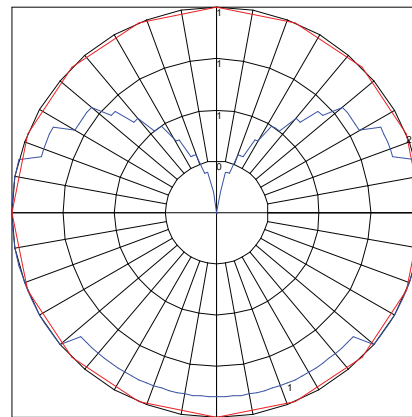


Maximum Candela = .5 Located At Horizontal Angle = 0, Vertical Angle = 7.5
 # 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
 # 2 - Horizontal Cone Through Vertical Angle (7.5) (Through Max. Cd.)

High Output

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

POLAR GRAPH AND MAXIMUM CANDELA INTENSITY		
Maximum Candela	Location - Horizontal Angle	Location - Vertical Angle
1	0	50

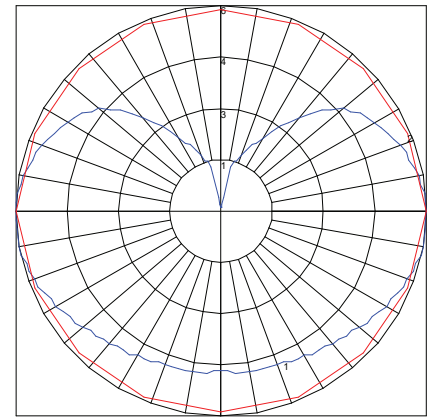


Maximum Candela = 1 Located At Horizontal Angle = 0, Vertical Angle = 50
 # 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
 # 2 - Horizontal Cone Through Vertical Angle (50) (Through Max. Cd.)

Very High Output

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

POLAR GRAPH AND MAXIMUM CANDELA INTENSITY		
Maximum Candela	Location - Horizontal Angle	Location - Vertical Angle
5.9	0	77.5



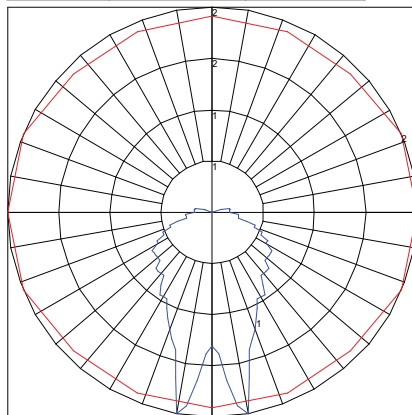
Maximum Candela = 5.9 Located At Horizontal Angle = 0, Vertical Angle = 77.5
 # 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
 # 2 - Horizontal Cone Through Vertical Angle (77.5) (Through Max. Cd.)

Clear Globe - Based on 3000K LED

Standard Brightness

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

POLAR GRAPH AND MAXIMUM CANDELA INTENSITY		
Maximum Candela	Location - Horizontal Angle	Location - Vertical Angle
2.3	0	10

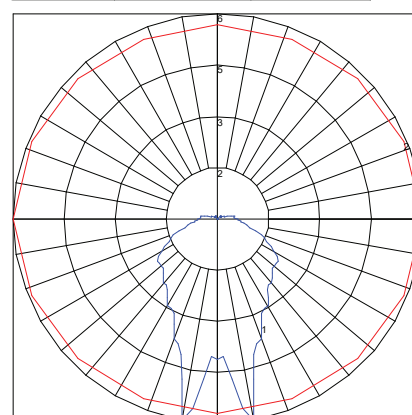


Maximum Candela = 2.3 Located At Horizontal Angle = 0, Vertical Angle = 10
 # 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
 # 2 - Horizontal Cone Through Vertical Angle (10) (Through Max. Cd.)

High Output

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

POLAR GRAPH AND MAXIMUM CANDELA INTENSITY		
Maximum Candela	Location - Horizontal Angle	Location - Vertical Angle
6.1	0	10

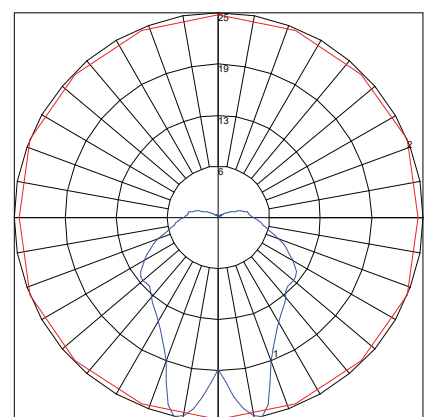


Maximum Candela = 6.1 Located At Horizontal Angle = 0, Vertical Angle = 10
 # 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
 # 2 - Horizontal Cone Through Vertical Angle (10) (Through Max. Cd.)

Very High Output

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

POLAR GRAPH AND MAXIMUM CANDELA INTENSITY		
Maximum Candela	Location - Horizontal Angle	Location - Vertical Angle
25.3	22.5	12.5



Maximum Candela = 25.3 Located At Horizontal Angle = 22.5, Vertical Angle = 12.5
 # 1 - Vertical Plane Through Horizontal Angles (22.5 - 202.5) (Through Max. Cd.)
 # 2 - Horizontal Cone Through Vertical Angle (12.5) (Through Max. Cd.)

Power Supplies

ADNM - NON DIMMING

DESCRIPTION	CAT NO	APPLICATION	PRIMARY VOLTAGE	SECONDARY VOLTAGE	CIRCUIT BREAKERS	MAX LOAD	CIRCUIT CAPACITY
ADNM Series Class 2 Transformer	ADNM-60-1-5-12-D	Indoor / Outdoor	100-277V AC 50/60 HZ	12V DC	1	60W	5A
	ADNM-80-1-5-12-D				1	60W	5A
	ADNM-150-2-5-12-D				2	2x60W	2x5A
	ADNM-240-3-5-12-D				3	3x60W	3x5A
	ADNM-320-4-5-12-D				4	4x60W	4x5A

ADNM - 0-10V DIMMING

DESCRIPTION	CAT NO	APPLICATION	PRIMARY VOLTAGE	SECONDARY VOLTAGE	CIRCUIT BREAKERS	MAX LOAD	CIRCUIT CAPACITY
ADNM Series Class 2 Transformer	ADNM-60-1-5-12-DOT	Indoor / Outdoor	100-277V AC 50/60 HZ	12V DC	1	60W	5A
	ADNM-80-1-5-12-DOT				1	60W	5A
	ADNM-150-2-5-12-DOT				2	2x60W	2x5A
	ADNM-240-3-5-12-DOT				3	3x60W	3x5A
	ADNM-320-4-5-12-DOT				4	4x60W	4x5A

ADNM - DMX SINGLE ADDRESS

DESCRIPTION	CAT NO	APPLICATION	PRIMARY VOLTAGE	SECONDARY VOLTAGE	CIRCUIT BREAKERS	MAX LOAD	CIRCUIT CAPACITY
ADNM Series Class 2 Transformer	ADNM-60-1-5-12-DIN	Indoor / Outdoor	100-277V AC 50/60 HZ	12V DC	1	60W	5A
	ADNM-80-1-5-12-DIN				1	60W	5A
	ADNM-150-2-5-12-DIN				2	2x60W	2x5A
	ADNM-240-3-5-12-DIN				3	3x60W	3x5A
	ADNM-320-4-5-12-DIN				4	4x60W	4x5A

ADNM - DMX MULTI ADDRESS

DESCRIPTION	CAT NO	APPLICATION	PRIMARY VOLTAGE	SECONDARY VOLTAGE	CIRCUIT BREAKERS	MAX LOAD	CIRCUIT CAPACITY
ADNM Series Class 2 Transformer	ADNM-150-2-5-12-DIN-2	Indoor / Damp	100-277V AC 50/60 Hz	12V DC	2	2x60W	5A
	ADNM-240-3-5-12-din-3				3	3x60W	3x5A

INFINITY - MLV / ELV / 0-10V / PWM / TRIAC

Dim to 1% with a 0-10V Lutron Diva dimmer (by others)

DESCRIPTION	CAT NO	APPLICATION	PRIMARY VOLTAGE	SECONDARY VOLTAGE	CIRCUIT BREAKERS	MAX LOAD	MIN LOAD	CIRCUIT CAPACITY
Infinity Series Class 2 Transformer	INF-J-30-1-2.5-12	Indoor / Outdoor	100 - 277V AC	12V DC	1	30W	3W	2.5A
	INF-J-60-1-5-12				1	60W	6W	5A
	INF-J-180-3-5-12				3	3x60W	3x6W	3x5A
	INF-J-300-5-5-12				5	5x60W	5x6W	5x5A

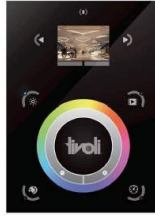
Controls



Touchscreen

TVOQ-1-WH

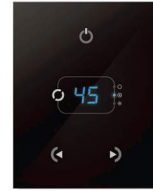
White
512 DMX channel, 16 scene,
4 zone, glass touch screen



Touchscreen

TVOQ-10-XX-7

XX = BK (Black), WH (White)
1024 DMX channel, 500 scene,
10 zone, glass touch screen



Touchscreen

TVOQ-2-BK

Black
512 DMX channel, 99 scene,
1 zone, glass touch screen

WAC LIGHTING

Cubix

Wall Mount 3000K

Fixture Type: _____

Catalog Number: _____

Project: _____

Location: _____

Model	Color Temp & CRI	Lumens	Finish
WS-W220208	30 3000K - 80	285	BK Black BZ Bronze WT White

Example: **WS-W220208-30-WT**

For custom requests please contact customs@wacighting.com

DESCRIPTION

Available in single and double directions, Cylinder is ideal for illuminating outdoor entrances and walkways.

FEATURES

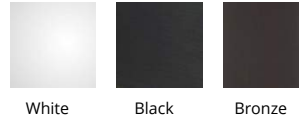
- Multiple LED array for uniform illumination
- WS-W220208 is one direction, WS-W220212 is an up & down light
- ACLED driverless technology
- 5 Year warranty

SPECIFICATIONS

Color Temp:	3000K
Input:	120 VAC,50/60Hz
CRI:	80
Dimming:	ELV: 100-10%
Rated Life:	50000 Hours
Mounting:	Installs over a 3" or 4" Junction Box,Can be mounted on wall in all orientations
Standards:	ETL, cETL Wet Location Listed
Construction:	Die-cast aluminum

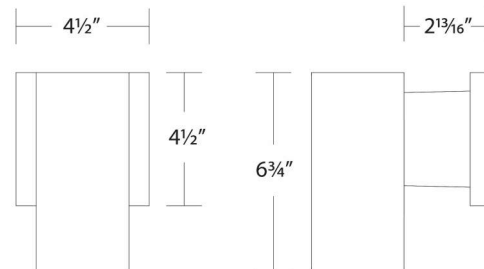


FINISHES:



White Black Bronze

LINE DRAWING:



WAC LIGHTING

Cubix

Wall Mount 3000K

Fixture Type: _____

Catalog Number: _____

Project: _____

Location: _____

Model	Color Temp & CRI	Lumens	Finish
WS-W220212	30 3000K - 80	765	BK Black BZ Bronze WT White

Example: **WS-W220212-30-WT**

For custom requests please contact customs@wacighting.com

DESCRIPTION

Available in single and double directions, Cylinder is ideal for illuminating outdoor entrances and walkways.

FEATURES

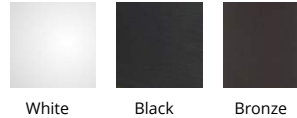
- Multiple LED array for uniform illumination
- WS-W220208 is one direction, WS-W220212 is an up & down light
- ACLED driverless technology
- 5 Year warranty

SPECIFICATIONS

Color Temp:	3000K
Input:	120 VAC,50/60Hz
CRI:	80
Dimming:	ELV: 100-10%
Rated Life:	50000 Hours
Mounting:	Installs over a 3" or 4" Junction Box,Can be mounted on wall in all orientations
Standards:	ETL, cETL Wet Location Listed
Construction:	Die-cast aluminum

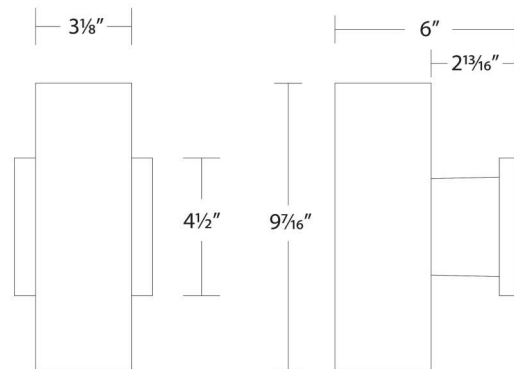


FINISHES:



White Black Bronze

LINE DRAWING:



Site Plan Review Application Fee

Project: 100 Durgin Lane

Map/Lot: Map 239, Lots 13, 16, & 18

Applicant: 100 Durgin Lane Owner, LLC

All development

Base fee \$600 \$600.00

Plus \$5.00 per \$1,000 of site costs
Site costs \$5,600,000 + \$28,000.00

Plus \$10.00 per 1,000 S.F. of site development area
Site development area 660,000 S.F. + \$6,600.00

Fee **\$20,000.00**

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.

Subdivision Application Fee

<input checked="" type="checkbox"/> Lot line revision/verification	
\$250	
Fee	\$250.00

Conditonal Use Permit Application Fee


<i>Wetlands Conditonal Use Permit</i>	Greater than 1,000 SF	\$1,300.00
<i>Wetlands Conditonal Use Permit (Non-Wetland)</i>		
Development Site		\$500.00
Highway Noise Overlay District		\$500.00

AUTHORIZATION
100 Durgin Lane, Portsmouth
Map 239, Lots 13, 16 & 18

The undersigned owner and applicant of the above referenced property hereby authorize representatives of Bosen & Associates, PLLC, and Tighe & Bond Civil Engineering to represent their interests before the Portsmouth land use boards and to submit any and all applications and materials related thereto on their behalf solely in connection with the multifamily development thereof.


Oak Street Investment Grade Net Lease
Fund Series 2021-2, LLC

Date: April 23, 2024

By: 
Name: Ryan Phelan
Title: Managing Director - Delegatee

100 Durgin Lane Owner, LLC

Date: 4/24/24

By: 
Name: ANDREW HAMER
Title: AUTHORIZED SIGNER

PROPOSED MULTI-FAMILY DEVELOPMENT

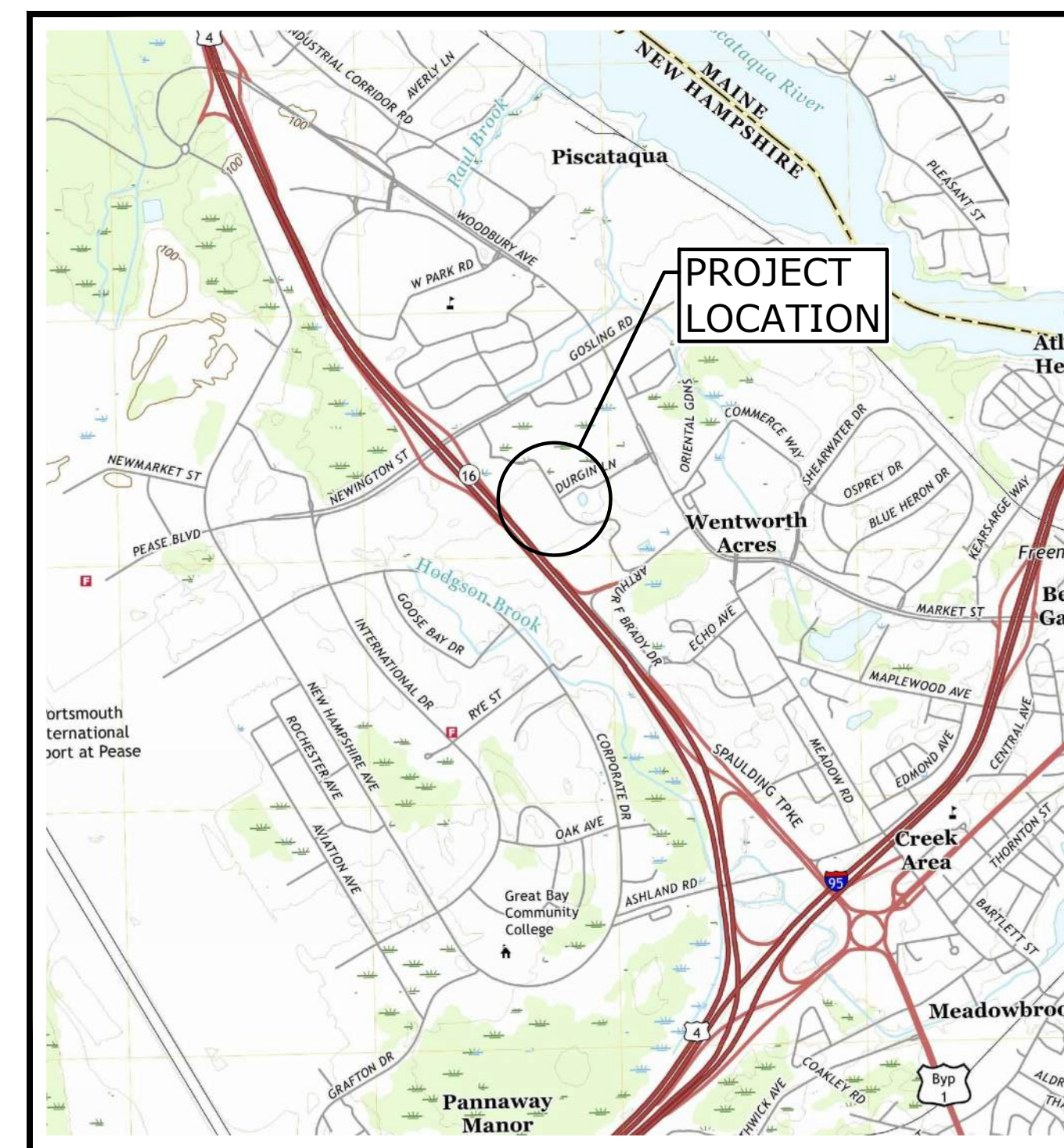
100 DURGIN LANE

PORTSMOUTH, NEW HAMPSHIRE

APRIL 22, 2024

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
-	COVER SHEET	4/22/2024
1 OF 4	TOPOGRAPHIC SURVEY NOTES	2/29/2024
2 OF 4	TOPOGRAPHIC SURVEY	2/29/2024
3 OF 4	TOPOGRAPHIC SURVEY	2/29/2024
4 OF 4	TOPOGRAPHIC SURVEY	2/29/2024
C-101	GENERAL NOTES AND LEGEND	4/22/2024
C-201	DEMOLITION PLAN	4/22/2024
C-202	DEMOLITION PLAN	4/22/2024
C-300	OVERALL SITE PLAN	4/22/2024
C-301	SITE PLAN	4/22/2024
C-302	SITE PLAN	4/22/2024
C-401	GRADING, DRAINAGE, AND EROSION CONTROL PLAN	4/22/2024
C-402	GRADING, DRAINAGE, AND EROSION CONTROL PLAN	4/22/2024
C-403	DRAINAGE STRUCTURE TABLES	4/22/2024
C-501	UTILITIES PLAN	4/22/2024
C-502	UTILITIES PLAN	4/22/2024
C-600	ACCESS EASEMENT PLAN	4/22/2024
C-601	UTILITY, DRAINAGE, AND GRADING EASEMENT PLAN	4/22/2024
C-602	COMMUNITY SPACE EASEMENT PLAN	4/22/2024
C-801	EROSION CONTROL NOTES AND DETAILS SHEET	4/22/2024
C-802	DETAILS SHEET	4/22/2024
C-803	DETAILS SHEET	4/22/2024
C-804	DETAILS SHEET	4/22/2024
C-805	DETAILS SHEET	4/22/2024
C-806	DETAILS SHEET	4/22/2024
C-807	DETAILS SHEET	4/22/2024
C-808	DETAILS SHEET	4/22/2024
C-809	DETAILS SHEET	4/22/2024
L0-01	LANDSCAPE NOTES	4/22/2024
L1-00	LAYOUT AND MATERIALS PLAN	4/22/2024
L2-00	PLANTING PLAN	4/22/2024
L3-00	PHOTOMETRIC PLAN	4/22/2024
L5-00	SITE DETAILS	4/22/2024
L5-01	SITE DETAILS	4/22/2024
L5-02	SITE DETAILS	4/22/2024
L5-03	PLANTING DETAILS	4/22/2024
1 OF 9	3-STORY BUILDING ELEVATIONS	4/22/2024
2 OF 9	3-STORY BUILDING ELEVATIONS	4/22/2024
3 OF 9	3-STORY BUILDING (SMALL) ELEVATIONS	4/22/2024
4 OF 9	4-STORY BUILDING ELEVATIONS	4/22/2024
5 OF 9	COMMUNITY BUILDING ELEVATIONS	4/22/2024
6 OF 9	3-STORY BUILDING PLANS	4/22/2024
7 OF 9	3-STORY BUILDING (SMALL) FLOOR PLANS	4/22/2024
8 OF 9	4-STORY BUILDING FLOOR PLANS	4/22/2024
9 OF 9	COMMUNITY BUILDING FLOOR PLANS	4/22/2024

LIST OF PERMITS		
LOCAL	STATUS	DATE
SITE PLAN REVIEW PERMIT	PENDING	
LOT LINE REVISION PERMIT	PENDING	
CONDITIONAL USE PERMIT - DEVELOPMENT SITE	PENDING	
CONDITIONAL USE PERMIT - WETLAND BUFFER	PENDING	
CONDITIONAL USE PERMIT - HIGHWAY NOISE OVERLAY DISTRICT	PENDING	
STATE		
NHDES - SEWER CONNECTION PERMIT	NOT SUBMITTED	
NHDES - ALTERATION OF TERRAIN PERMIT	NOT SUBMITTED	
FEDERAL		
NPDES - CONSTRUCTION GENERAL PERMIT	NOT SUBMITTED	

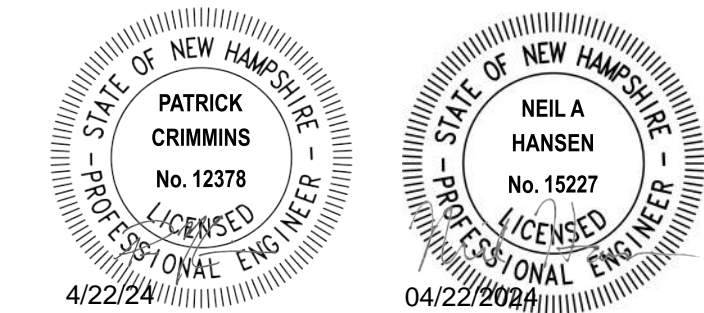


LOCATION MAP
SCALE: 1" = 2000'

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, NEW HAMPSHIRE 03801
 603-433-8818



OWNER/APPLICANT:
 100 Durgin Lane Owner LLC
 ONE MARINA PARK DRIVE, SUITE 1500
 BOSTON, MA 02210

SURVEYOR:
 HOLDEN ENGINEERING & SURVEYING, INC.
 56 OLD SUNCOOK ROAD, PO BOX 480
 CONCORD, NH 03302

ARCHITECT:
 UTILE
 115 KINGSTON STREET
 BOSTON, MA 02111

LANDSCAPE ARCHITECT:
 ACETO LANDSCAPE ARCHITECTS
 424 FORE STREET #3B
 PORTLAND, ME 04101

**TAC SUBMISSION
 COMPLETE SET (45) SHEETS**

ITEMS CORRESPONDING TO SCHEDULE B:

- 9 Rights and easements in favor of the United States of America relating to electric power transmission lines as described in the Judgment on Declaration of Taking dated October 20, 1952 and recorded at Book 1283, Page 201; Order Amending Judgment on Declaration of Taking recorded November 26, 1954, at Book 1337, Page 277; Order of Court Amending Judgment on the Declaration of Taking, as Amended dated June 29, 1954, and recorded at Book 1340, Page 437 on December 29, 1954; Final Judgment of Condemnation for Tracts dated February 29, 1955, at Book 1370, Page 335; and Certification dated December 9, 1955, and recorded at Book 1379, Page 216. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 10 Rights and easements granted to Public Service Company of New Hampshire by instrument recorded at Book 1350, Page 186; agreement and consent to joint use between Public Service Company of New Hampshire and Costco Wholesale Corporation dated October 21, 1992, and recorded at Book 2965, Page 2892; rights and easements granted by Costco Wholesale Corporation to Public Service Company of New Hampshire and New England Telephone and Telegraph Company (NET&T) dated February 10, 1993, and recorded at Book 2972, Page 1422; and as shown on the 2019 ALTA Survey described herein. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 11 Right of way granted by Shaw's Realty Co. to Gilbert E. and Dorothy Soucy dated July 30, 1992, and recorded at Book 2965, Page 548. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 12 Rights and easements granted to New England Telephone and Telegraph Company dated April 12, 1987, and recorded at Book 1430, Page 375. MAY AFFECT THE SUBJECT PROPERTY - VAGUE DESCRIPTION - NOT PLOTTABLE.
- 13 Rights, easements, terms and obligations set forth in the Agreement between Gilbert E. Soucy and Dorothy Soucy and Costco Wholesale Corporation dated November 3, 1992, and recorded at Book 2956, Page 2200. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 14 Rights and easements granted to Gilbert E. and Dorothy Soucy for vehicular and pedestrian ingress and egress and for electric, telephone and cable television transmission lines as more fully described in the Grant of Right-of-Way from Costco Wholesale Corporation recorded at Book 2966, Page 754. MAY AFFECT THE SUBJECT PROPERTY - DOCUMENT DOES NOT DESCRIBE LOCATION - NOT PLOTTABLE.
- 15 Rights and easements to lay, construct, operate, inspect, repair, maintain, renew, replace and remove underground sanitary sewer mains through a trip of land 20 feet in width as more fully described in the Sewer Easement from Costco Wholesale Corporation to Robert D. Haverly and Kathleen M. Haverly, Trustees of SFL Realty Trust, and Saturn Realty LLC dated June 9, 1994, and recorded at Book 3102, Page 379 and as shown on the 2019 ALTA Survey described herein. DOES AFFECT THE SUBJECT PROPERTY (LOT 239-18) - SHOWN ON PLAN.
- 16 Rights and easements granted by Costco Wholesale Corporation to Saturn Realty LLC by Access Easement dated June 9, 1994, and recorded at Book 3102, Page 381, and as shown on the 2019 ALTA Survey described herein. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 17 Rights and easements for ingress and egress as more fully described in the Access Easement from Costco Wholesale Corporation to Robert D. Haverly and Kathleen M. Haverly, Trustees of SFL Realty Trust, dated June 9, 1994, and recorded at Book 3102, Page 391. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 18 Use limitations and general maintenance obligations as more fully set forth in the Real Estate Operation Agreement between the Trustees of SFL Realty Trust and Costco Wholesale Corporation dated as of June 9, 1994, and recorded at Book 3114, Page 601. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 19 Rights and easements for access and utilities as described in the Easement Deed from Costco Wholesale Corporation to Gilbert E. Soucy and Dorothy Soucy dated November 11, 1992, and recorded at Book 2956, Page 2205; and Access Easement Deed dated June 12, 1996, from Costco Wholesale Corporation to Gilbert E. Soucy and Dorothy Soucy recorded at Book 3150, Page 2035, as affected by Amended Access Easement Deed between MIC PNH, LLC and Bed Bath & Beyond, Inc. dated November 21, 2013, and recorded at Book 5505, Page 683. See also Plan of Supplemental Access Easement as Plan D-35346 and Amended Access Easement dated November 19, 2013, and recorded at Book 5498, Page 2502; and as shown on the 2019 ALTA Survey described herein. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 20 Rights and easement for utilities in the Utility Easement Deed from Costco Wholesale Corporation to Gilbert E. Soucy and Dorothy Soucy dated June 12, 1996, and recorded at Book 3160, Page 2039; and as shown on the 2019 ALTA Survey described herein. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 21 Rights and easements in favor of the City of Portsmouth as described in the Access Easement Deed from Costco Wholesale Corporation dated June 12, 1996 and recorded at Book 3160, Page 2042. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 22 Rights and easements granted by Costco Wholesale Corporation to Gilbert E. Soucy and Dorothy Soucy as more fully described in the Slope and Landscape Easement Deed dated June 12, 1996, and recorded at Book 3160, Page 2045. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 23 Rights and easements in favor of Gilbert E. Soucy and Dorothy Soucy as set forth in the Drainage Easement Deed from Costco Wholesale Corporation dated June 12, 1996, and recorded at Book 3160, Page 2051; and as shown on the 2019 ALTA Survey described herein. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 24 Rights and easements for ingress and egress as more fully described in the Access Easement granted by SFL, LLC to Gilbert Soucy and Dorothy Soucy dated June 13, 1996, and recorded at Book 3160, Page 2033. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.

ITEMS CORRESPONDING TO SCHEDULE B:

- 25 Terms and provisions set forth in the Conservation Easement from SFL L.L.C. to the City of Portsmouth dated November 21, 1996 and recorded at Book 3192, Page 282. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 26 Terms and conditions of the Operation and Maintenance Agreement between SFL, LLC and During [sic.] Lane Hotel Corp. dated as of June 21, 1996 and recorded at Book 3165, Page 1545. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 27 Rights and easements for access, parking, utilities and signage as more fully described in the Access, Parking Signage and Utility Easement granted by Robert D. Haverly and Kathleen M. Haverly, Trustees of SFL Realty Trust, to Saturn Realty LLC dated June 9, 1994, and recorded at Book 3102, Page 397, as affected by the Quitclaim Deed and Release to Home Depot USA, Inc. from Saturn Realty LLC dated March 6, 1997 recorded in the Registry at Book 3202, Page 2465. DOES AFFECT THE SUBJECT PROPERTY (LOT 239-13-2) - SHOWN ON PLAN.
- 28 Rights and easements for access, parking, utilities and signage as more fully described in the instrument granted by Saturn Realty LLC to Robert D. Haverly and Kathleen M. Haverly, Trustees of SFL Realty Trust, dated June 9, 1994, and recorded at Book 3102, Page 400, as affected by deed from Home Depot U.S.A., Inc. to Saturn Realty, LLC recorded March 10, 1997, at Book 3202, Page 2462. DOES AFFECT THE SUBJECT PROPERTY (LOT 239-13-1) - SHOWN ON PLAN.
- 29 Terms and conditions set forth in the Mutual Access Easement between Home Depot U.S.A., Inc. and Thomas J. Flaherty recorded September 14, 2006, at Book 4707, Page 1682, as may be affected by that certain Site Plan prepared by Applodere Engineering, Inc. recorded as Plan No. D-34142 on September 14, 2006. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 30 Rights and easements set forth in the Grant of Right-of-Way from Durgin Square Limited Partnership Louis L. Dow, Sr. et al. dated July 28, 1992, and recorded at Book 2839, Page 504; and as shown on the 2019 ALTA Survey described herein. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 31 Such state of facts and matters as shown on ALTA/NSPS Land Title Survey prepared by CDS Commercial Due Diligence Services bearing Field Date November 18, 2019, Project Address 100 Durgin Lane, Portsmouth NH; Project Name: BBBY Portfolio; CDS Project Number: 19-09-0671-011, Approved CDS Surveyor, Holden Engineering & Surveying, Inc. (the "2019 ALTA Survey") including the following: REFERENCES PRIOR VERSION OF CURRENT PLAN - NO ADDITIONAL MATTERS TO PLOT.
 - (a) encroachment of headwall extending 9.9+/- feet onto the Land;
 - (b) parking spaces and pavement located within easements described herein, to the extent the easement is in full force and effect;
 - (c) overhead and underground utility lines;
 - (d) utility poles and guy wires;
 - (e) landscaping, berms and medians traversing the boundary lines of the Land;
 - (f) City of Portsmouth site restrictions, building setbacks, and parking requirements;
 - (g) catch basins and drain manholes;
 - (h) water shut-offs and hydrants;
 - (i) sewer manholes;
 - (j) electric and gas meters; and
 - (k) signage.
- 32 Rights, easements and obligations pertaining to ingress and egress as more fully described in the Access Easement Agreement between Home Depot U.S.A., Inc. and OCV Retail-Portsmouth, LLC dated as of December 27, 2007, and recorded on January 3, 2008, at Book 4875, Page 1438. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 33 Covenants and restrictions set forth in the Declaration of Use Restriction between Bed Bath & Beyond, Inc. and Home Depot U.S.A., Inc. dated as of December 27, 2007, and recorded on January 3, 2008, at Book 4875, Page 1464. DOES AFFECT THE SUBJECT PROPERTY - NOT SURVEY RELATED - NOT PLOTTABLE.
- 34 Rights and easements relating to signage as more fully described in the Directional Signage Easement between Home Depot U.S.A., Inc., OCV Retail-Portsmouth, LLC and Bed Bath & Beyond, Inc. dated as of December 27, 2007, and recorded at Book 4875, Page 1477 on January 3, 2008. DOES AFFECT THE SUBJECT PROPERTY - BLANKET DESCRIPTION - NOT PLOTTABLE.
- 35 Such state of facts and matters as shown on the plan entitled "Easement Plan Hampton Inn, Tax Map 239 Lots 15 & 18, Property of MIC PNH, LLC & Bed Bath & Beyond, Inc., 99 & 100 Durgin Lane, County of Rockingham, Portsmouth, New Hampshire", prepared by MSC Civil Engineers & Land Surveyors, Inc., dated February 20, 2013, revised through April 2, 2013, and recorded December 2, 2013, as Plan No. D-38033. DOES AFFECT THE SUBJECT PROPERTY - SHOWN ON PLAN.
- 36 INTENTIONALLY DELETED.
- 37 INTENTIONALLY DELETED.
- 38 Subject to Subordination, Non-Disturbance and Attornment Agreement, recorded on January 6, 2022, in Book 6372, Page 839. DOES AFFECT THE SUBJECT PROPERTY - NOT SURVEY RELATED - NOT PLOTTABLE.
- 39 Subject to Conditions, Etc. contained in Quitclaim Deed, recorded on December 27, 2021, in Book 6369, Page 422 and re-recorded on December 30, 2021, in Book 6370, Page 340. NO DOCUMENT PROVIDED.
- 40 Subject to Easements contained in Quitclaim Deed, recorded on December 27, 2021, in Book 6369, Page 422 and re-recorded on December 30, 2021, in Book 6370, Page 340. NO DOCUMENT PROVIDED.

TITLE INFORMATION:

THE TITLE DESCRIPTION AND SCHEDULE B ITEMS HEREON ARE FROM FIRST AMERICAN TITLE INSURANCE COMPANY COMMITMENT NO. OAK ST INVEST DURGIN LANE WITH AN EFFECTIVE DATE OF NOVEMBER 9, 2023 AT 12:00 PM.

BASIS OF BEARINGS:

BEARINGS BASED ON PLAN D-35346 AND SHOWN ON PLAN AS N 59° 39' 24" E.

FLOOD NOTE:

Said described property is located within an area having a Zone Designation X by the Federal Emergency Management Agency (FEMA), on Flood Insurance Rate Map No. 33015C0260E, with a date of identification of May 17, 2005, for Community Panel No. 0260, in Rockingham County, State of New Hampshire, which is the current Flood Insurance Rate Map for the community in which said property is situated.

Zone "X" Denotes Areas of minimal flood hazard (No Shading)

The subject property is NOT in a Special Flood Hazard Area

PARKING INFORMATION:

618 REGULAR SPACES
18 HANDICAPPED ACCESSIBLE SPACES
632 TOTAL PARKING SPACES

NOTES:

1. THE OWNER OF RECORD IS OAK STREET INVESTMENT GRADE NET LEASE FUND SERIES 2021-2 LLC, 30 N. LA SALLE ST. SUITE 4140, CHICAGO, IL 60602.
2. REFERENCE THE SUBJECT PROPERTIES AS TAX MAP 239 LOTS 16, 18, AND 13-2, PER THE CITY OF PORTSMOUTH, NH ASSESSORS MAPS.
3. DEED REFERENCE FOR THE SUBJECT PARCEL IS BOOK 6370, PAGE 340, AS RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
4. TOTAL AREA OF SUBJECT PARCEL IS 1,138,161 SQUARE FEET, OR 25.15 ACRES.
5. TABLE A ITEM 16- THERE IS NO OBSERVABLE EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS WITHIN RECENT MONTHS.
6. THE ACCOMPANYING SURVEY WAS MADE ON THE GROUND AND CORRECTLY SHOWS THE LOCATION OF ALL BUILDINGS, STRUCTURES AND OTHER IMPROVEMENTS SITUATED ON THE ABOVE PREMISES; THERE ARE NO VISIBLE ENCROACHMENTS ON THE SUBJECT PROPERTY OR UPON ADJACENT LAND ABUTTING SAID PROPERTY EXCEPT AS SHOWN HEREON AND WAS MADE IN ACCORDANCE WITH LAWS AND/ OR MINIMUM STANDARDS OF THE STATE OF NEW HAMPSHIRE.
7. THE PROPERTY HAS DIRECT ACCESS TO DURGIN LANE A PUBLIC WAY AND INDIRECT ACCESS TO GOSLING ROAD A PUBLIC WAY.
8. THE INTERNAL CONTIGUITY OF THE SUBJECT PROPERTY HAS NO OVERLAPS, GAPS, OR GORES.
9. THE PROPERTY DESCRIBED HEREON HAS THE STREET ADDRESS AS FOLLOWS: 100 DURGIN LANE, PORTSMOUTH, NH
10. SAID PREMISES IS A SEPARATELY SUBDIVIDED TRACT.
11. ANY OFFSITE EASEMENTS OR SERVICUTES BENEFITTING THE SURVEYED PROPERTY AND DISCLOSED IN RECORD DOCUMENTS ARE DEPICTED HEREON.
12. "ALL STATEMENTS WITHIN THE CERTIFICATION, AND OTHER REFERENCES LOCATED ELSEWHERE HEREON, RELATED TO: UTILITIES, IMPROVEMENTS, STRUCTURES, BUILDINGS, PARTY WALLS, PARKING, EASEMENTS SERVICUTES, AND ENCROACHMENTS ARE BASED SOLELY ON ABOVE GROUND, VISIBLE EVIDENCE, UNLESS ANOTHER SOURCE OF INFORMATION IS SPECIFICALLY REFERENCED HEREON" IS NOT NOTED.
13. THE SUBJECT PROPERTY DOES NOT FALL WITHIN A WETLANDS AREA.
14. THERE WERE NO PARTY WALLS OBSERVED AT THE TIME OF SURVEY.
15. THERE IS NO VISIBLE EVIDENCE OF A CEMETERY ON THE SUBJECT PROPERTY AT THE TIME OF THE SURVEY.
16. HORIZONTAL DIMENSIONS ARE BASED ON THE 1983 NORTH AMERICAN DATUM (NAD 83) AND ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

STATEMENT OF ENCROACHMENTS

(A) HEADWALL EXTENDS ONTO SUBJECT PROPERTY 9.9' +/-

SURVEYOR'S CERTIFICATE:

To: Shabins, Lazos & Van Der Beken PLLC; First American Title Insurance Company; and 100 Durgin Lane Owner LLC.

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 6(a), 6(b), 7(c), 7(b)(1), 7(c), 8, 9, 13, 14, 16, and 21(a). (Graphically depict in relation to the subject tract or property any offsite easements or servitudes benefitting the surveyed property and disclosed in Record Documents provided to the surveyor as part of the Schedule "A") of Table A thereof.

The field work was completed on August, 22, 2023



ZONING INFORMATION:

ZONING INFORMATION TAKEN FROM THE REPORT PREPARED BY THE PLANNING & ZONING RESOURCE COMPANY, PZR SITE NUMBER 167869-1, DATED SEPTEMBER 12, 2023.

ZONE IS "G1" GATEWAY NEIGHBORHOOD MIXED USE CORRIDOR

SITE RESTRICTIONS:
MINIMUM LOT SIZE = NOT SPECIFIED
MINIMUM LOT FRONTAGE = 100 FEET
MINIMUM LOT WIDTH = NOT SPECIFIED
MINIMUM LOT DEPTH = NOT SPECIFIED
MAXIMUM BUILDING HEIGHT = 4 STORES/50 FEET
MAXIMUM LOT COVERAGE = 70%

SETBACKS:
FRONT = 0 FEET MINIMUM/ 50 FEET MAXIMUM
SIDE = 15 FEET
REAR = 15 FEET

PARKING:
ALL RETAIL TRADE USES: 1 SPACE PER 300 SQ. FT. OF GROSS FLOOR AREA (78,317 / 300 = 261) 261 TOTAL PARKING SPACES REQUIRED.

THE CURRENT USE IS PERMITTED IN THIS DISTRICT.

THE ABOVE RESTRICTIONS WERE OBTAINED FROM THE TOWN OF PORTSMOUTH, NH ZONING CODE

WETLAND NOTES:

The delineation work was performed on November 11, 2023 by Brendan Quigley, CWS #249 utilizing the following standards:

1. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, (Version 2.0) January 2012, U.S. Army Corps of Engineers.
2. Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils, Version 8.2. United States Department of Agriculture (2018).
3. New England Hydric Soils Technical Committee, 2019 Version 4, Field Indicators for Identifying Hydric Soils in New England. New England Interstate Water Pollution Control Commission, Lowell, MA.
4. U.S. Army Corps of Engineers National Wetland Plant List, version 3.5. (2020)



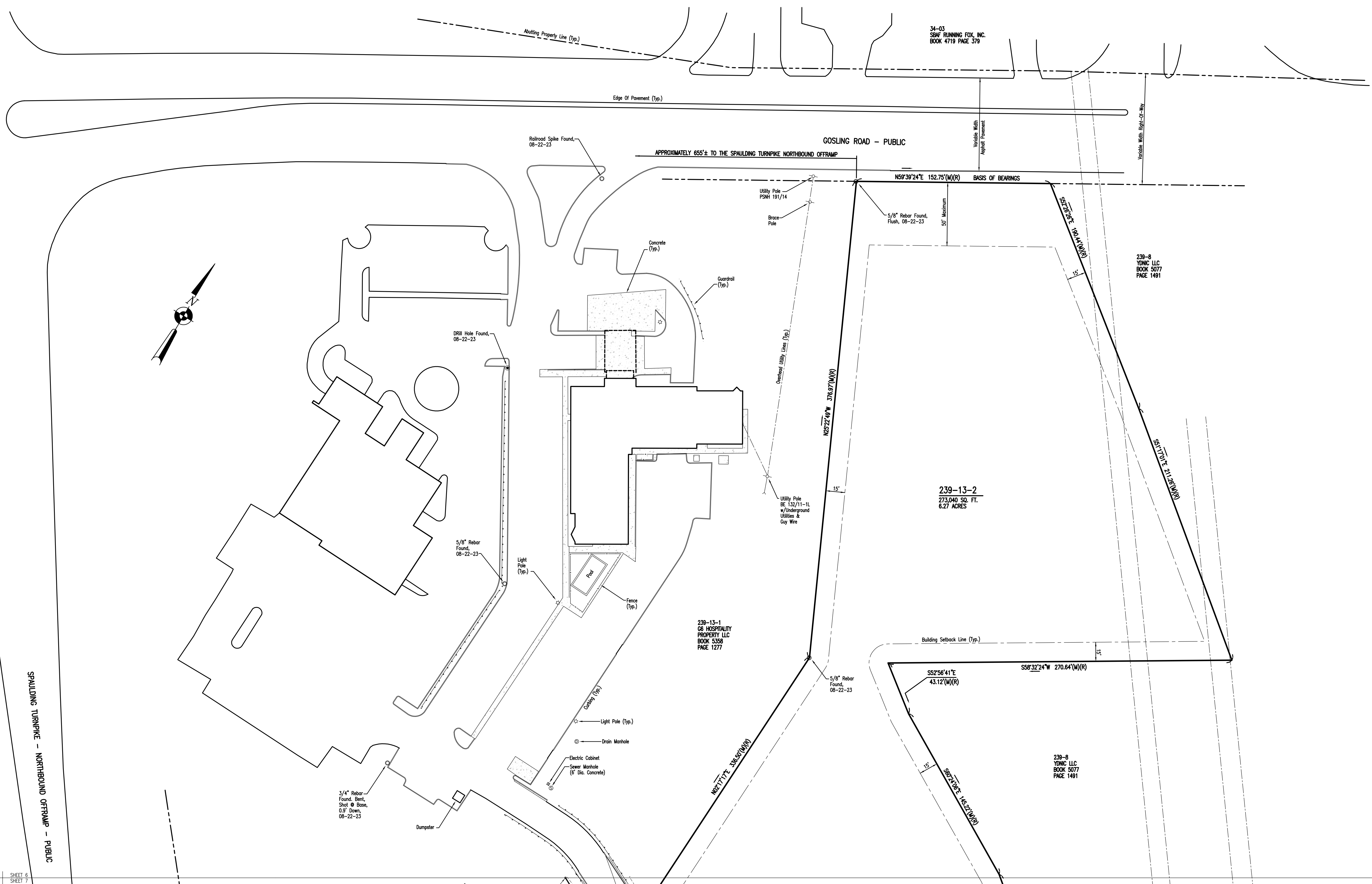
56 Old Suncook Road
PO Box 480 Concord, NH 03302
(603) 225-6449
9 Constitution Drive
Bedford, NH 03110
(603) 472-2078

ALTA / NSPS LAND TITLE SURVEY PREPARED FOR
100 DURGIN LANE OWNER LLC
100 DURGIN LANE, PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE

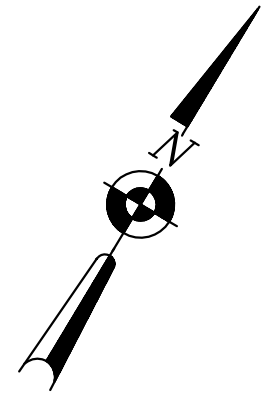
Date:	Revisions Description	Dr. By	Chk. By	Book	Page
11-10-23	REVISED PER CLIENT COMMENTS	DS	LR		
02-13-24	MINOR UTILITY EDITS	DS	PH		
02-29-24	UPDATE TITLE COMMITMENT	DS	LR		

Date: 08-10-23
Scale: NONE
Dr. By: DS Chk By: LR
Job No. 2320547
Sheet no 1 of 8

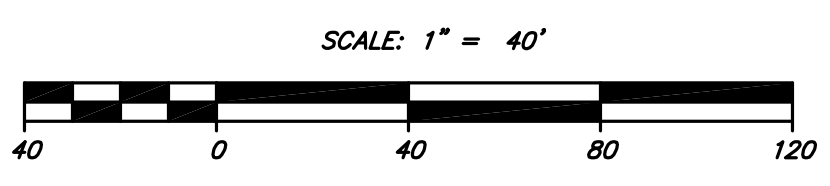
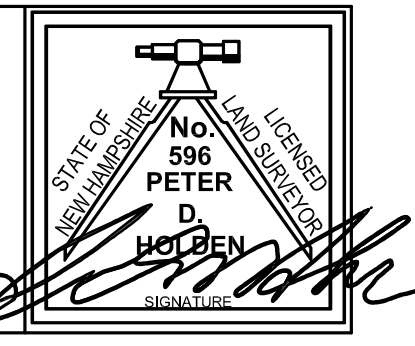
H:\CONC-2320547\CADD\SHEETS-1-2.dwg Mar 14, 2024 dsoucy



- LEGEND:**
- ABUTTING PROPERTY LINE
 - TREELINE
 - UNDERGROUND ELECTRIC (Point)
 - SEWER LINE (Point)
 - 10 FOOT CONTOUR
 - 2 FOOT CONTOUR
 - CURBING
 - EDGE OF PAVEMENT
 - FENCE
 - GUARDRAIL
 - PROPERTY LINE
 - FORMER LOT LINE
 - BUILDING SETBACK LINE
 - OVERHEAD UTILITY LINES
 - EASEMENT
 - STONEMALL
 - FLAGGED WETLAND
 - SWALE
 - GAS LINE (Point)
 - CONCRETE
 - CATCH BASIN
 - DRAIN MANHOLE
 - ELECTRIC BOX
 - LIGHT POLE
 - REBAR OR RAILROAD SPIKE
 - DRILL HOLE
 - POST
 - SIGN
 - SEWER MANHOLE
 - UTILITY POLE OR BRACE POLE
 - WATER SHUT-OFF
 - HYDRANT
 - ELECTRIC METER
 - GAS METER
 - FLAG POLE
 - GAS SHUT-OFF
 - BORING
 - WETLAND FLAG LOCATION
 - BOLLARD
 - TREE



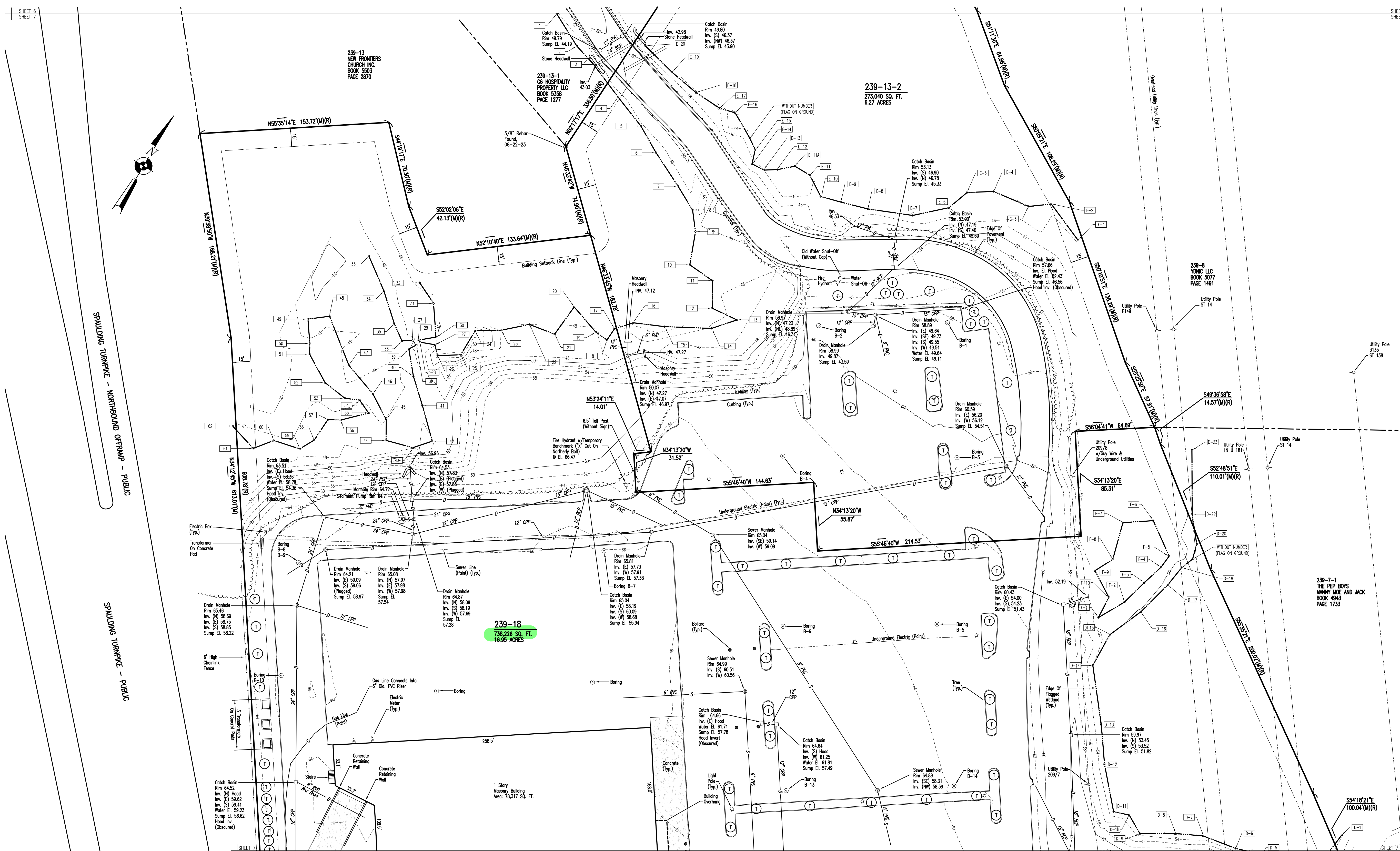
I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY AND HAS A MAX. ERROR OF CLOSURE OF 1:10,000 ON ALL PROPERTY LINES WITHIN AND BORDERING THE SUBJECT PROPERTY.



HOLDEN ENGINEERING & SURVEYING, inc.
 56 Old Suncook Road
 PO Box 480 Concord, NH 03302
 (603) 225-6449
 9 Constitution Drive
 Bedford, NH 03110
 (603) 472-2078

TOPOGRAPHIC SURVEY PREPARED FOR
100 DURGAN LANE OWNER LLC
 100 DURGIN LANE, PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE

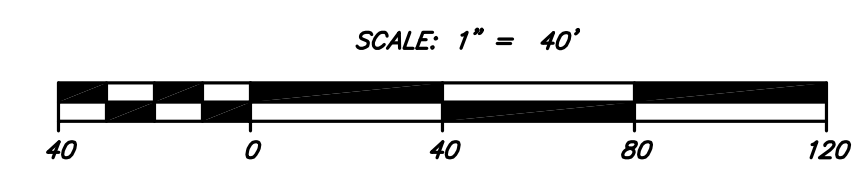
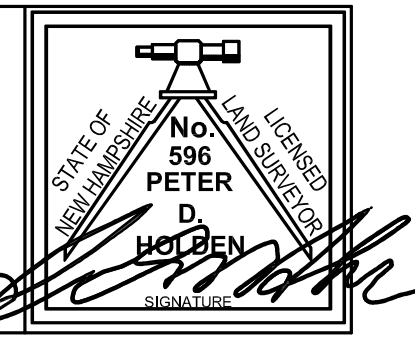
Date:	Revisions Description	Dr. By	Chk. By	Book	Page	Date:
11-10-23	REVISED PER CLIENT COMMENTS	DS	LR			08-10-23
02-13-24	MINOR UTILITY EDITS	DS	PH			Scale: 1"=40'
02-29-24	REVISE UTILITIES	DS	LR			Dr. By: DS Ck By: LR
						Job No. 2320547
						Sheet no 6 of 8



LEGEND:

- ABUTTING PROPERTY LINE
- - - - TREELINE
- - - - UNDERGROUND ELECTRIC (Point)
- - - - SEWER LINE (Point)
- - - - 10 FOOT CONTOUR
- - - - 2 FOOT CONTOUR
- - - - CURBING
- - - - EDGE OF PAVEMENT
- - - - FENCE
- - - - GUARDRAIL
- - - - PROPERTY LINE
- - - - FORMER LOT LINE
- - - - BUILDING SETBACK LINE
- - - - OVERHEAD UTILITY LINES
- - - - EASEMENT
- - - - STONEMALL
- - - - FLAGGED WETLAND
- - - - SWALE
- - - - GAS LINE (Point)
- - - - CONCRETE
- - - - CATCH BASIN
- - - - DRAIN MANHOLE
- - - - ELECTRIC BOX
- - - - LIGHT POLE
- - - - REBAR OR RAILROAD SPIKE
- - - - DRILL HOLE
- - - - POST
- - - - SIGN
- - - - SEWER MANHOLE
- - - - UTILITY POLE OR BRACE POLE
- - - - WATER SHUT-OFF
- - - - HYDRANT
- - - - ELECTRIC METER
- - - - GAS METER
- - - - FLAG POLE
- - - - GAS SHUT-OFF
- - - - BORING
- - - - WETLAND FLAG LOCATION
- - - - BOLLARD
- - - - TREE

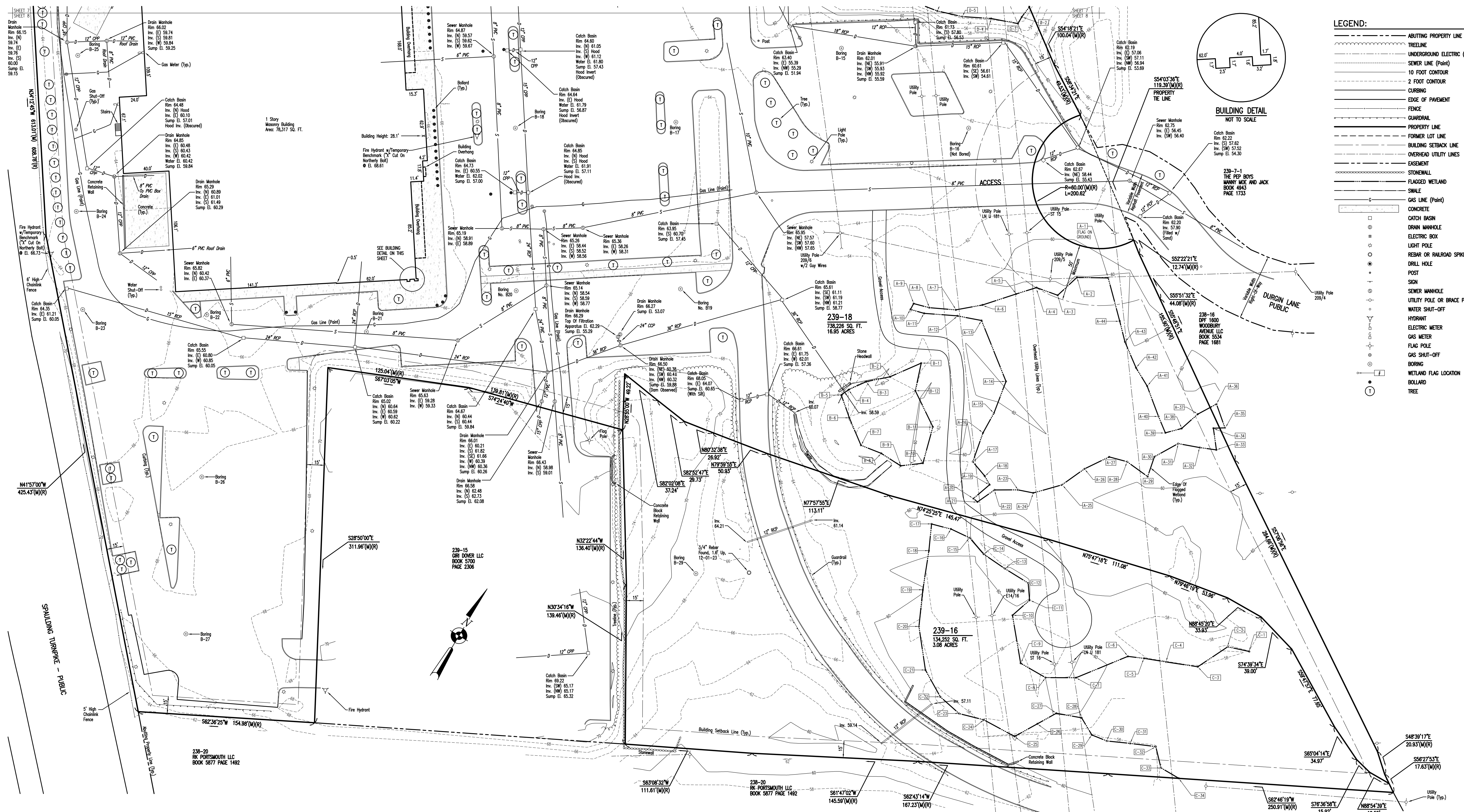
I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY AND HAS A MAX. ERROR OF CLOSURE OF 1:10,000 ON ALL PROPERTY LINES WITHIN AND BORDERING THE SUBJECT PROPERTY.



HOLDEN ENGINEERING & SURVEYING, inc.
 56 Old Suncook Road
 PO Box 480 Concord, NH 03302
 (603) 225-6449
 9 Constitution Drive
 Bedford, NH 03110
 (603) 472-2078

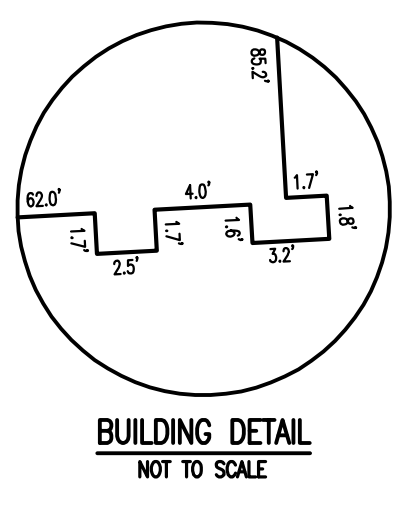
TOPOGRAPHIC SURVEY PREPARED FOR
100 DURGAN LANE OWNER LLC
 100 DURGAN LANE, PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE

Date:	Revisions	Dr.	Chk.	Book	Page	Date:
	Description	By	By			
11-10-23	REVISED PER CLIENT COMMENTS	DS	LR			08-10-23
02-13-24	MINOR UTILITY EDITS	DS	PH			Scale: 1"=40'
02-29-24	REVISE UTILITIES	DS	LR			Dr. By: DS Ck By: LR
						Job No. 2320547
						Sheet no 6 of 8

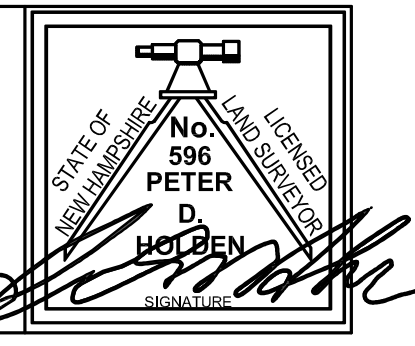


LEGEND:

- ABUTTING PROPERTY LINE
- TREELINE
- UNDERGROUND ELECTRIC (Point)
- SEWER LINE (Point)
- 10 FOOT CONTOUR
- 2 FOOT CONTOUR
- CURBING
- EDGE OF PAVEMENT
- FENCE
- GUARDRAIL
- PROPERTY LINE
- FORMER LOT LINE
- BUILDING SETBACK LINE
- OVERHEAD UTILITY LINES
- EASEMENT
- STONEMALL
- FLAGGED WETLAND
- SWALE
- GAS LINE (Point)
- CONCRETE
- CATCH BASIN
- DRAIN MANHOLE
- ELECTRIC BOX
- LIGHT POLE
- REDBAR OR RAILROAD SPIKE
- DRILL HOLE
- POST
- SIGN
- SEWER MANHOLE
- UTILITY POLE OR BRACE POLE
- WATER SHUT-OFF
- HYDRANT
- ELECTRIC METER
- GAS METER
- FLAG POLE
- GAS SHUT-OFF
- BORING
- WETLAND FLAG LOCATION
- BOLLARD
- TREE



I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY AND HAS A MAX. ERROR OF CLOSURE OF 1:10,000 ON ALL PROPERTY LINES WITHIN AND BORDERING THE SUBJECT PROPERTY.

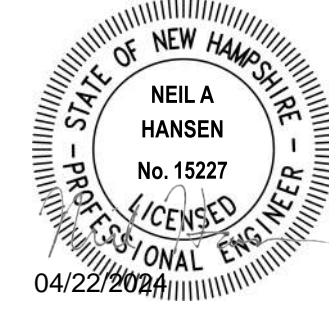
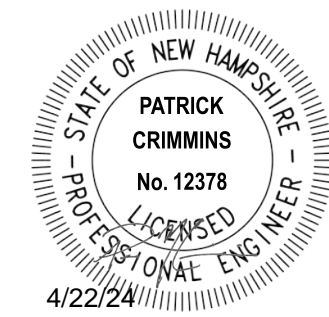


56 Old Suncook Road
PO Box 480 Concord, NH 03302
(603) 225-6449

9 Constitution Drive
Bedford, NH 03110
(603) 472-2078

TOPOGRAPHIC SURVEY PREPARED FOR
100 DURGAN LANE OWNER LLC
100 DURGAN LANE, PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE

Date:	Revisions	Dr.	Chk.	Book	Page	Date:
	Description	By	By			
11-10-23	REVISED PER CLIENT COMMENTS	DS	LR			08-10-23
02-13-24	MINOR UTILITY EDITS	DS	PH			Scale: 1"=40'
02-29-24	REVISE UTILITIES	DS	LR			Dr. By: DS Ck By: LR
						Job No. 2320547
						Sheet no 6 of 8



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.
13. APPLICANT SHALL SUBMIT, AS PART OF THE FINAL POST APPROVAL PROCEDURES, RELEVANT PTAP INFORMATION USING THE MOST RECENT ONLINE DATA PORTAL CURRENTLY MANAGED BY THE UNH STORMWATER CENTER. THE PLANNING DEPARTMENT SHALL BE NOTIFIED AND COPIED OF THE PTAP DATA SUBMITTAL.

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 REMOVE/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.
14. 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.
15. 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.
16. 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.

- 9. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
10. ALL LIGHT POLE BASES NOT PROTECTED BY A RAISED CURB SHALL BE PAINTED YELLOW.
11. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING RETAINING WALL DESIGN FROM STRUCTURAL ENGINEER AND/OR WALL MANUFACTURER. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO CONSTRUCT WALL IN ACCORDANCE WITH DESIGN APPROVED BY THE ENGINEER. RETAINING WALL SHALL BE SEGMENTAL BLOCK WALL SYSTEM AS OUTLINED IN THE DETAILS.
13. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
14. THE APPLICANT SHALL HAVE A SITE SURVEY CONDUCTED BY A RADIO COMMUNICATIONS CARRIER APPROVED BY THE CITY'S COMMUNICATIONS DIVISION. THE RADIO COMMUNICATIONS CARRIER MUST BE FAMILIAR AND CONVERSANT WITH THE POLICE AND RADIO CONFIGURATION. IF THE SITE SURVEY INDICATES IT IS NECESSARY TO INSTALL A SIGNAL REPEATER EITHER ON OR NEAR THE PROPOSED PROJECT, THOSE COSTS SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE OWNER SHALL COORDINATE WITH THE SUPERVISOR OF RADIO COMMUNICATIONS FOR THE CITY.
15. THE PROPERTY OWNER WILL BE RESPONSIBLE FOR TIMELY SNOW REMOVAL FROM ALL PRIVATE SIDEWALKS, DRIVEWAYS, AND PARKING AREAS WHEN SNOW BANKS EXCEED 6' IN HEIGHT. ALL SNOW REMOVAL SHALL BE HAULED OFF-SITE AND LEGALLY DISPOSED OF.

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), 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-801 FOR GENERAL EROSION CONTROL NOTES AND DETAILS.

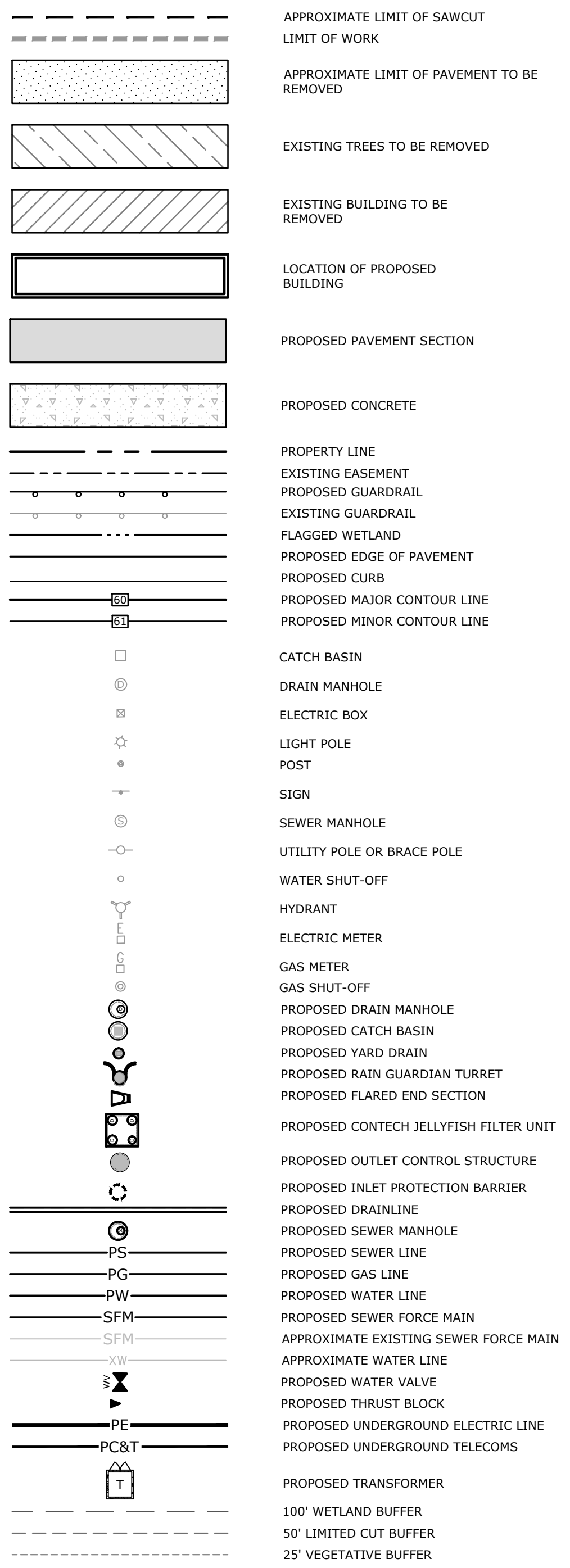
UTILITY NOTES:

- 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. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
6. CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH STANDARDS.
7. 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.
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 THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
10. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
11. 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.
12. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
13. 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.
14. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
15. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
16. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
17. ALL SEWER PIPE WITH LESS THAN 6' OF COVER IN PAVED AREAS OR LESS THAN 4' OF COVER IN UNPAVED AREAS SHALL BE INSULATED.
18. 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.
19. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER.
20. CONTRACTOR SHALL CONSTRUCT ALL UTILITIES AND DRAINS TO WITHIN 10' OF THE FOUNDATION WALLS AND CONNECT THESE TO SERVICE STUBS FROM THE BUILDING.
21. FINAL FIRE & DOMESTIC SERVICE CONNECTION SIZES TO BE DETERMINED BY PROJECT PLUMBING ENGINEER PRIOR TO CONSTRUCTION.

EXISTING CONDITIONS PLAN NOTES:

- 1. EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY HOLDEN ENGINEERING AND SURVEYING, INC. DATED 8/10/2023, LAST REVISED 2/13/2024.
2. WETLAND DELINEATION BY BRENDAN QUIGLEY, CWS #243 OF GOVE ENVIRONMENTAL SERVICES, INC., ON 11/11/2023, AND FIELD LOCATED BY HOLDEN ENGINEERING AND SURVEYING AT A FUTURE DATE.

LEGEND



ABBREVIATIONS

Table listing abbreviations such as AASHTO, AC, ADA, AGGR, BLDG, BC, CB, CONST, COORD, DIA, DIP, DMH, DWG, ELEV, EP, EV, FF, FGC, HDPE, HMA, HYD, ID, INV, L, LF, MAX, MIN, OC, PCB, PDMH, PCS, PROP, PSMH, PVC, PVMT, R, RCP, ROW, SGC, SF, STD, TBR, TC, TYP, UD, VGC, VIF, W/, PYD and their corresponding full names.

Vertical text on the left margin: Last Saved: 4/19/2024, Plotted On: Apr 19, 2024 4:55:00pm, By: DCurcio, Tighe & Bond, \\tgbond\shared\dwg\proj\001-Portsmouth, NH_100 Durgin Lane Drawings\AutoCAD\Sheet\ES071-001-C-DSGN.dwg

PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

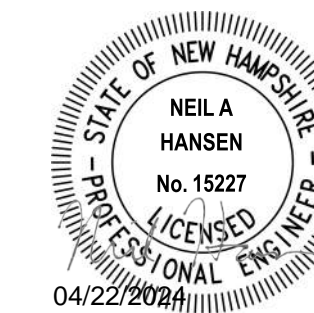
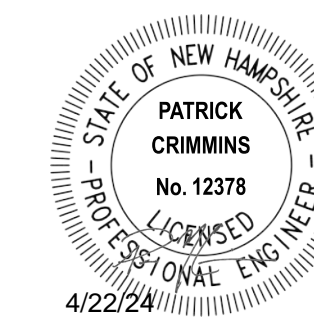
100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

Table with 3 columns: MARK, DATE, DESCRIPTION. Row 1: A, 4/22/2024, TAC SUBMISSION.

Table with 2 columns: PROJECT NO: E5071-001, DATE: 4/22/2024, FILE: E5071-001-C-DSGN.dwg, DRAWN BY: BKC/NHW, DESIGNED/CHECKED BY: NAH, APPROVED BY: PMC.

GENERAL NOTES AND LEGENDS

SCALE: AS SHOWN



**PROPOSED
MULTI-FAMILY
DEVELOPMENT**

100 DURGIN LANE OWNER,
LLC

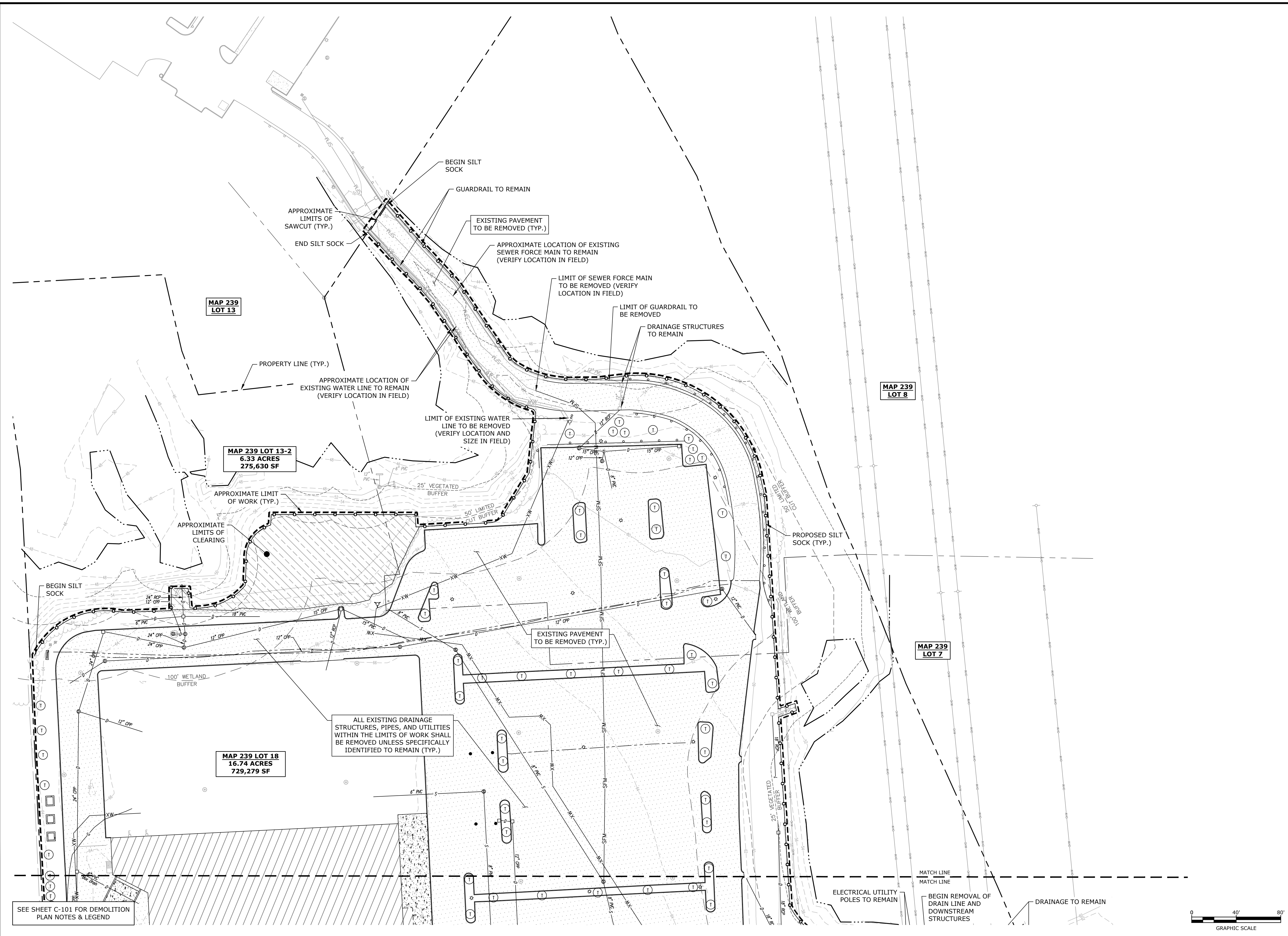
100 DURGIN LANE
PORTSMOUTH,
NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
PROJECT NO: E5071-001		
DATE: 4/22/2024		
FILE: E5071-001-C-DSGN.dwg		
DRAWN BY: BKC/NHW		
DESIGNED/CHECKED BY: NAH		
APPROVED BY: PMC		

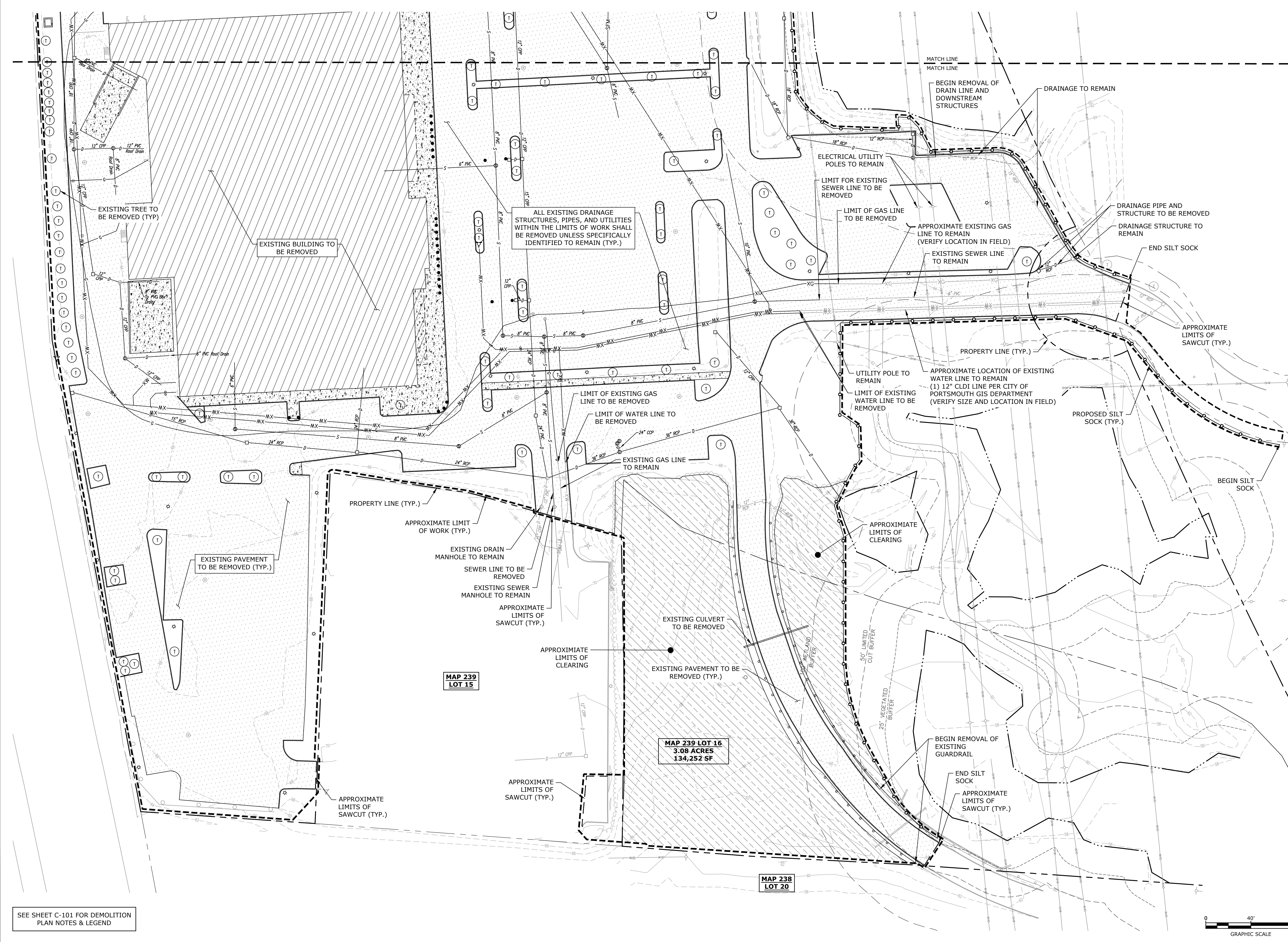
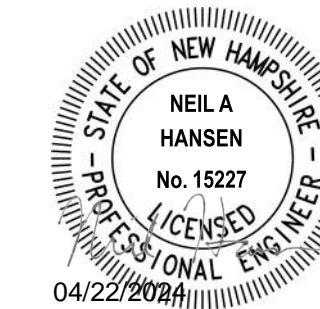
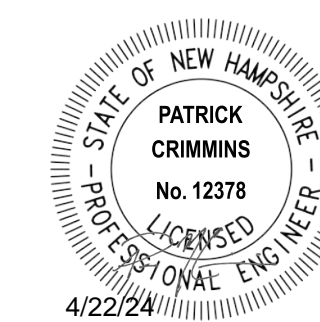
DEMOLITION PLAN

SCALE: AS SHOWN

C-201



Last Saved: 4/19/2024 12:01pm By: Bcourdo
 Plotted On: Apr 19, 2024 12:01pm
 Tighe & Bond \\\globe\shared\Projects\E5071 Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane Drawings\AutoCAD\Sheet\E5071-001-C-DSGN.dwg



**PROPOSED
MULTI-FAMILY
DEVELOPMENT**

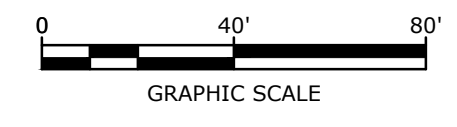
100 DURGIN
LANE OWNER,
LLC

100 DURGIN LANE
PORTSMOUTH,
NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
PROJECT NO: E5071-001		
DATE: 4/22/2024		
FILE: E5071-001-C-DSGN.dwg		
DRAWN BY: BKC/NHW		
DESIGNED/CHECKED BY: NAH		
APPROVED BY: PMC		

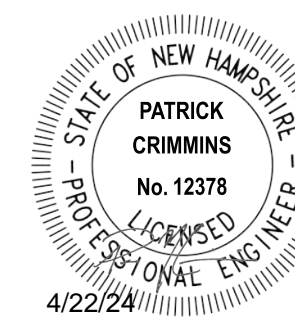
DEMOLITION PLAN

SCALE: AS SHOWN



Last Saved: 4/19/2024 12:02pm By: Bcurcio
 Plotted On: Apr 19, 2024 12:02pm By: Bcurcio
 Tighe & Bond \Vigorena\dwg\Projects\E5071 Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane Drawings\AutoCAD\Sheet\E5071-001-C-DSGN.dwg

SEE SHEET C-101 FOR DEMOLITION
PLAN NOTES & LEGEND



SITE DATA:
 LOCATION: TAX MAP 239, LOT 13-2, MAP 239 LOT 16, MAP 239 LOT 18
 OWNER: 100 DURGIN LANE OWNER LLC
 ONE MARINA PARK DRIVE, SUITE 1500
 BOSTON, MA 02210

ZONING DISTRICT: GATEWAY NEIGHBORHOOD MIXED USE CORRIDOR (G1)
 HIGHWAY NOISE OVERLAY DISTRICT

PROPOSED USE: MULTI-FAMILY RESIDENTIAL DEVELOPMENT
 EXISTING LOT SIZE: ±1,139,161 SF / 26.15 ACRES (MAP 239 LOT 13-2, LOT 16, LOT 18)

DEVELOPMENT STANDARDS

GENERAL RESIDENTIAL DEVELOPMENT (10.5B42.30)	REQUIRED	PROPOSED
MINIMUM SITE DEVELOPMENT AREA:	10,000 SF	±1,139,161 SF
MINIMUM SITE WIDTH:	75 FT	>75 FT
MINIMUM SITE LENGTH:	100 FT	>100 FT
MINIMUM PERIMETER BUFFER:	N/A	-
MAXIMUM DEVELOPMENT BLOCK DIMS:		
BLOCK LENGTH:	500 FT	<500 FT
BLOCK PERIMETER:	1,500 FT	<1,500 FT
MAXIMUM BUILDING COVERAGE:	50%	8.6%
MINIMUM OPEN SPACE COVERAGE:	20%	62%

APARTMENT BUILDING (10.5B34.40)	REQUIRED	PROPOSED
MINIMUM LOT DEPTH:	NR	-
MINIMUM STREET FRONTAGE:	50 FT	200.6 FT
FRONT YARD SETBACK:	10-30 FT	±225.1 FT ⁽¹⁾
MIN. SIDE YARD SETBACK:	15 FT	15 FT
MIN. REAR YARD SETBACK:	20 FT	85.0 FT
DWELLING UNITS PER BUILDING:	4-24	VARIES (24 MAX.)
MAXIMUM DWELLING UNIT SIZE:	NR	-
MAXIMUM BUILDING HEIGHT:	NR	4 STORIES OR 50 FT
MINIMUM STREET-FACING FACADE HEIGHT:	24 FT	>24 FT
MAX. FINISH FLOOR ABOVE SIDEWALK:	36"	VARIES
MAXIMUM BUILDING COVERAGE:	50%	7.8%
MAXIMUM BUILDING FOOTPRINT:	NR	-
MAXIMUM FACADE MODULATION LENGTH:	50 FT	<50 FT
MINIMUM STREET FACING FACADE GLAZING:	20% GROUND FLOOR	>20%
MAXIMUM STREET FACING ENTRANCE SPACING:	NR	-
ALLOWED ROOF TYPES:	ALL	SHED
ALLOWED FACADE TYPES:		FORECOURT, RECESSED, DOORYARD, RECESSED, ENTRY, DOORYARD, STEP, PORCH

COMMUNITY BUILDING (10.5B34.100)	REQUIRED	PROPOSED
MINIMUM LOT DEPTH:	NR	-
MINIMUM STREET FRONTAGE:	50 FT	200.6 FT
FRONT YARD SETBACK:	10-40 FT	263.1 FT ⁽¹⁾
MIN. SIDE YARD SETBACK:	15 FT	756.4 FT
MIN. REAR YARD SETBACK:	20 FT	478.2 FT
DWELLING UNITS PER BUILDING:	NR	-
MAXIMUM DWELLING UNIT SIZE:	NR	-
MAXIMUM BUILDING HEIGHT:	NR	3 STORIES OR 45 FT
MINIMUM STREET-FACING FACADE HEIGHT:	18 FT	18 FT
FINISH FLOOR GRADE ABOVE SIDEWALK:	2 FT - 6 FT	VARIES
MAXIMUM BUILDING COVERAGE:	NR	-
MAXIMUM BUILDING FOOTPRINT:	NR	-
MAXIMUM FACADE MODULATION LENGTH:	100 FT	100 FT
MINIMUM STREET FACING FACADE GLAZING:	30% GROUND FLOOR	30%
MAXIMUM STREET FACING ENTRANCE SPACING:	NR	-
ALLOWED ROOF TYPES:	ALL	SHED
ALLOWED FACADE TYPES:		DOORYARD, FORECOURT, STOOP, RECESSED, ENTRY, STEP, PORCH, TERRACE, GALLERY, ARCADE PORCH, FORECOURT, TERRACE

(1) - THE APPLICANT IS REQUESTING THE PLANNING BOARD TO ALLOW AN INCREASE OF BUILDING SETBACK FROM THE FRONT LOT LINE AS ALLOWED BY SECTION 10.5B41.60.

COMMUNITY SPACE:	REQUIRED	PROPOSED
	10%	11.6%
	113,916 SF	131,942 SF

PARKING REQUIREMENTS

RESIDENTIAL UNITS (<750 SF)	227 UNITS X 1.0 SPACES	227 SPACES
RESIDENTIAL UNITS (>750 SF)	133 UNITS X 1.3 SPACES	173 SPACES
VISITOR SPACES	1 SPACE / 5 UNITS	72 SPACES
TOTAL MINIMUM PARKING SPACES REQUIRED =		472 SPACES

PARKING SPACES	REQUIRED	PROPOSED
	472 SPACES	567 SPACES

ADA PARKING SPACES	REQUIRED ⁽²⁾	PROPOSED
	25 SPACES	34 SPACES

(2) - PER THE AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS, LATEST EDITION.

PARKING SPACE DIMENSIONAL REQUIREMENTS:

STANDARD 90° STALL :		
LENGTH	8.5 FT MIN	8.5 FT
WIDTH	19 FT MIN	19 FT
STANDARD 0° STALL :		
LENGTH	8.5 FT MIN	8.5 FT
WIDTH	20 FT MIN	20 FT
DRIVE AISLE WIDTH:		
90° (2-WAY TRAFFIC)	24 FT	24 FT
0° (2-WAY TRAFFIC)	24 FT	24 FT

BICYCLE SPACES	REQUIRED	PROPOSED
1 BICYCLE SPACE / 10 PARKING SPACES:	30 SPACES (MAX.)	>58 SPACES

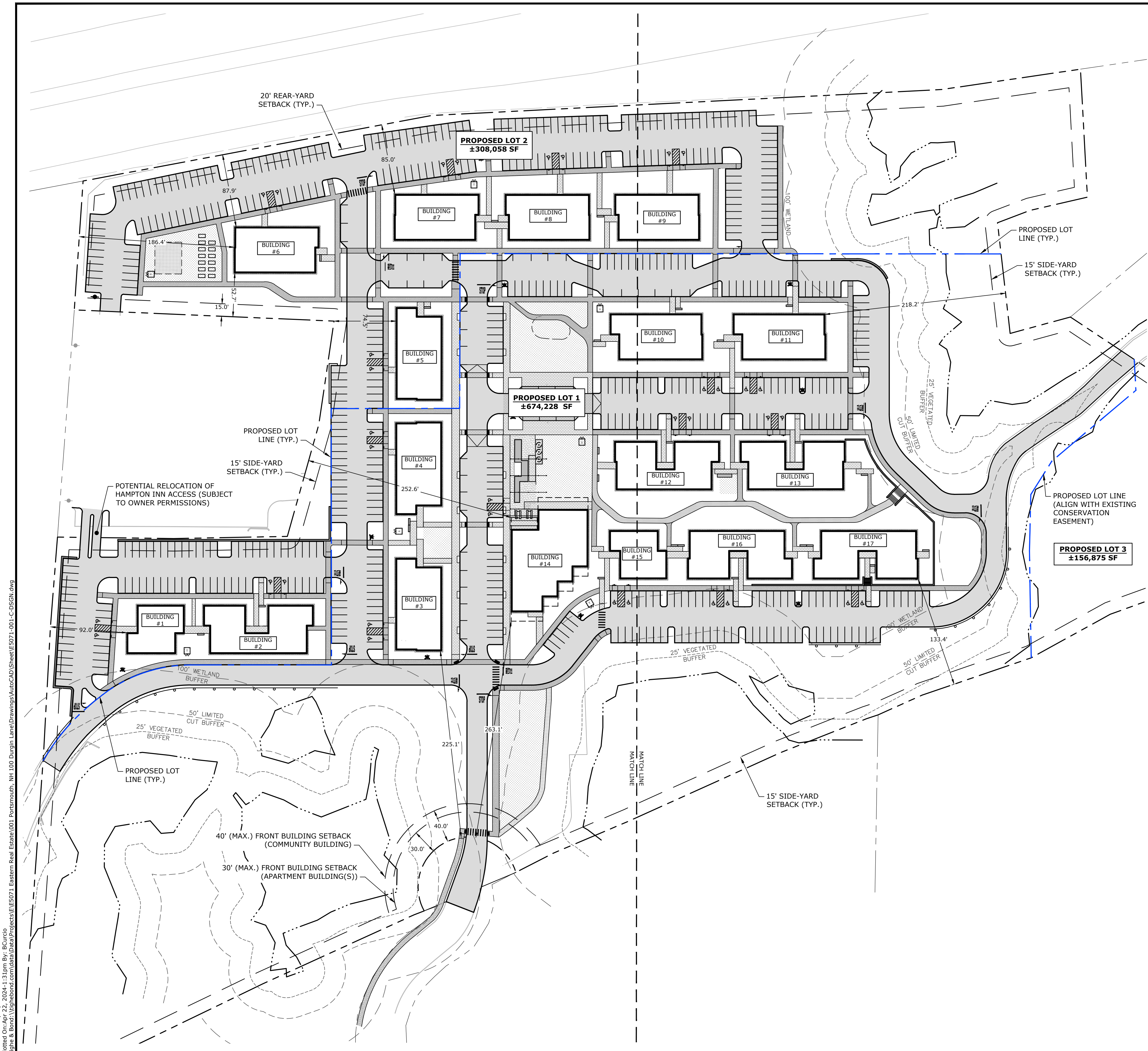
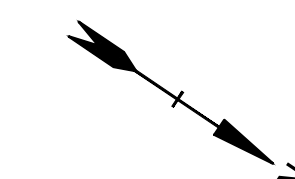
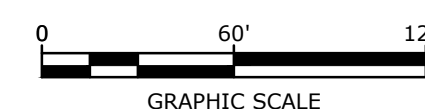
(INDOOR BIKE STORAGE WILL BE PROVIDED THAT MEETS OR EXCEEDS REQUIRED.)

LOT LINE REVISIONS SHOWN HEREIN ARE FOR PERMITTING PURPOSES ONLY. FINAL LOT LINE REVISION PLAN SHALL BE PREPARED BY THE PROJECT SURVEYOR AND RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS PRIOR TO ISSUING BUILDING PERMITS.

SITE RECORDING NOTES:

- THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
- 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.
- ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
- THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH.

SEE SHEET C-101 FOR SITE PLAN NOTES & LEGEND



Last Saved: 4/22/2024
 Plotted On: Apr 22, 2024 1:13 pm By: ECurcio
 Tighe & Bond \Vigilant\dwg\100 Durgin Lane\100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-C-DSGN.dwg

PROPOSED MULTI-FAMILY DEVELOPMENT

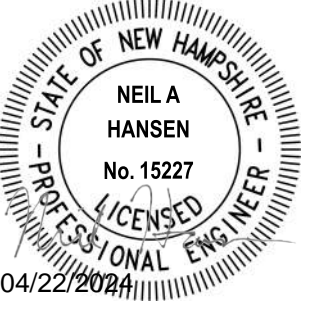
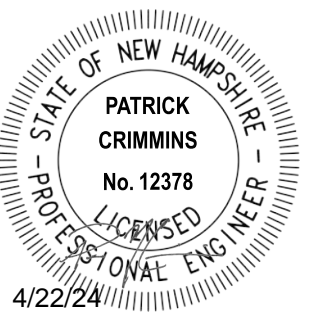
100 DURGIN LANE OWNER, LLC

100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION

PROJECT NO: E5071-001
 DATE: 4/22/2024
 FILE: E5071-001-C-DSGN.dwg
 DRAWN BY: BKC/NHW
 DESIGNED/CHECKED BY: NAH
 APPROVED BY: PMC

OVERALL SITE PLAN
 SCALE: AS SHOWN
C-300



PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION

PROJECT NO: E5071-001

DATE: 4/22/2024

FILE: E5071-001-C-DSGN.dwg

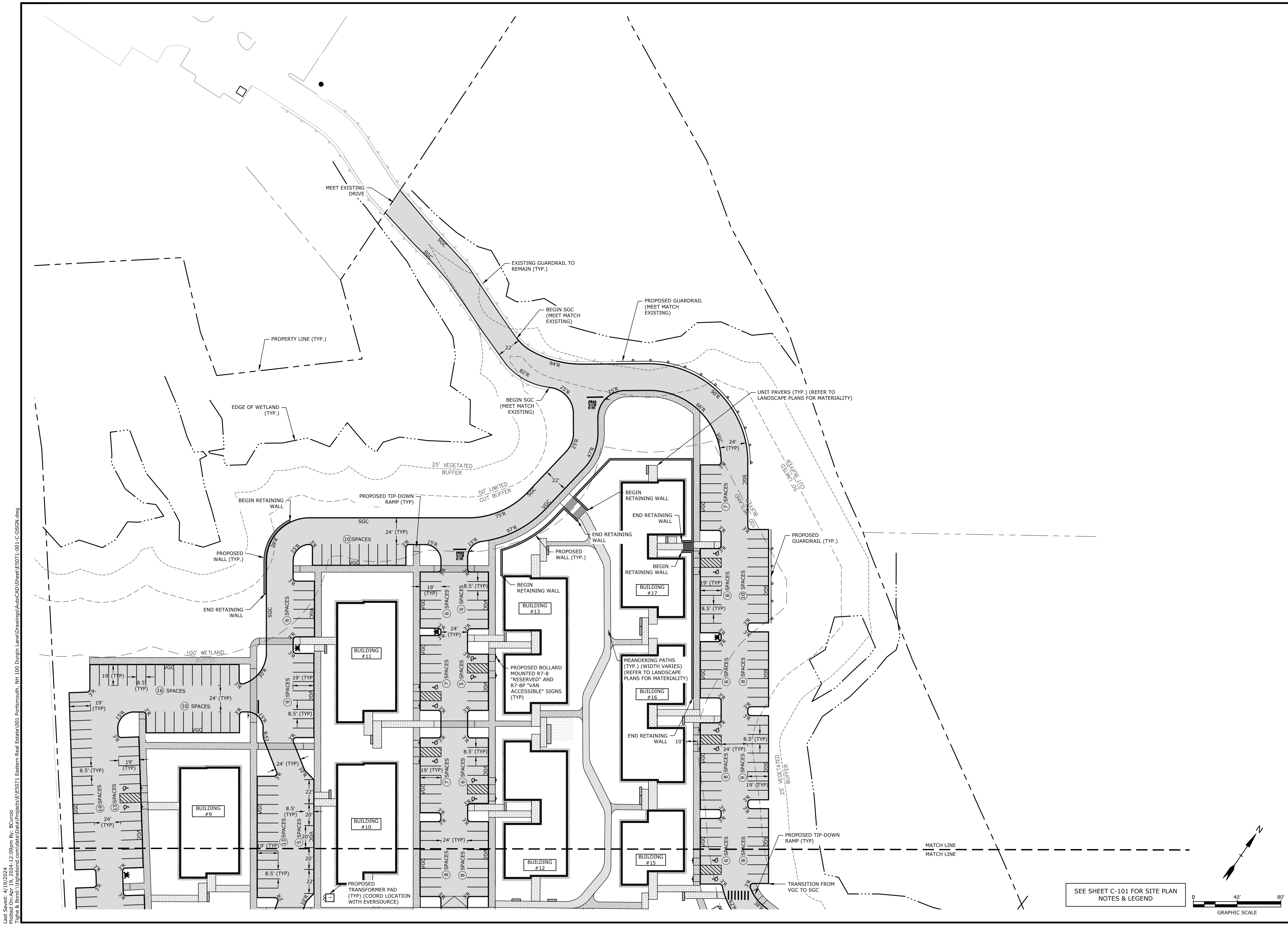
DRAWN BY: BKC/NHW

DESIGNED/CHECKED BY: NAH

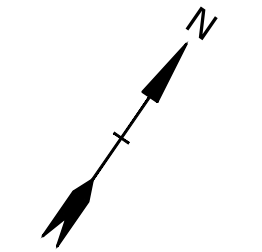
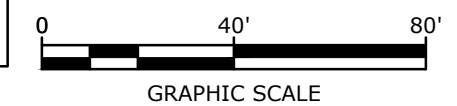
APPROVED BY: PMC

SITE PLAN

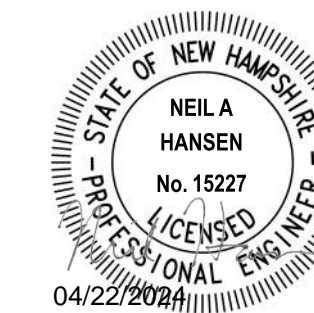
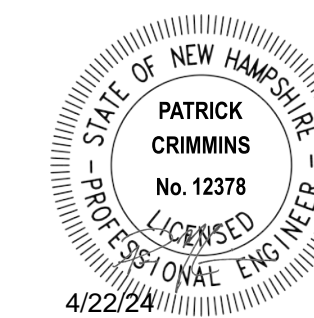
SCALE: AS SHOWN



SEE SHEET C-101 FOR SITE PLAN NOTES & LEGEND



Last Saved: 4/19/2024 4:19:19pm By: Bcurcio
Plotted On: Apr 19, 2024 12:09pm
Tighe & Bond \\globe\shared_data\projects\E5071-Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-C-DSGN.dwg



**PROPOSED
MULTI-FAMILY
DEVELOPMENT**

100 DURGIN LANE OWNER,
LLC

100 DURGIN LANE
PORTSMOUTH,
NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION

PROJECT NO: E5071-001
 DATE: 4/22/2024
 FILE: E5071-001-C-DSGN.dwg
 DRAWN BY: BKC/NHW
 DESIGNED/CHECKED BY: NAH
 APPROVED BY: PMC

**GRADING, DRAINAGE, AND
EROSION CONTROL PLAN**

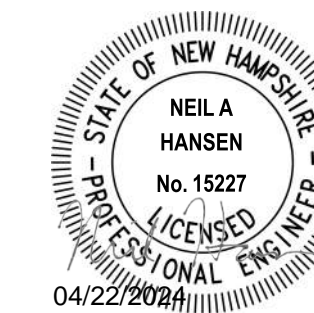
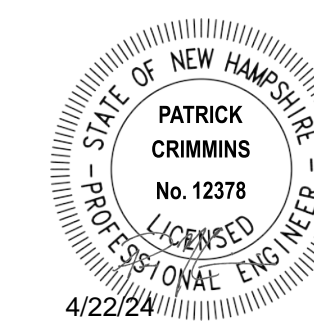
SCALE: AS SHOWN

C-401



SEE SHEET C-101 FOR GRADING & DRAINAGE PLAN NOTES & LEGEND

Last Saved: 4/19/2024 10:44:33am By: ECorrilo
 Plotted On: Apr 22, 2024 9:33am By: ECorrilo
 Tighe & Bond \InRoadway\Drawings\AutoCAD\Projects\E5071-001-C-DSGN.dwg



**PROPOSED
MULTI-FAMILY
DEVELOPMENT**

100 DURGIN LANE OWNER,
LLC

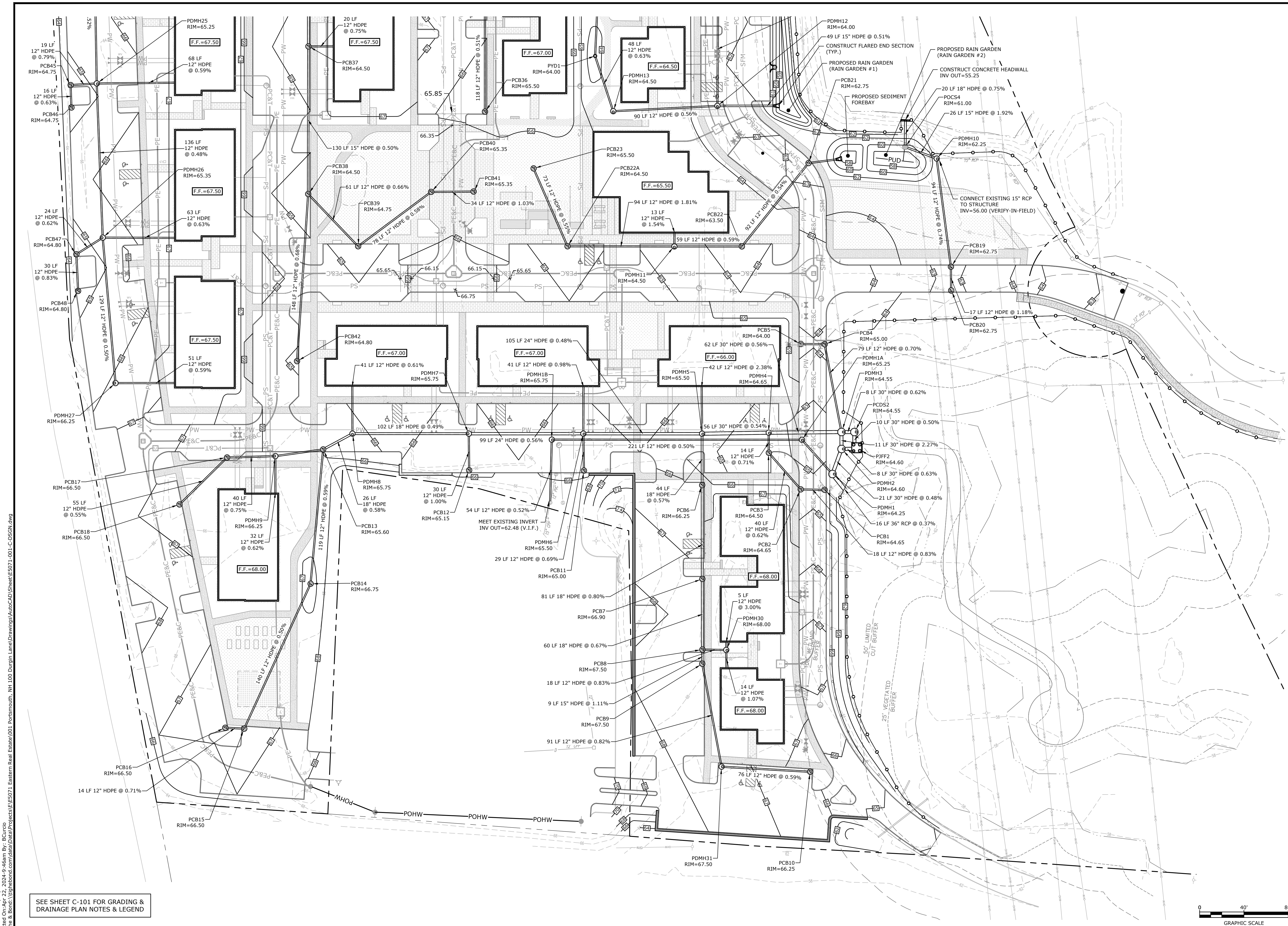
100 DURGIN LANE
PORTSMOUTH,
NEW HAMPSHIRE

MARK	DATE	TAC SUBMISSION	DESCRIPTION
A	4/22/2024	TAC SUBMISSION	
PROJECT NO: E5071-001			
DATE: 4/22/2024			
FILE: E5071-001-C-DSGN.dwg			
DRAWN BY: BKC/NHW			
DESIGNED/CHECKED BY: NAH			
APPROVED BY: PMC			

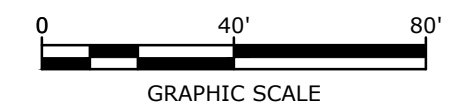
GRADING, DRAINAGE, AND
EROSION CONTROL PLAN

SCALE: AS SHOWN

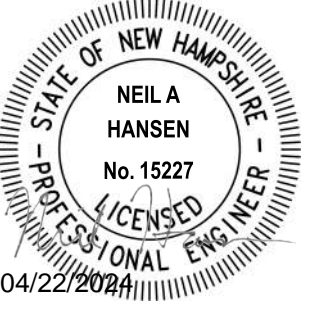
C-402



SEE SHEET C-101 FOR GRADING &
DRAINAGE PLAN NOTES & LEGEND



Last Saved: 4/19/2024 9:49:49 AM By: ECurcio
 Plotted On: Apr 22, 2024 10:00:00 AM
 Tighe & Bond \\\globe\shared\dwg\proj\100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-C-DSGN.dwg



STRUCTURE TABLE			
STRUCTURE NAME	RIM	INV. IN	INV. OUT
HW-1	60.00	55.25 SE	
PCB1	64.65		60.30 SW
PCB2	64.65	60.15 NE	60.05 W
PCB3	64.50	59.80 E	59.70 NW
PCB4	65.00	59.80 SW	59.70 SE
PCB5	64.00		59.95 NE
PCB6	66.25	60.35 SE	60.25 NW
PCB7	66.90	61.10 SE	61.00 NW
PCB8	67.50	61.60 SE 61.60 NE	61.50 NW
PCB9	67.50	61.70 SE	61.70 NW
PCB10	66.25		63.00 SW
PCB11	65.00		60.80 NW
PCB12	65.15		61.55 NW
PCB13	65.60	62.10 SW 62.10 SE	62.00 NE
PCB14	66.75	62.90 S	62.80 NW
PCB15	66.50		63.70 SW 63.60 N
PCB16	66.50	63.60 NE	
PCB17	66.50	62.85 S	62.75 NE
PCB18	66.50		63.15 N
PCB19	62.75	57.80 SE	57.70 NW
PCB20	62.75		58.00 NW
PCB21	62.75	58.25 S	58.15 NE
PCB22	63.50	58.85 SW	58.75 N
PCB22A	64.50	61.10 NW	61.00 NE
PCB23	65.50		61.50 SE
PCB24	57.75		53.70 SW
PCB25	59.25		54.70 SW
PCB26	60.50		55.10 NW
PCB27	54.50		51.30 SE
PCB28	54.50		51.35 E
PCB29	61.00		56.20 NW
PCB30	61.00	56.10 SE	

STRUCTURE TABLE			
STRUCTURE NAME	RIM	INV. IN	INV. OUT
PCB31	65.50	58.60 SE 58.60 NE 58.60 NW	58.50 SW
PCB32	63.25		59.50 S
PCB33	63.50	60.10 SE	60.00 SW
PCB34	64.50	60.60 SE	60.50 NW
PCB35	65.50	61.15 SE	61.05 NW
PCB36	65.50		61.95 NW
PCB37	64.50	59.35 SE 59.35 NE	59.25 NW
PCB38	64.50	61.00 SE 60.10 E	60.00 NW
PCB39	64.75	60.60 N	60.50 W
PCB40	65.35	61.15 NE	61.05 S
PCB41	65.35		61.50 SW
PCB42	64.80		62.00 NW
PCB43	64.50		59.10 SE
PCB44	64.50		59.10 NE
PCB45	64.75	60.10 SE	60.00 NE
PCB46	64.75		60.20 NW
PCB47	64.80	60.85 SE	60.75 NE
PCB48	64.80		61.10 NW
PCDS1	66.25	58.00 NE	58.50 SW
PCDS2	64.55	59.00 SW	58.90 SE
PDMH1	64.25	60.65 W 58.65 N	58.65 E
PDMH1A	65.25	61.00 SW	60.90 E
PDMH1B	65.75	62.20 SE	62.10 NE
PDMH2	64.60	58.80 NW 58.80 NE	58.75 S
PDMH3	64.55	59.15 SW 59.15 NW	59.05 NE 59.05 SE
PDMH4	64.65	59.60 SW 59.60 SE	59.50 NE
PDMH5	65.50	60.00 SW 60.00 SE 60.00 NW	59.90 NE
PDMH6	65.50	60.60 SW 60.60 NW 60.60 SE	60.50 NE
PDMH7	65.75	61.25 SW 61.25 SE	61.15 NE
PDMH8	65.75	61.85 SW 61.85 NW	61.75 NE
PDMH9	66.25	62.45 SW 62.45 SE	62.35 NE
PDMH10	62.25	57.00 SE 56.00 E	56.00 W

STRUCTURE TABLE			
STRUCTURE NAME	RIM	INV. IN	INV. OUT
PDMH11	64.50	59.30 SW 59.30 NW	59.20 NE
PDMH12	64.00	59.35 SW 59.35 NW	59.25 NE
PDMH13	64.50	60.55 NW	59.85 NE
PDMH14	62.75	59.95 SW	59.85 SE
PDMH15	57.90	53.60 SE 53.60 NE	53.50 W
PDMH16	59.50	54.60 SE 54.60 NE	54.50 NW
PDMH17	65.50	61.25 SE	53.50 NW
PDMH18	55.00	51.25 W 51.25 NW 51.25 S	51.15 NE
PDMH19	61.00	56.10 SE	56.20 NW 56.00 N
PDMH21	64.75	59.20 NE 59.20 N	59.10 SE
PDMH22	65.00	60.85 SE 60.85 NE	60.75 NW
PDMH23	65.75	61.35 SE 61.35 NE	61.25 NW
PDMH24	64.75	58.95 SE 58.95 SW 58.95 NW	58.85 NE
PDMH25	65.25	59.85 SE 59.85 NE 59.85 SW	59.75 NW
PDMH26	65.35	60.60 NE 60.60 SW 60.50 SE	60.50 NW
PDMH27	66.25	61.25 NE	61.15 NW
PDMH28	66.00	59.75 SE	59.65 NE
PDMH29	66.00	59.00 SW 57.50 SE	57.40 NW
PDMH30	68.00	61.85 SE 61.85 NW	61.75 SW
PDMH31	67.50	62.55 NE	62.45 NW
PJFF1	65.75	58.05 SW	57.55 NW
PJFF2	64.60	58.85 NW	58.85 SW
POCS1	65.55	58.25 SE	60.00 NW 58.15 NE
POCS2	53.00		48.40 NW
POCS3	60.50		54.00 NE
POCS4	61.00	55.50 E	55.40 NW
PYD1	64.00	60.85 NW	60.85 SE
PYD2	64.25	61.35 NW	61.35 SE
PYD3	64.85		62.00 SE

**PROPOSED
MULTI-FAMILY
DEVELOPMENT**

100 DURGIN
LANE OWNER,
LLC

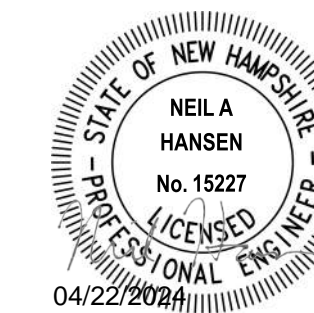
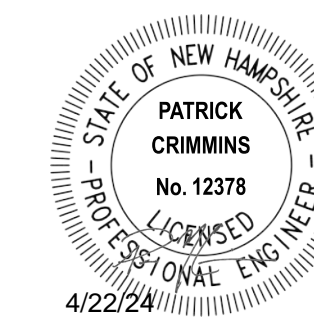
100 DURGIN LANE
PORTSMOUTH,
NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
PROJECT NO: E5071-001		
DATE: 4/22/2024		
FILE: E5071-001-C-DSGN.dwg		
DRAWN BY: BKC/NHW		
DESIGNED/CHECKED BY: NAH		
APPROVED BY: PMC		

**DRAINAGE STRUCTURE
TABLES**

SCALE: AS SHOWN

Last Saved: 4/19/2024 9:47:47 AM By: DCurcio
 Plotted On: Apr 22, 2024 9:47:47 AM By: DCurcio
 Tighe & Bond \\tgbond\com\data\projects\E5071-Eastern Real Estate\001-Portsmouth, NH 100 Durgin Lane Drawings\AutoCAD\Sheet\E5071-001-C-DSGN.dwg



**PROPOSED
MULTI-FAMILY
DEVELOPMENT**

100 DURGIN LANE OWNER,
LLC

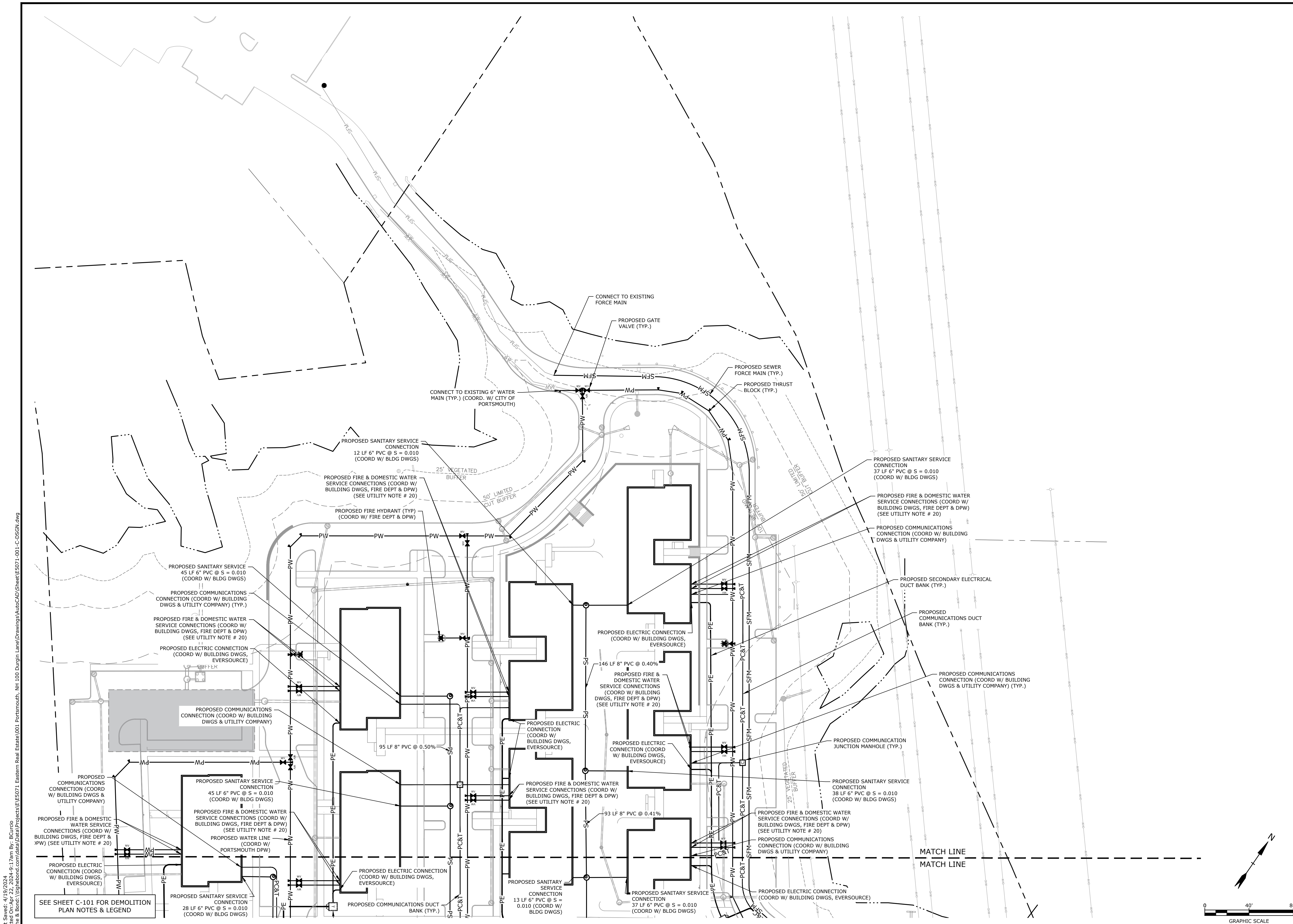
100 DURGIN LANE
PORTSMOUTH,
NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
PROJECT NO: E5071-001		
DATE: 4/22/2024		
FILE: E5071-001-C-DSGN.dwg		
DRAWN BY: BKC/NHW		
DESIGNED/CHECKED BY: NAH		
APPROVED BY: PMC		

UTILITIES PLAN

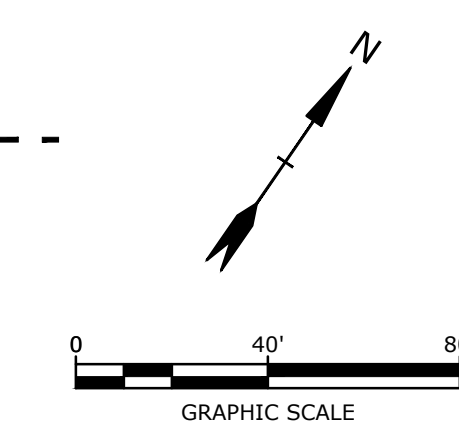
SCALE: AS SHOWN

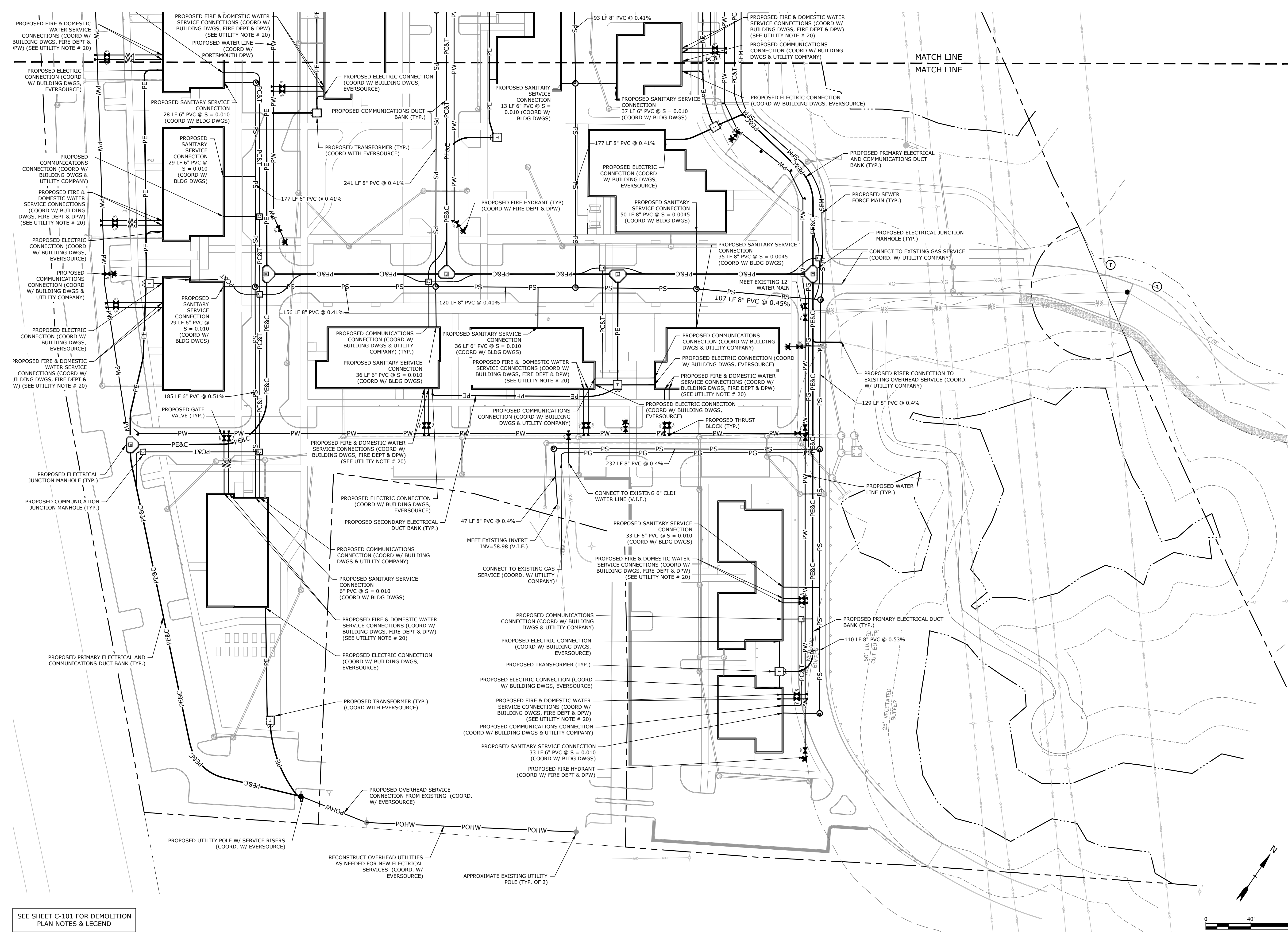
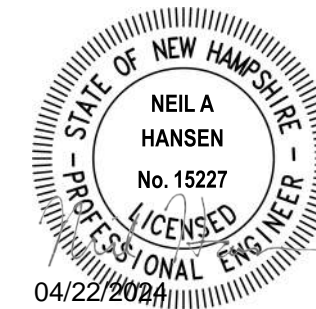
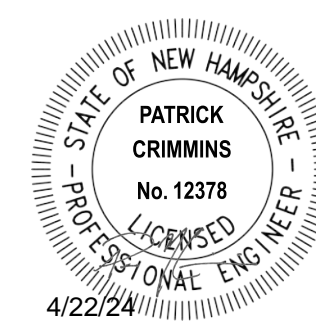
C-501



Last Saved: 4/19/2024 9:17am By: E.Curcio
 Plotted On: Apr 22, 2024 9:17am
 Tighe & Bond \Vigilant\dwg\Projects\E5071 Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane Drawings\AutoCAD\Sheet\E5071-001-C-DSGN.dwg

SEE SHEET C-101 FOR DEMOLITION
PLAN NOTES & LEGEND





PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

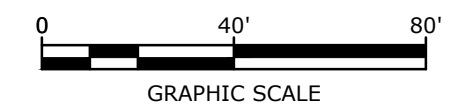
100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION

PROJECT NO:	E5071-001
DATE:	4/22/2024
FILE:	E5071-001-C-DSGN.dwg
DRAWN BY:	BKC/NHW
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

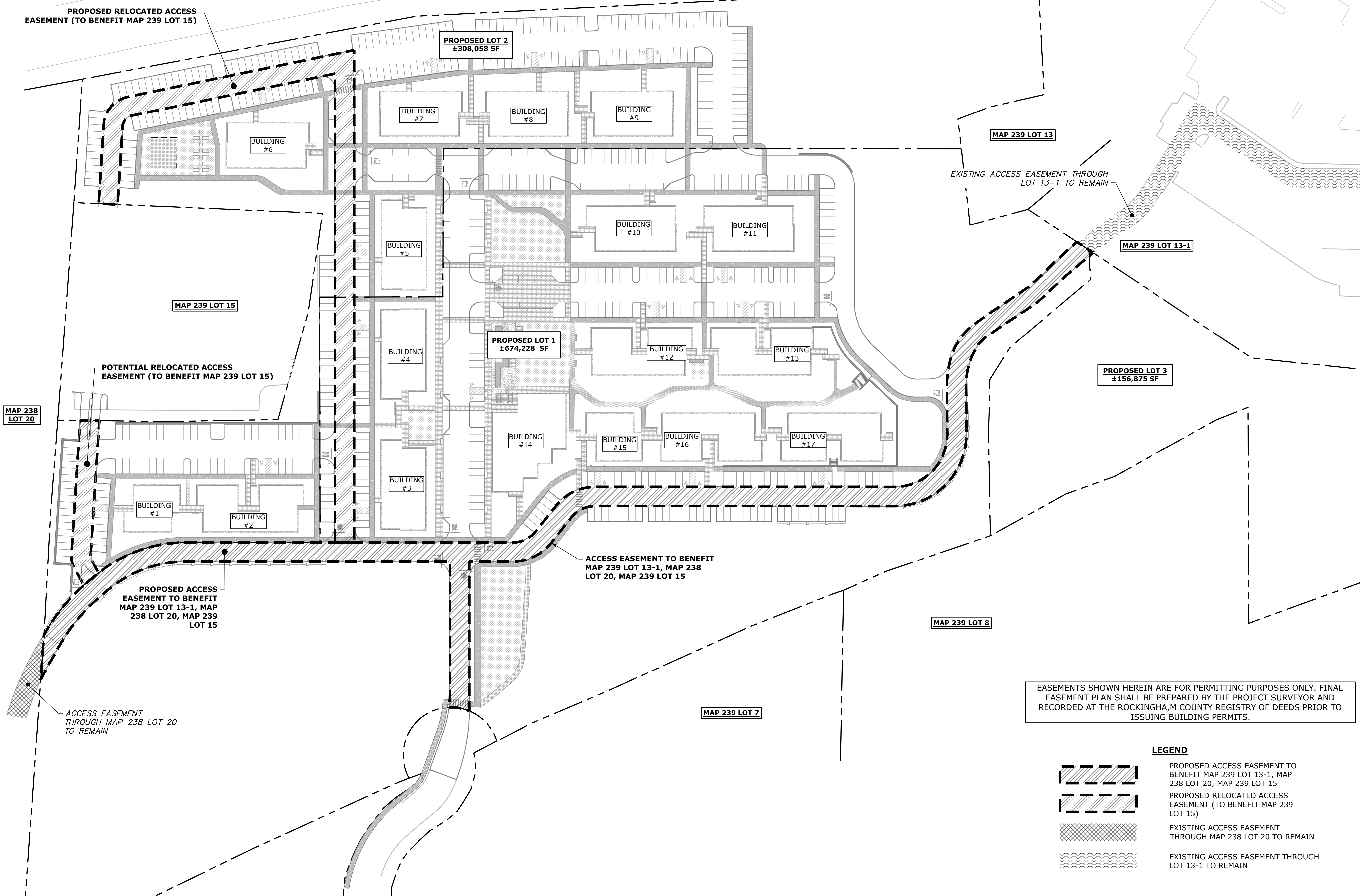
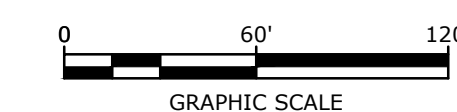
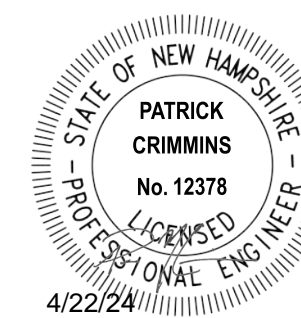
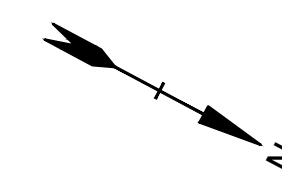
UTILITIES PLAN

SCALE: AS SHOWN



SEE SHEET C-101 FOR DEMOLITION PLAN NOTES & LEGEND

Last Saved: 4/19/2024 10:49:22am
 Plotted On: Apr 22, 2024 9:22am
 Plotted By: BCurcio
 Tighe & Bond \\lgn\shared\command\data\proj\100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-C-DSGN.dwg



EASEMENTS SHOWN HEREIN ARE FOR PERMITTING PURPOSES ONLY. FINAL EASEMENT PLAN SHALL BE PREPARED BY THE PROJECT SURVEYOR AND RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS PRIOR TO ISSUING BUILDING PERMITS.

LEGEND

	PROPOSED ACCESS EASEMENT TO BENEFIT MAP 239 LOT 13-1, MAP 238 LOT 20, MAP 239 LOT 15
	PROPOSED RELOCATED ACCESS EASEMENT (TO BENEFIT MAP 239 LOT 15)
	EXISTING ACCESS EASEMENT THROUGH MAP 238 LOT 20 TO REMAIN
	EXISTING ACCESS EASEMENT THROUGH LOT 13-1 TO REMAIN

PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

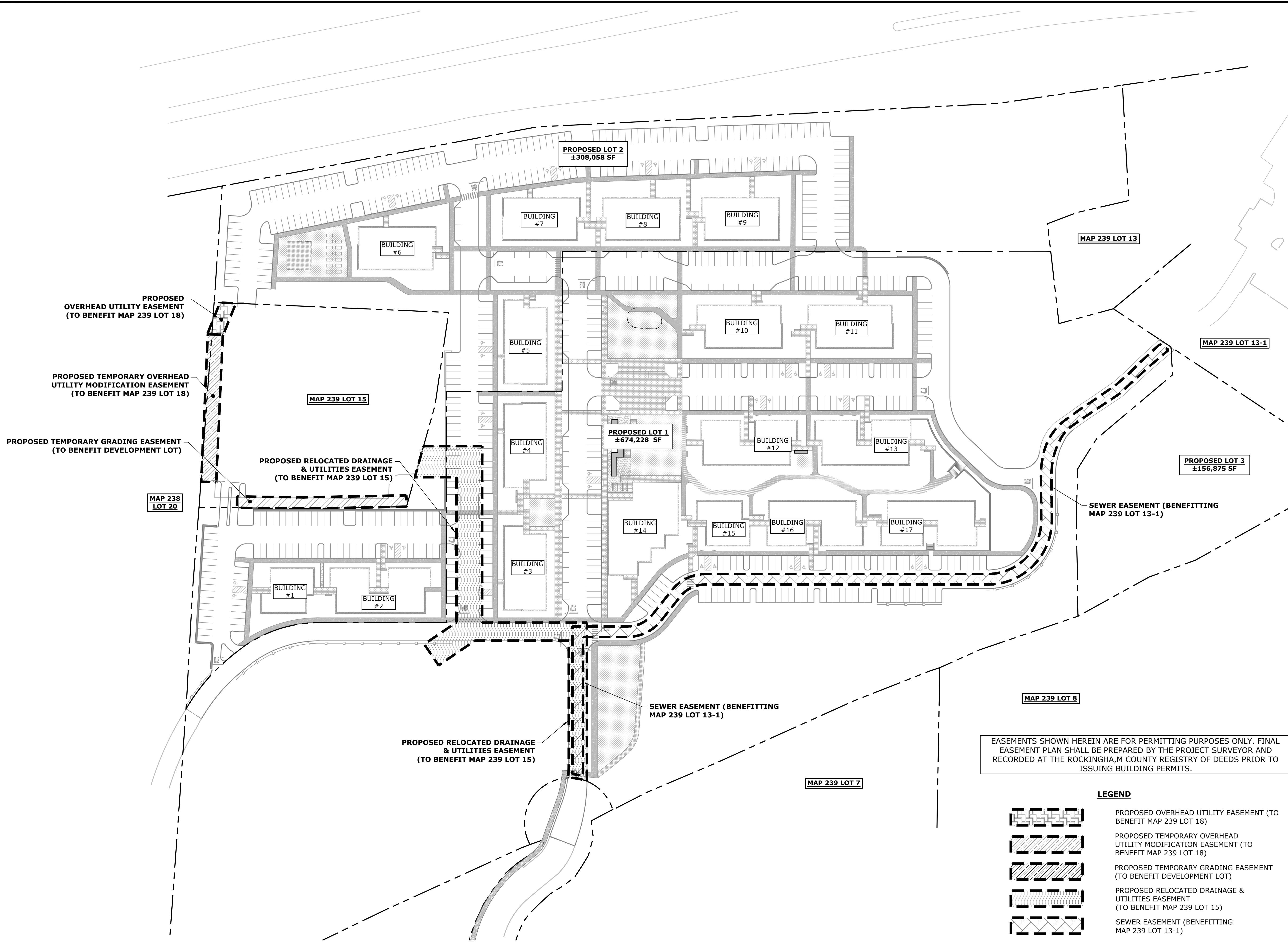
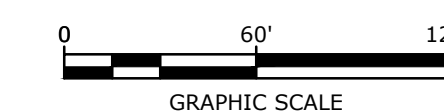
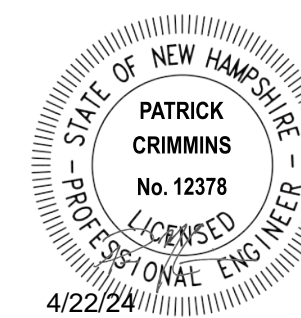
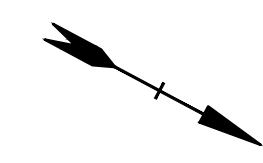
MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
PROJECT NO: E5071-001		
DATE: 4/22/2024		
FILE: E5071-001-FIGS.dwg		
DRAWN BY: BKC/NHW		
DESIGNED/CHECKED BY: NAH		
APPROVED BY: PMC		

ACCESS EASEMENT PLAN

SCALE: AS SHOWN

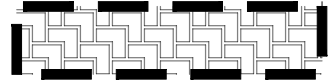




C-600

Last Saved: 4/22/2024 11:16pm By: SCurcio
 Plotted On: Apr 22, 2024 2:11pm
 Tighe & Bond \Vigilante\com\data\proj\1501\1501-001-FIGS.dwg



EASEMENTS SHOWN HEREIN ARE FOR PERMITTING PURPOSES ONLY. FINAL EASEMENT PLAN SHALL BE PREPARED BY THE PROJECT SURVEYOR AND RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS PRIOR TO ISSUING BUILDING PERMITS.

LEGEND

-  PROPOSED OVERHEAD UTILITY EASEMENT (TO BENEFIT MAP 239 LOT 18)
-  PROPOSED TEMPORARY OVERHEAD UTILITY MODIFICATION EASEMENT (TO BENEFIT MAP 239 LOT 18)
-  PROPOSED TEMPORARY GRADING EASEMENT (TO BENEFIT DEVELOPMENT LOT)
-  PROPOSED RELOCATED DRAINAGE & UTILITIES EASEMENT (TO BENEFIT MAP 239 LOT 15)
-  SEWER EASEMENT (BENEFITTING MAP 239 LOT 13-1)

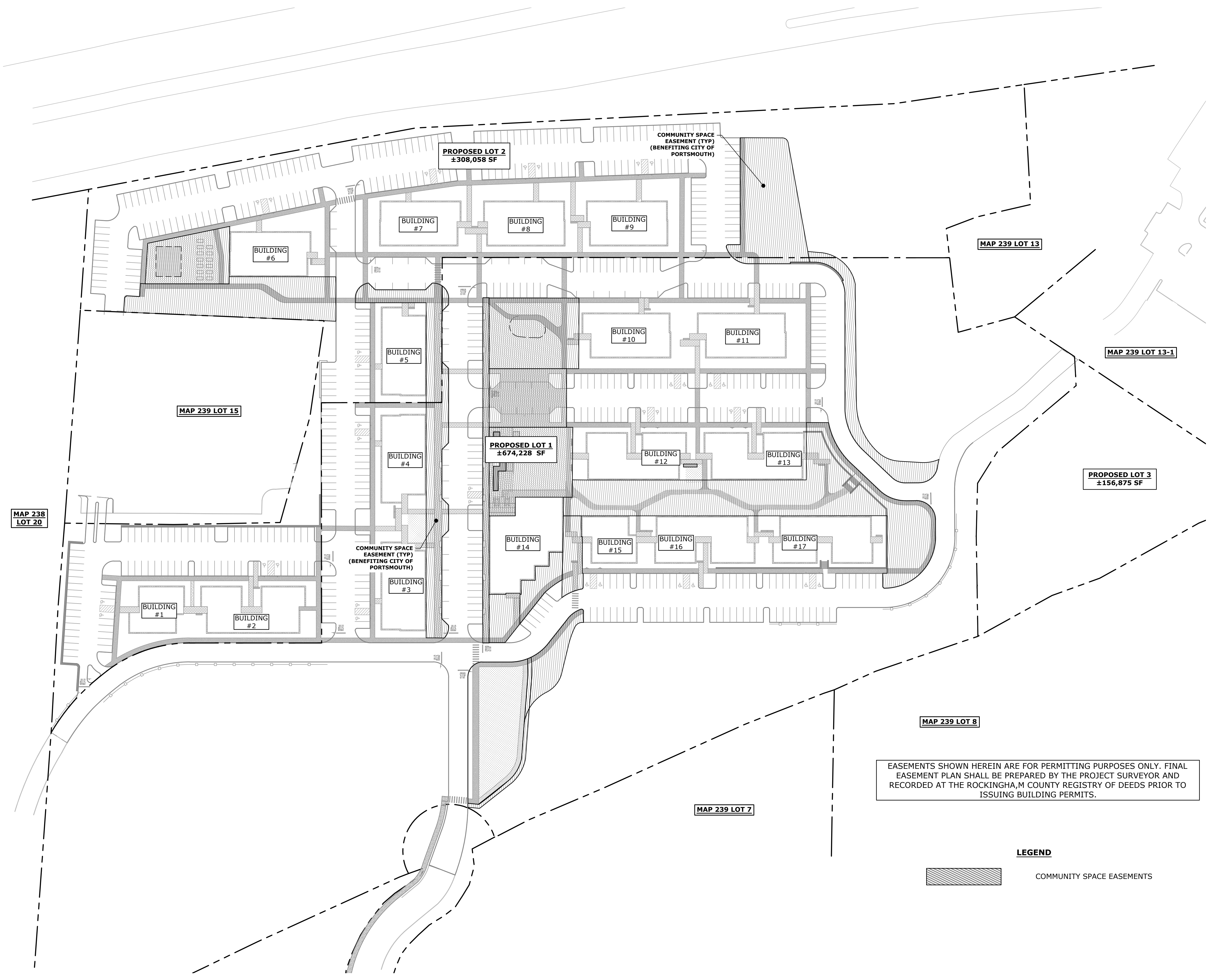
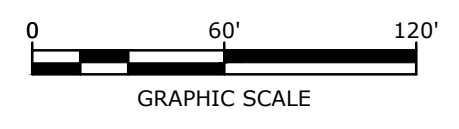
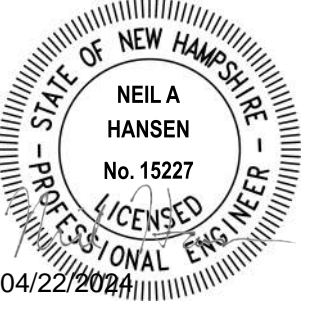
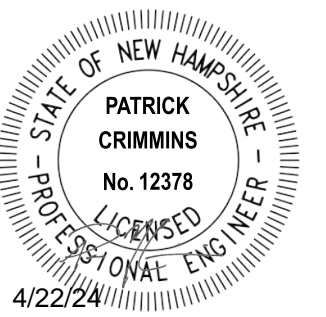
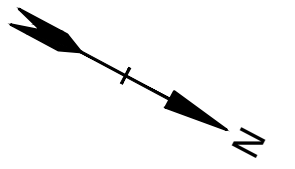
PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
PROJECT NO: E5071-001		
DATE: 4/22/2024		
FILE: E5071-001-FIGS.dwg		
DRAWN BY: BKC/NHW		
DESIGNED/CHECKED BY: NAH		
APPROVED BY: PMC		
UTILITY, DRAINAGE, AND GRADING EASEMENT PLAN		
SCALE: AS SHOWN		

Last Saved: 4/22/2024 2:09pm By: SCurcio
 Plotted On: Apr 22, 2024 2:09pm By: SCurcio
 Tighe & Bond \\fighobond.com\data\projects\E5071\Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane Drawings\AutoCAD\Sheet\E5071-001-FIGS.dwg



PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION

PROJECT NO:	E5071-001
DATE:	4/22/2024
FILE:	E5071-001-FIGS.dwg
DRAWN BY:	BKC/NHW
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

COMMUNITY EASEMENT PLAN

SCALE: AS SHOWN

Last Saved: 4/22/2024
 Plotted On: Apr 22, 2024 2:08pm By: SCurcio
 Tighe & Bond \Vigilante\dwg\Projects\E5071 Eastern Real Estate\001 Portsmouth, NH 100 Durgin Lane Drawings\AutoCAD\Sheet\E5071-001-FIGS.dwg

GENERAL PROJECT INFORMATION

PROJECT APPLICANT: 100 DURGIN LANE OWNER, LLC
PROJECT NAME: PROPOSED MIXED USE DEVELOPMENT
PROJECT MAP / LOT: MAP 239 / LOT 18
PROJECT ADDRESS: DURGIN LANE, PORTSMOUTH, NH 03801

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE CONSTRUCTION OF AN 360 RESIDENTIAL UNITS IN A MIX OF 3 AND 4 STORY BUILDINGS.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 15.1 ACRES.

SOIL CHARACTERISTICS

BASED ON THE USCS WEB SOIL SURVEY THE SOILS ON SITE PRIMARILY CONSIST OF CHATFIELD-HOLLIS-CANTON COMPLEX SOILS WHICH ARE WELL DRAINED SOILS WITH A HYDROLOGIC SOIL GROUP RATING OF B.

NAME OF RECEIVING WATERS

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA A CLOSED DRAINAGE SYSTEM TO AN UNNAMED ON SITE WETLANDS WHICH ULTIMATELY FLOW TO THE PISCATAQUA RIVER.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

- 1. CUT AND CLEAR TREES.
2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES.
3. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING.
4. CLEAR AND DISPOSE OF DEBRIS.
5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.

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

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"
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...

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;
2. 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...

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.

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.

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.

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.
2. VEGETATIVE PRACTICE:
A. FOR PERMANENT MEASURES AND PLANTINGS:
a. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER...

Table with columns: SEED MIX, APPLICATION RATE. Rows: 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.

- 3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS.

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;

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;

WASTE DISPOSAL:

- 1. WASTE MATERIAL:
A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES.

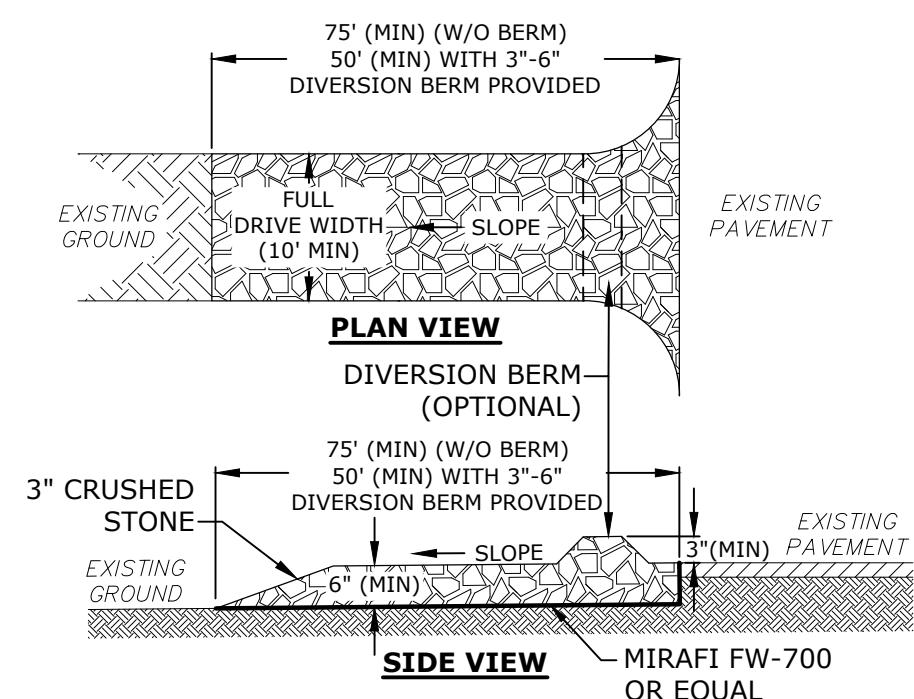
- DEPOSITED IN A DUMPSTER;
C. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
4. HAZARDOUS WASTE:
A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION...

SPILL PREVENTION:

- 1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES.
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:
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 REGULATED MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER...

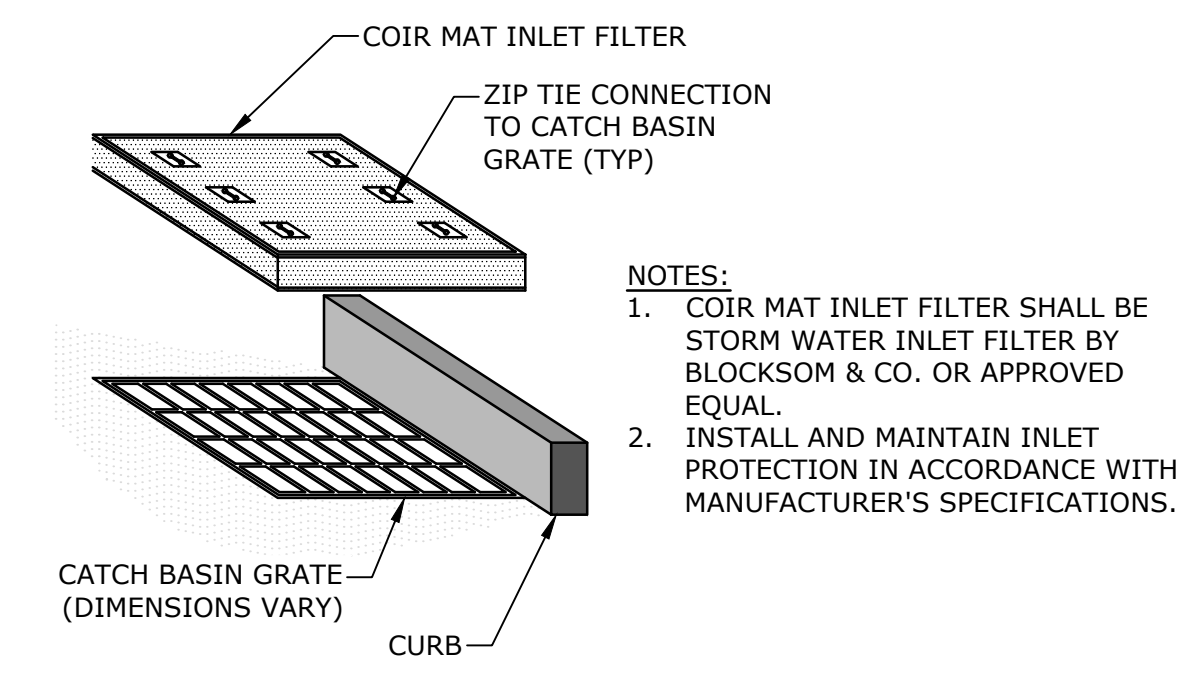
EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

- 1. THIS PROJECT EXCEEDS ONE (1) ACRE OF DISTURBANCE AND THUS REQUIRES A SWPPP.
2. THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
A. 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;
B. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;



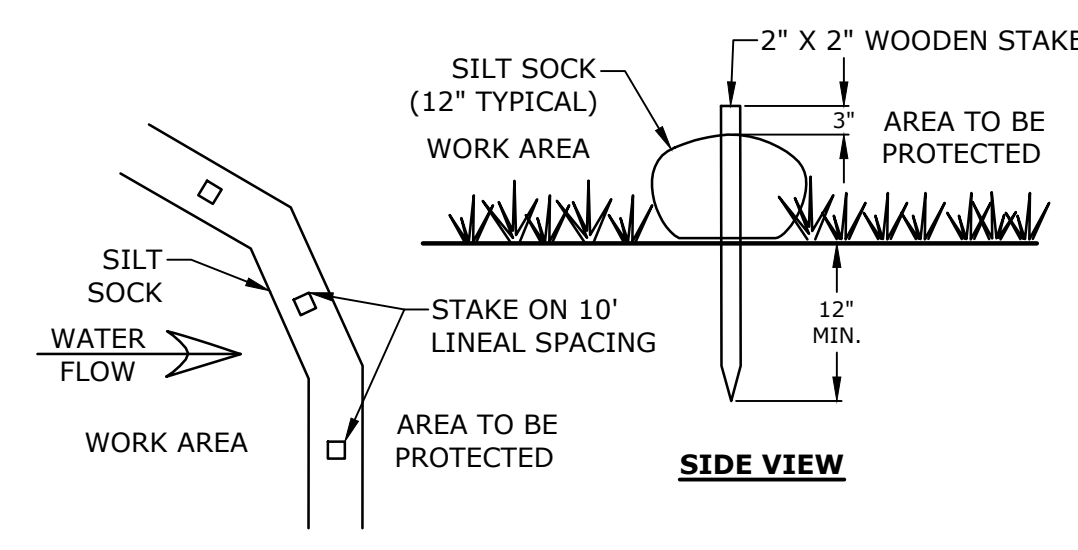
NOTE: 1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

STABILIZED CONSTRUCTION EXIT NO SCALE



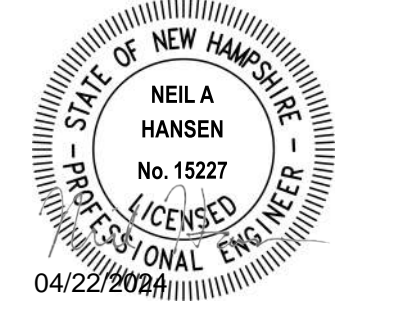
NOTES: 1. COIR MAT INLET FILTER SHALL BE STORM WATER INLET FILTER BY BLOCKSOM & CO. OR APPROVED EQUAL.

INLET PROTECTION NO SCALE



NOTES: 1. SILT SOCK SHALL BE SILT SOCK BY FILTREX OR APPROVED EQUAL. 2. INSTALL SILT SOCK IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

SILT SOCK NO SCALE



PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

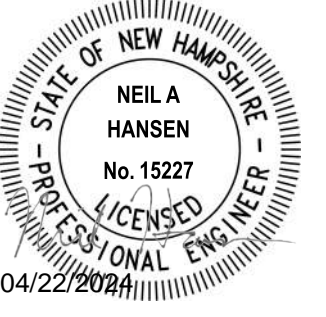
Table with columns: MARK, DATE, DESCRIPTION. Includes project info: PROJECT NO: E5071-001, DATE: 4/22/2024, FILE: E5071-001-C-DTLS.dwg, DRAWN BY: BKC/NHW, DESIGNED/CHECKED BY: NAH, APPROVED BY: PMC.

EROSION CONTROL NOTES AND DETAILS SHEET

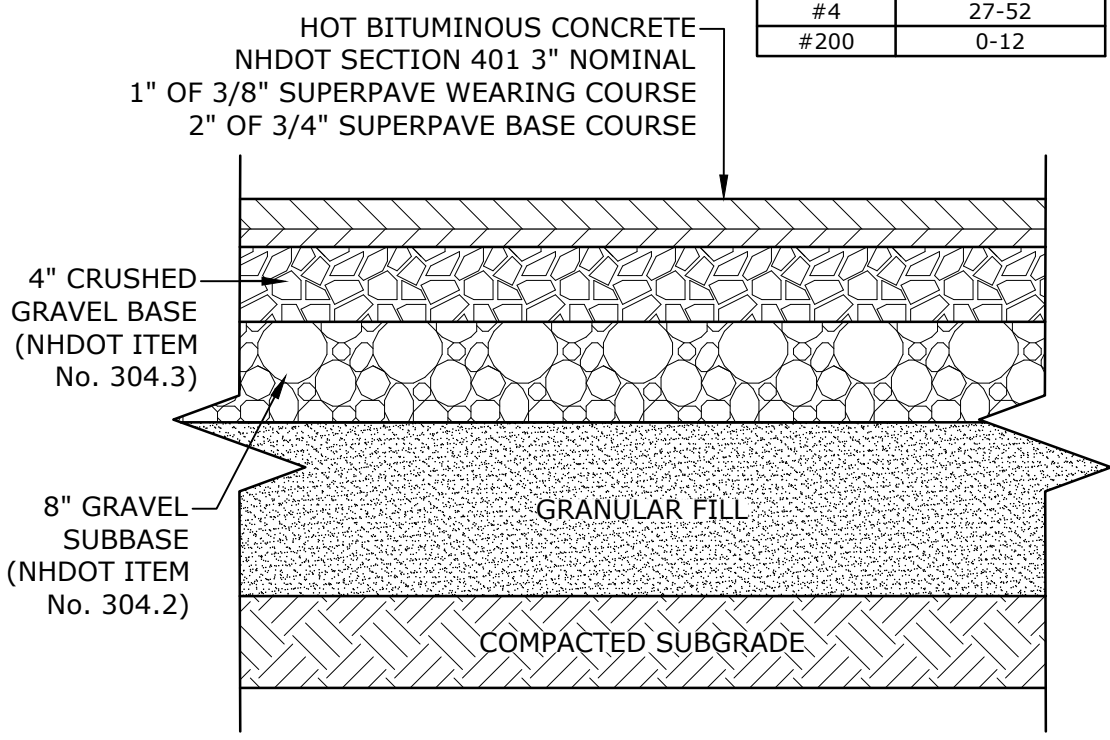
SCALE: AS SHOWN

C-801

Vertical text on the left margin: Last Saved: 4/19/2024 11:13:00 AM... Tighe & Bond \\\ghedesign\clients\100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-C-DTLS.dwg

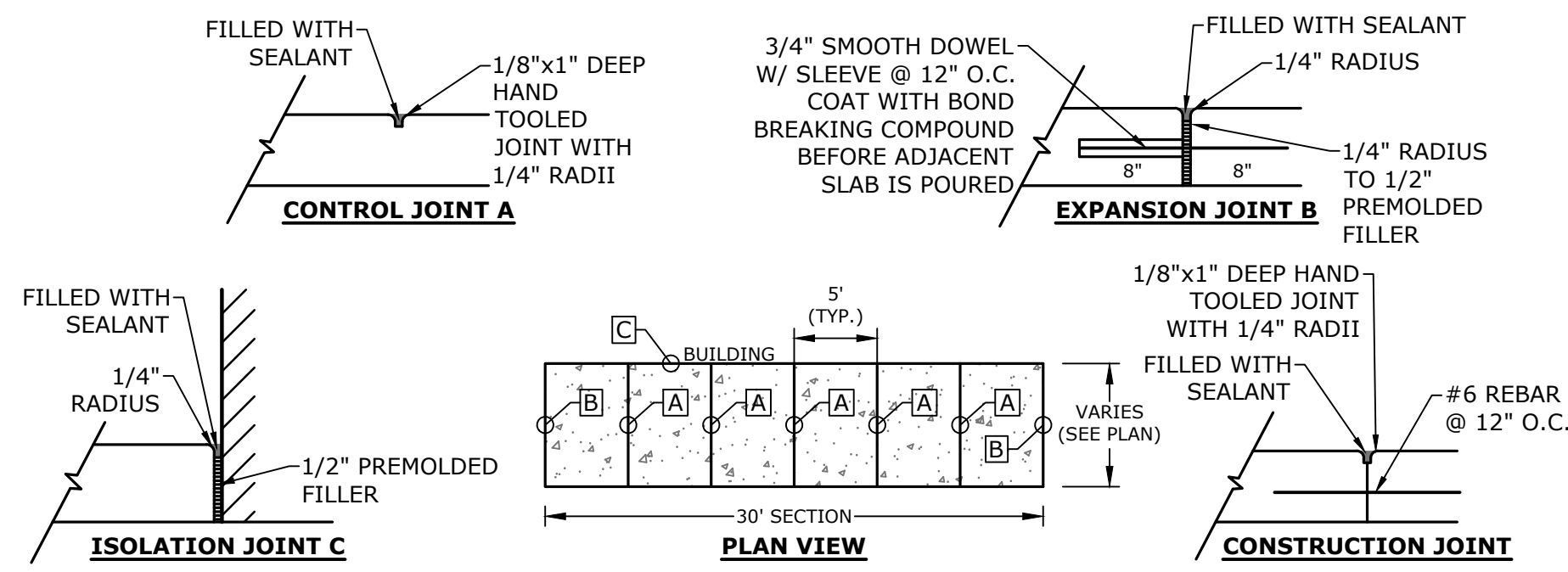


NHDOT ITEM No. 304.2 (GRAVEL)		NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING	SIEVE SIZE	% PASSING
6"	100	3"	100
#4	25-70	2"	95-100
#200	0-12	1"	55-85
		#4	27-52
		#200	0-12



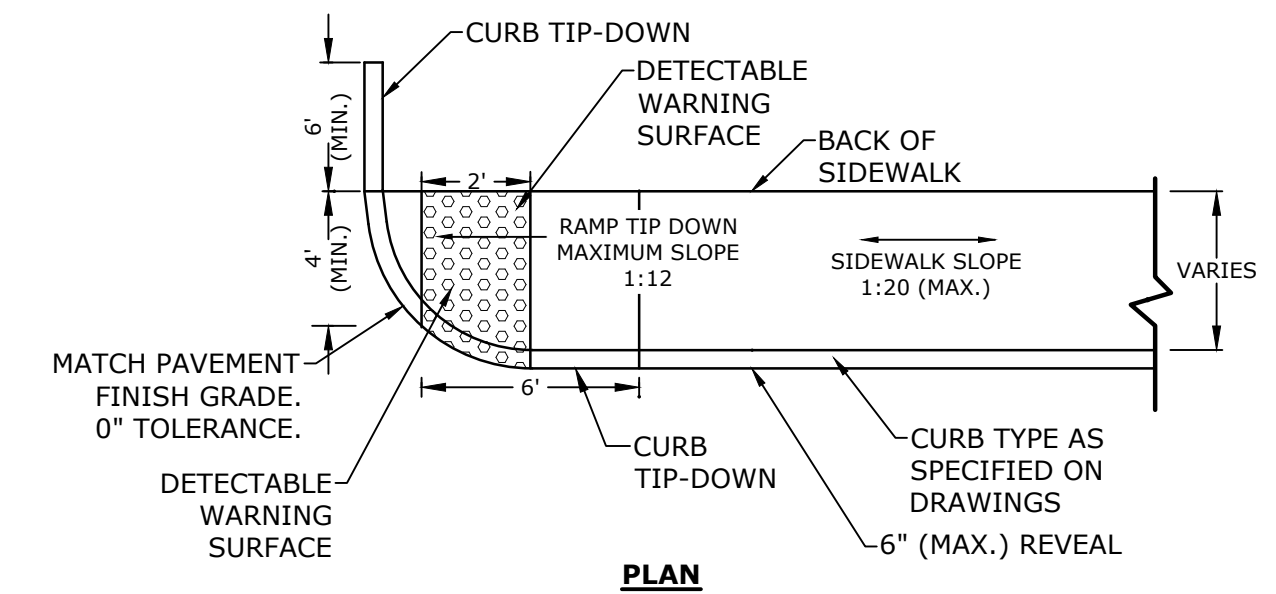
- NOTES:**
- SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
 - SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
 - A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
 - REFER TO CITY SPECIFICATIONS FOR ASPHALT MIX DESIGN.

ON-SITE PAVEMENT SECTION
NO SCALE

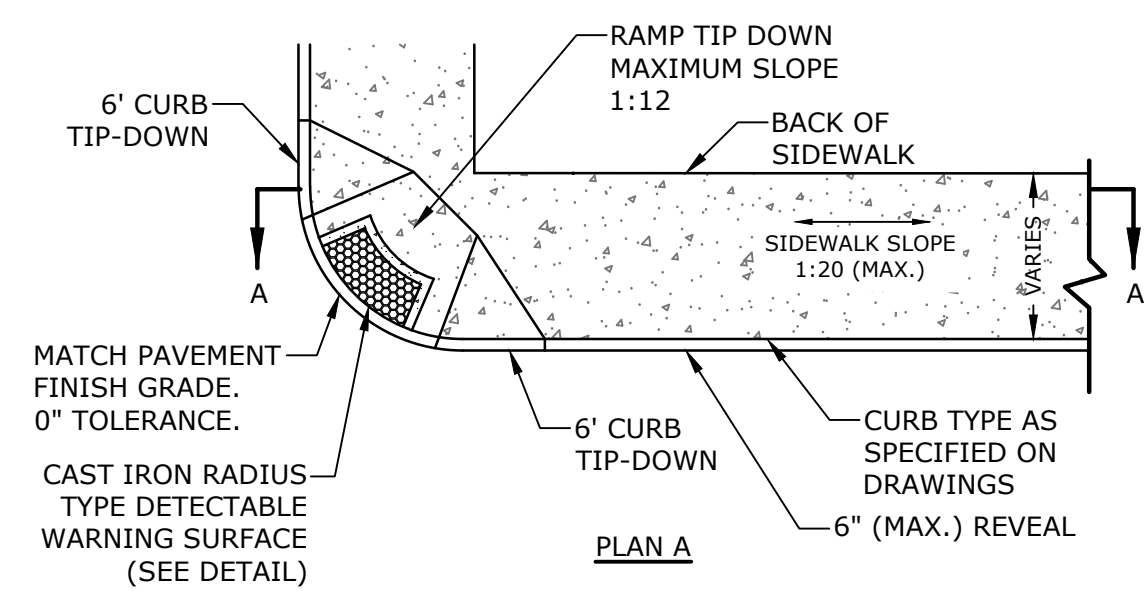
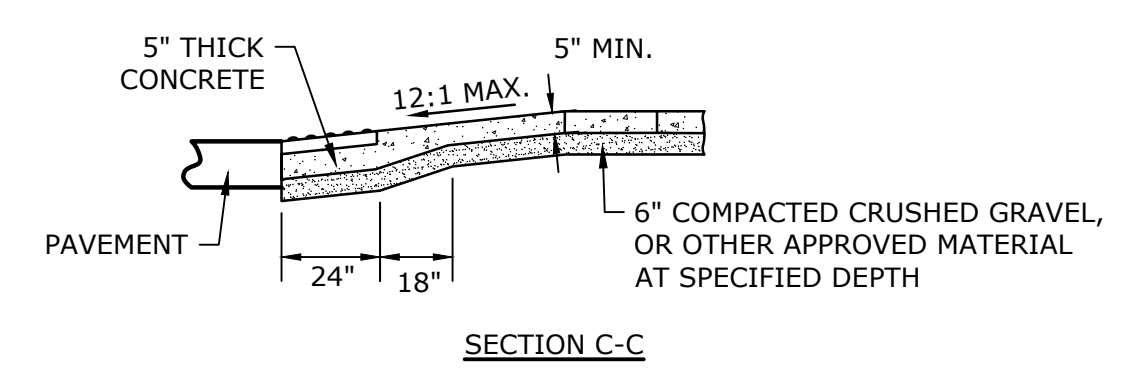
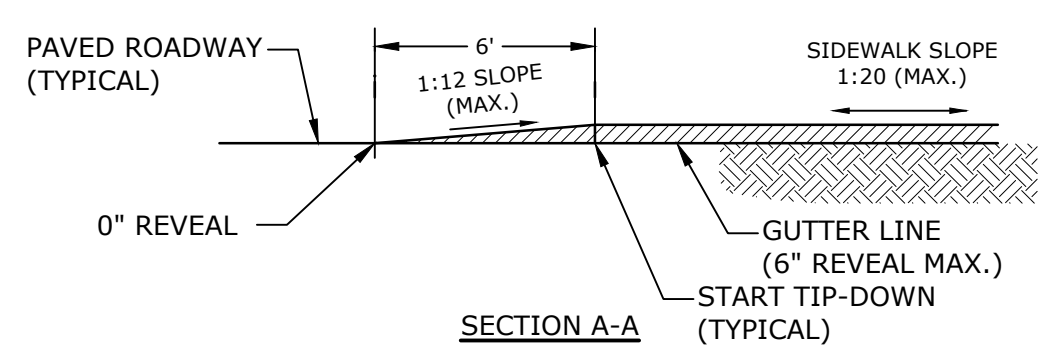
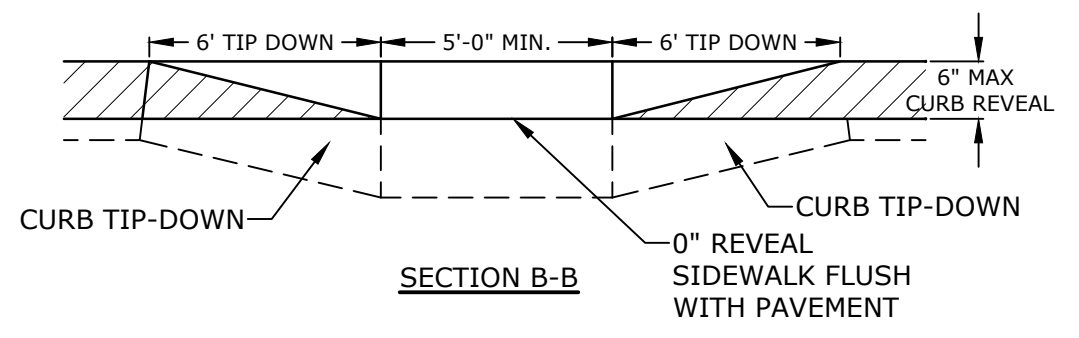


- NOTES:**
- SEE SITE PLAN FOR SIDEWALK WIDTH AND LOCATIONS.
 - SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR WALK AND SIDE SLOPE GRADES.
 - ISOLATION JOINTS ADJACENT TO BUILDING SHALL BE COORDINATED WITH BUILDING DRAWINGS.

CONCRETE SIDEWALK WITH GRANITE CURB
NO SCALE

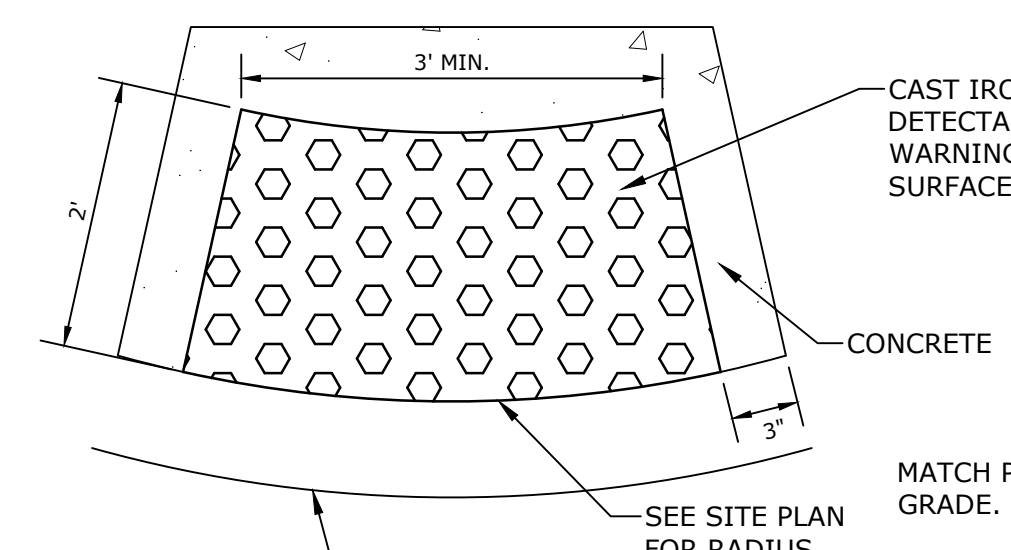


NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12

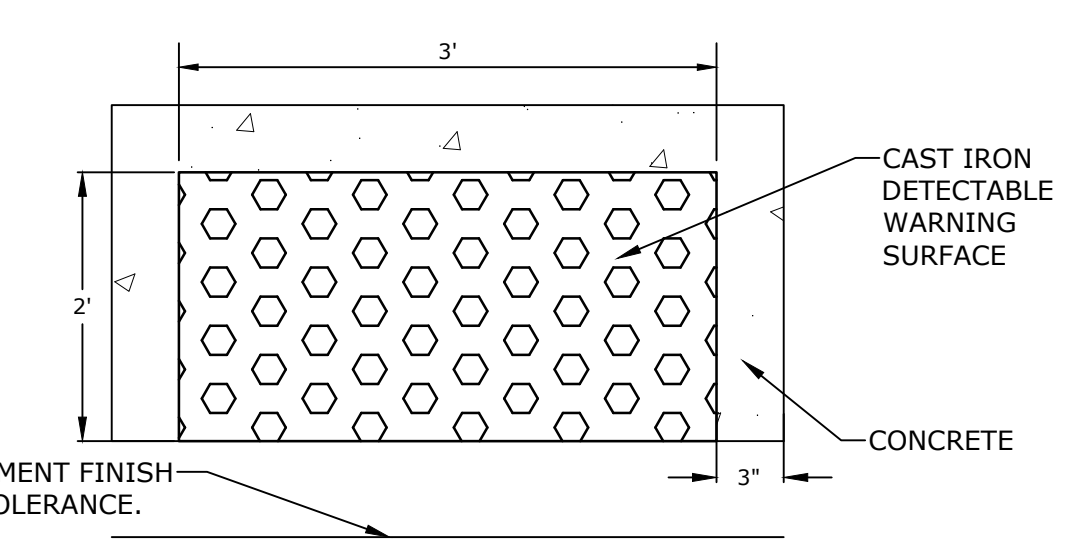


- NOTES:**
- RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
 - A 6" COMPACTED CRUSHED GRAVEL BASE (NHDOT ITEM No. 304.3) SHALL BE PROVIDED BENEATH RAMPS.
 - DETECTABLE WARNING PANEL SHALL BE CAST IRON SET IN CONCRETE (SEE DETAIL.)
 - PROVIDE DETECTABLE WARNING SURFACES ANYTIME THAT A CURB RAMP, BLENDED TRANSITION, OR LANDING CONNECTS TO A STREET.
 - LOCATE THE DETECTABLE WARNING SURFACES AT THE BACK OF THE CURB ALONG THE EDGE OF THE LANDING.
 - THE MAXIMUM RUNNING SLOPE OF ANY SIDEWALK CURB RAMP IS 12:1, THE MAXIMUM CROSS SLOPE IS 2%. THE SLOPE OF THE LANDING SHALL NOT EXCEED 2% IN ANY DIRECTION.
 - TRANSITIONS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. ROADWAY SHOULDER SLOPES ADJOINING SIDEWALK CURB RAMPS SHALL BE A MAXIMUM OF 5% (FULL WIDTH) FOR A DISTANCE OF 2 FT. FROM THE ROADWAY CURBLINE.
 - THE BOTTOM OF THE SIDEWALK CURB RAMP OR LANDING, EXCLUSIVE OF THE FLARED SIDES, SHALL BE WHOLLY CONTAINED WITHIN THE CROSSWALK MARKINGS.
 - DETECTABLE WARNING PANELS SHALL BE A MINIMUM OF 2 FEET IN DEPTH. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP, BLENDED TRANSITION, OR LANDING AND THE STREET.
 - THE TEXTURE OF THE DETECTABLE WARNING FEATURE MUST CONTRAST VISUALLY WITH THE SURROUNDING SURFACES (EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT).

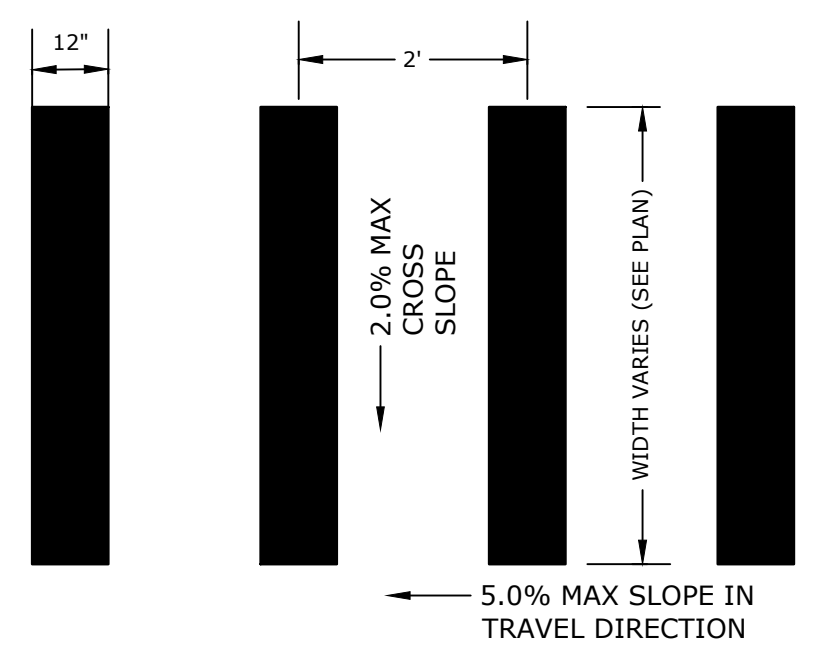
CONCRETE WHEELCHAIR ACCESSIBLE RAMP
NO SCALE



- NOTES:**
- DETECTABLE WARNING SURFACE SHALL BE 2' X 3' CAST IRON PANEL SET IN CONCRETE.
 - DETECTABLE WARNING SURFACE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

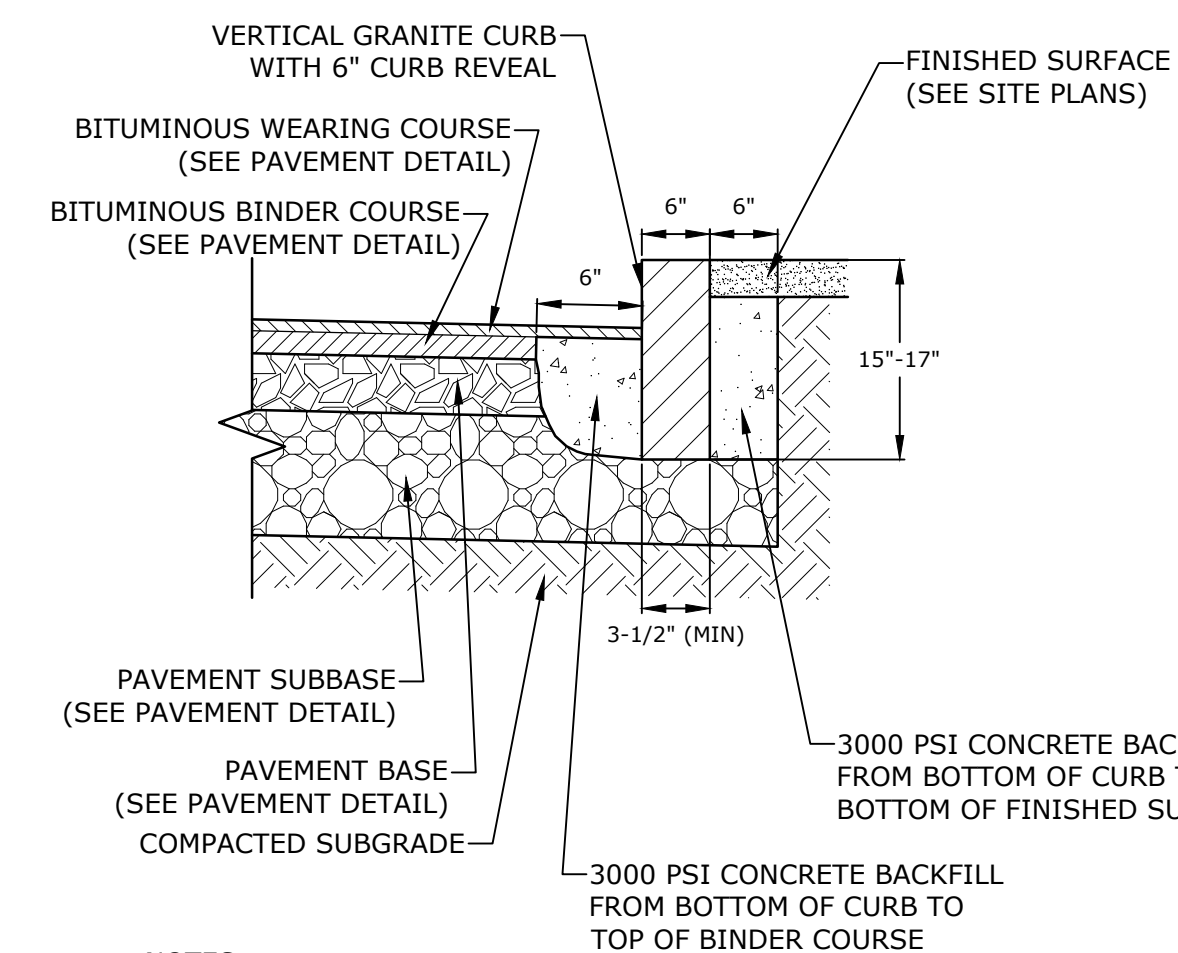


CAST IRON DETECTABLE WARNING SURFACE
NO SCALE



- NOTE:**
- STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTORIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

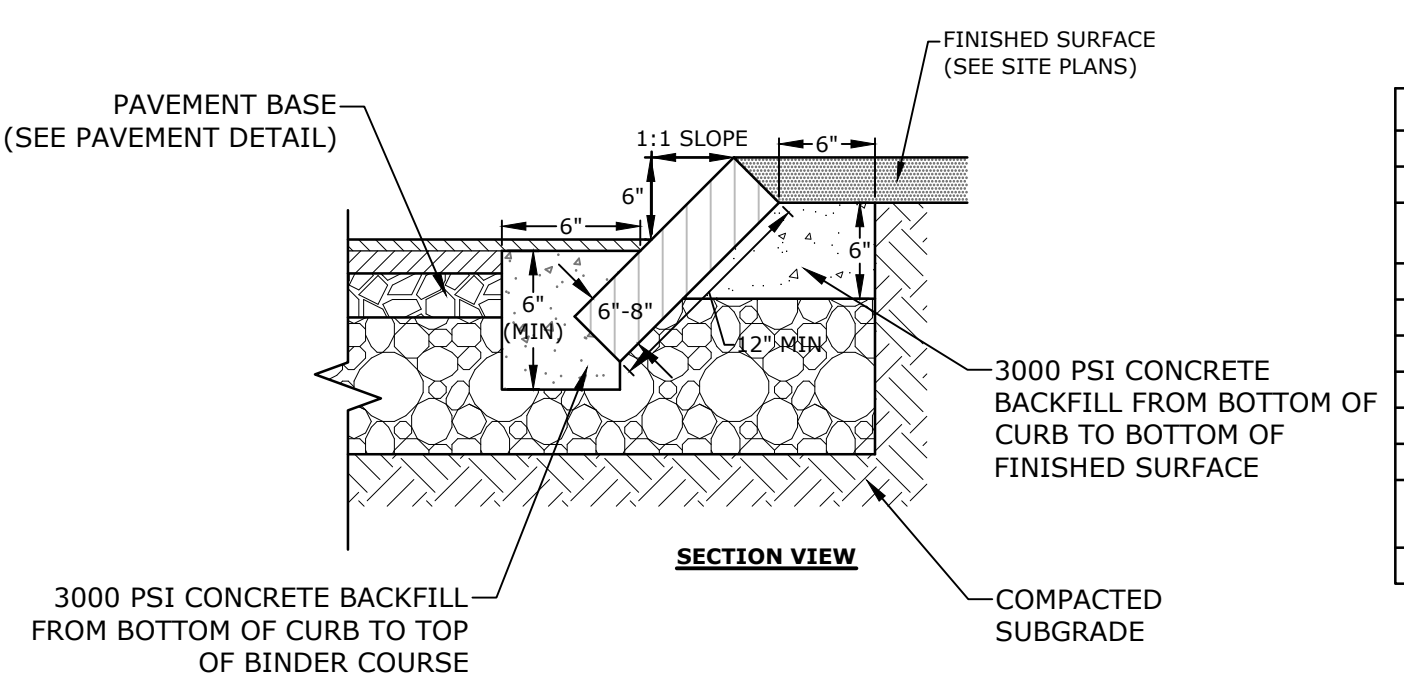
CROSSWALK STRIPING
NO SCALE



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:**
- SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
 - ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
 - MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
 - MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
 - MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
 - ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
 - JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

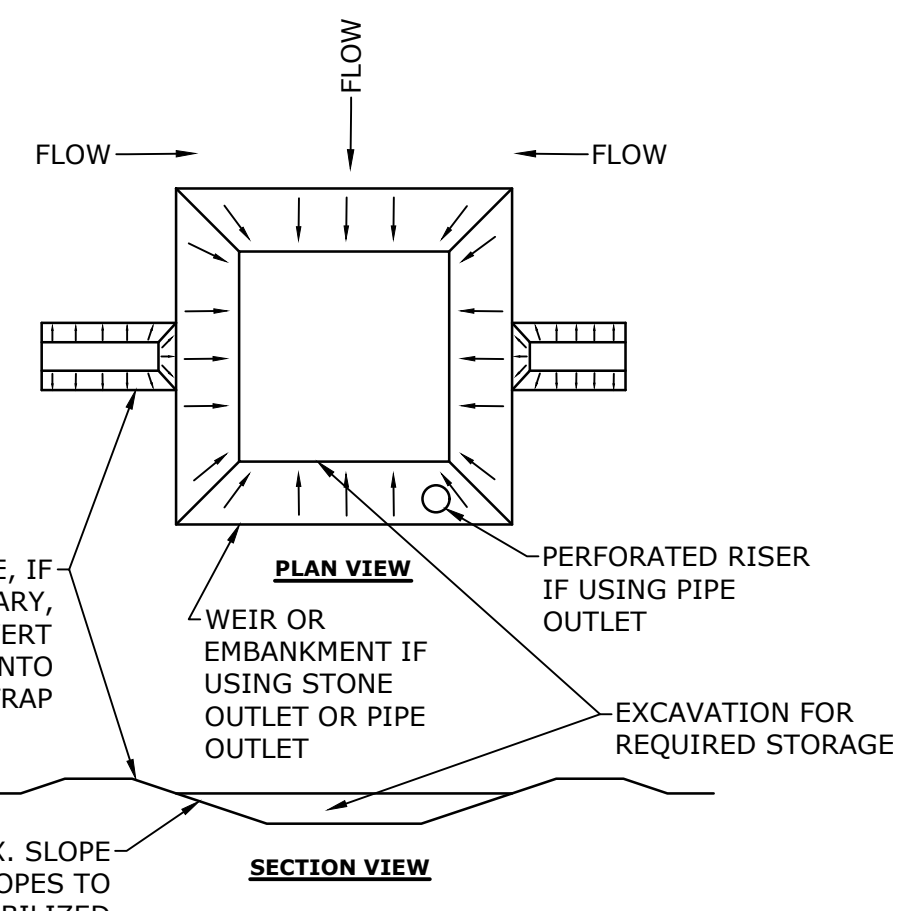
VERTICAL GRANITE CURB
NO SCALE



CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<2'	USE CURVED CURB
2'-15'	USE RADIAL JOINTS
16'-28'	1'-6"
29'-41'	2'
42'-55'	3'
56'-68'	4'
69'-82'	5'
83'-96'	6'
97'-110'	7'
>110'	8'

- NOTES:**
- SEE SITE PLAN(S) FOR LIMITS OF SLOPED GRANITE CURB (SGC).
 - ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
 - MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
 - MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
 - MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
 - JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

TYPICAL SECTION



- NOTES:**
- THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE.
 - THE MAXIMUM CONTRIBUTING AREA TO A SINGLE TRAP SHALL BE LESS THAN 5 ACRES.
 - THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
 - TRAP OUTLET SHALL BE MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP.
 - TRAP SHALL DISCHARGE TO A STABILIZED AREA.
 - TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
 - MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.
 - SEDIMENT TRAPS MUST BE USED AS NEEDED TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.

SEDIMENT TRAP
NO SCALE

PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION

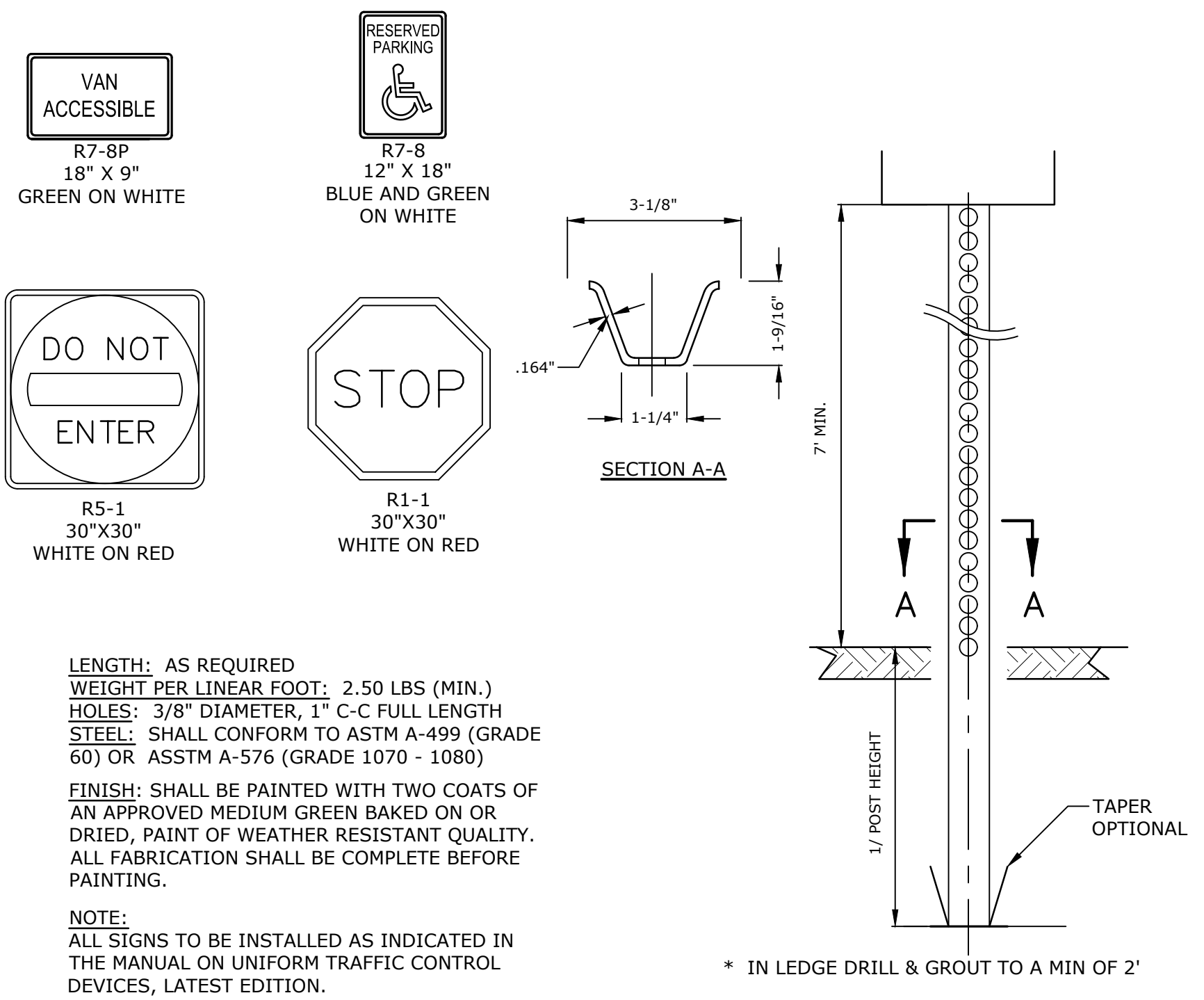
PROJECT NO: E5071-001
DATE: 4/22/2024
FILE: E5071-001-C-DTLS.dwg
DRAWN BY: BKC/NHW
DESIGNED/CHECKED BY: NAH
APPROVED BY: PMC

DETAILS SHEET

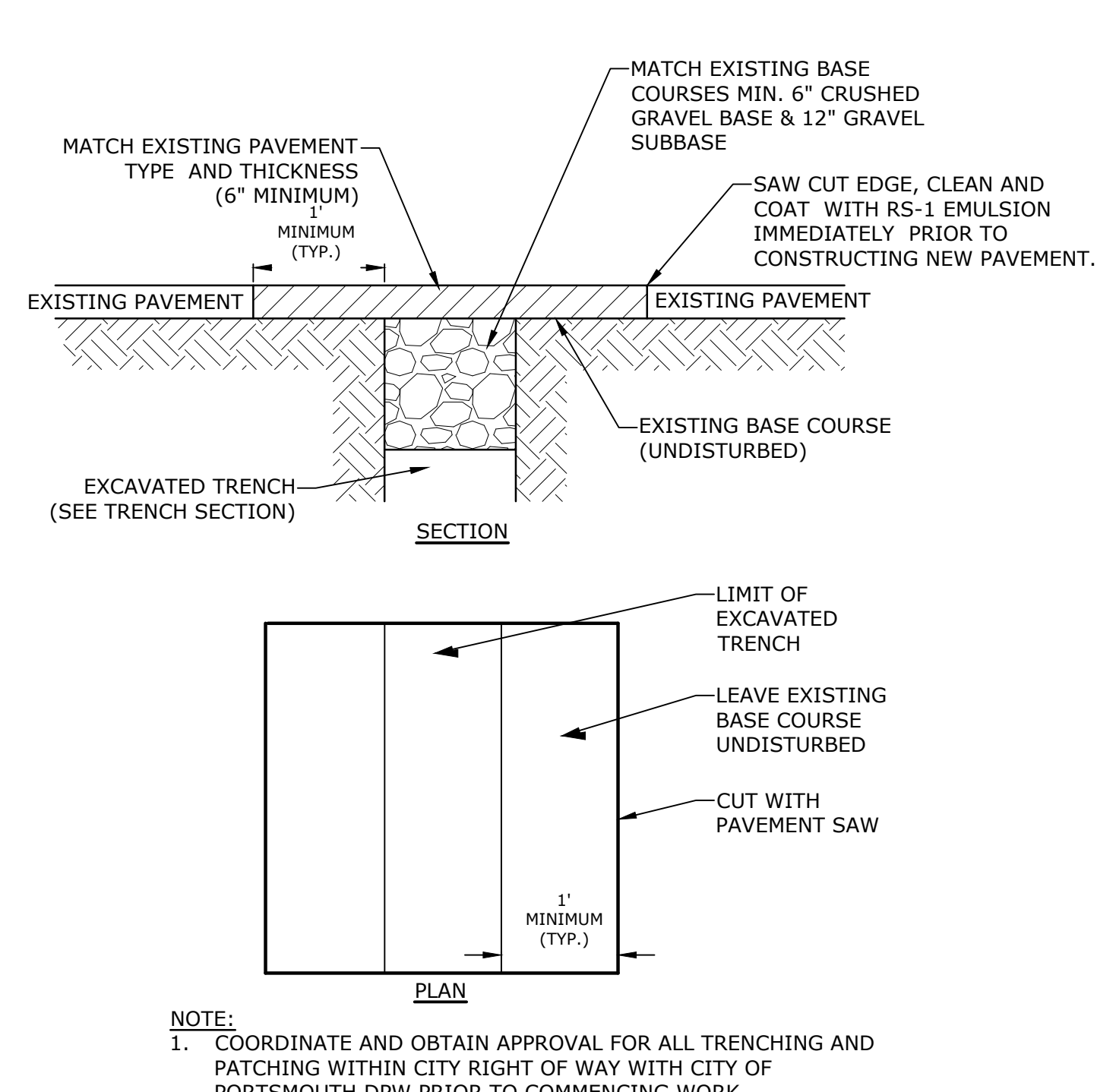
SCALE: AS SHOWN

C-802

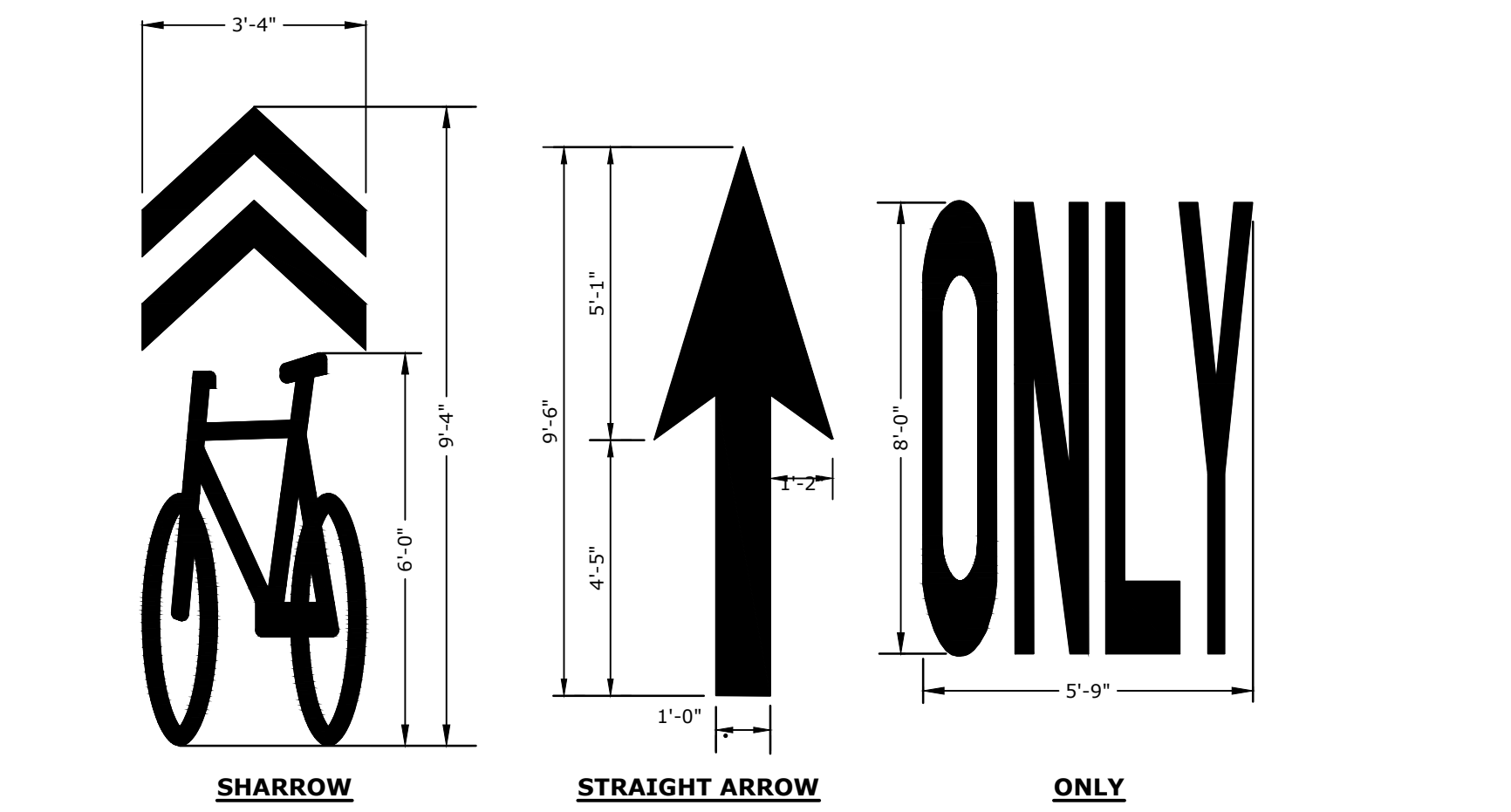
Last Saved: 4/19/2024 1:13:13pm By: Dcurcio
Plotted On: Apr 19, 2024 1:13:13pm
Tighe & Bond \\lghmead\com\dwg\001\100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-C-DTLS.dwg



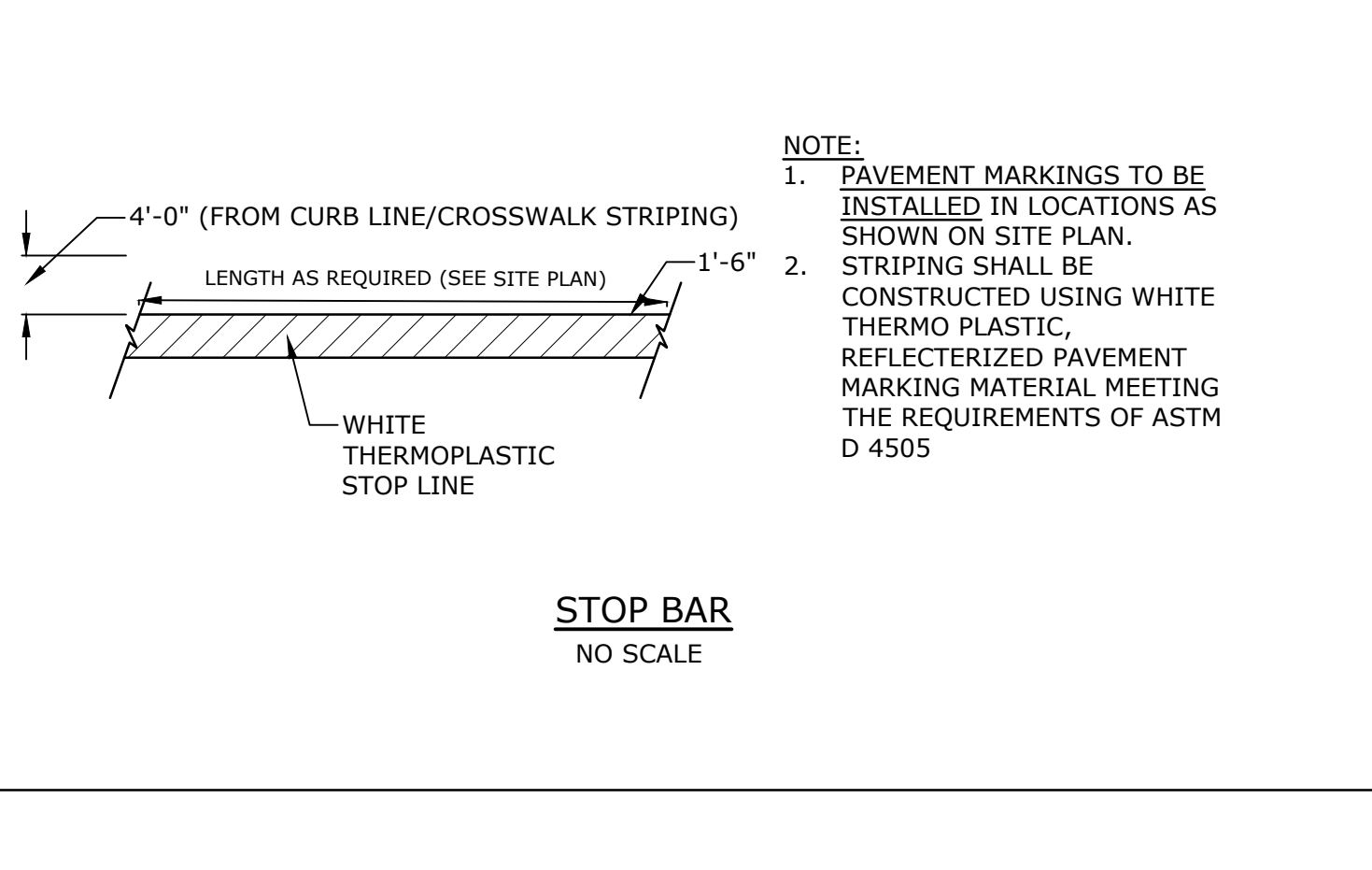
SIGN LEGEND & SIGN POST
NO SCALE



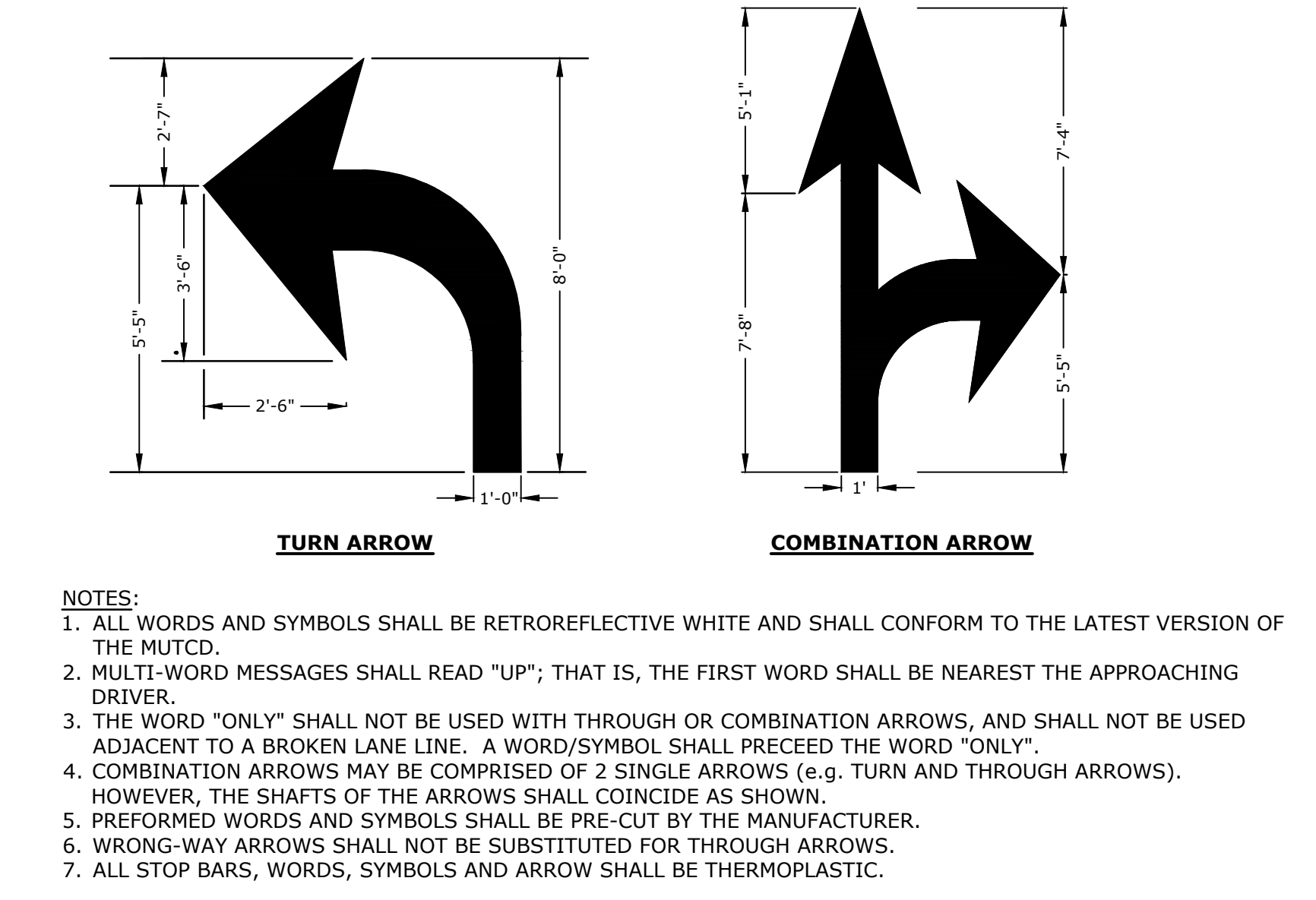
ROADWAY TRENCH PATCH
NO SCALE



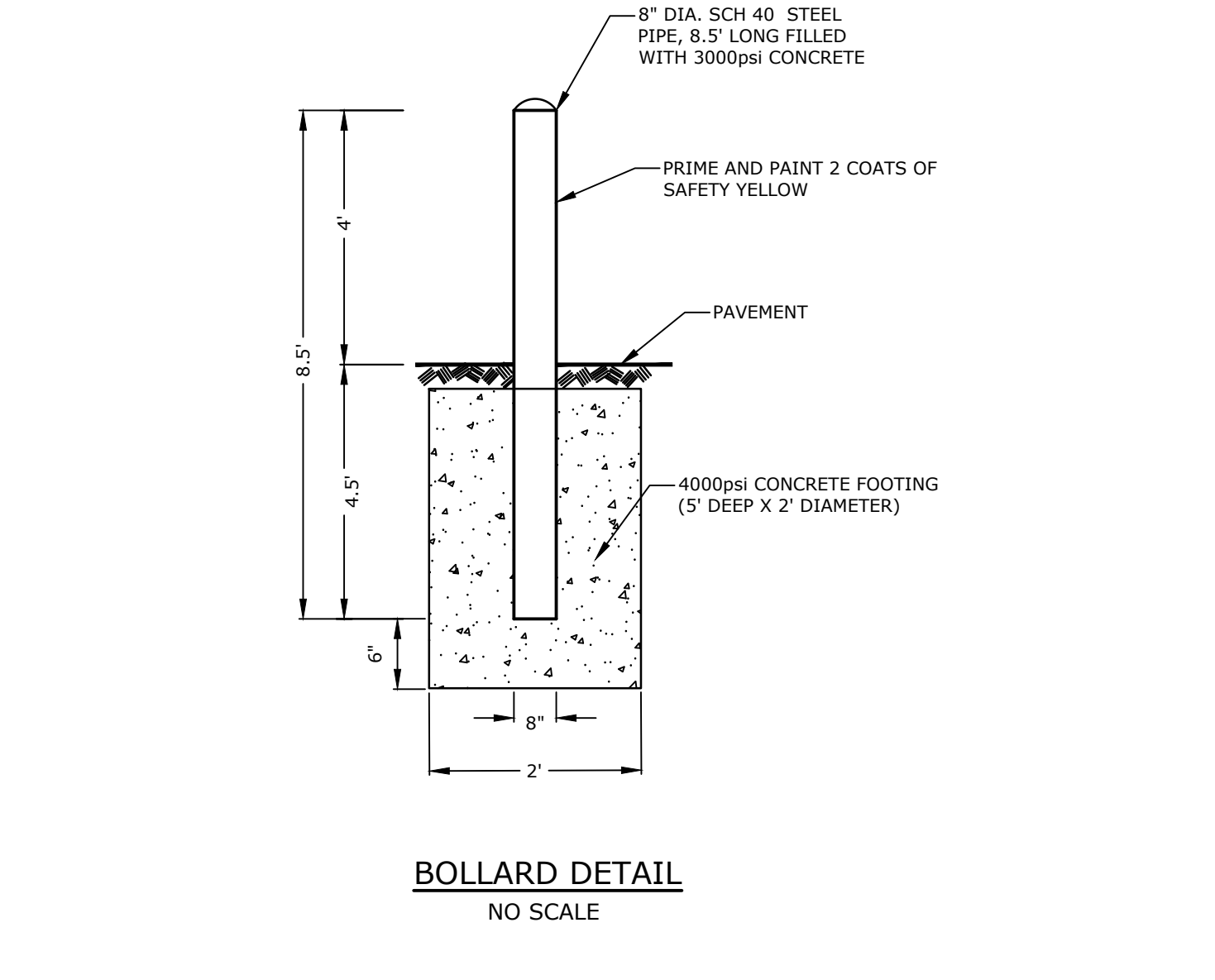
PAVEMENT MARKINGS
NO SCALE



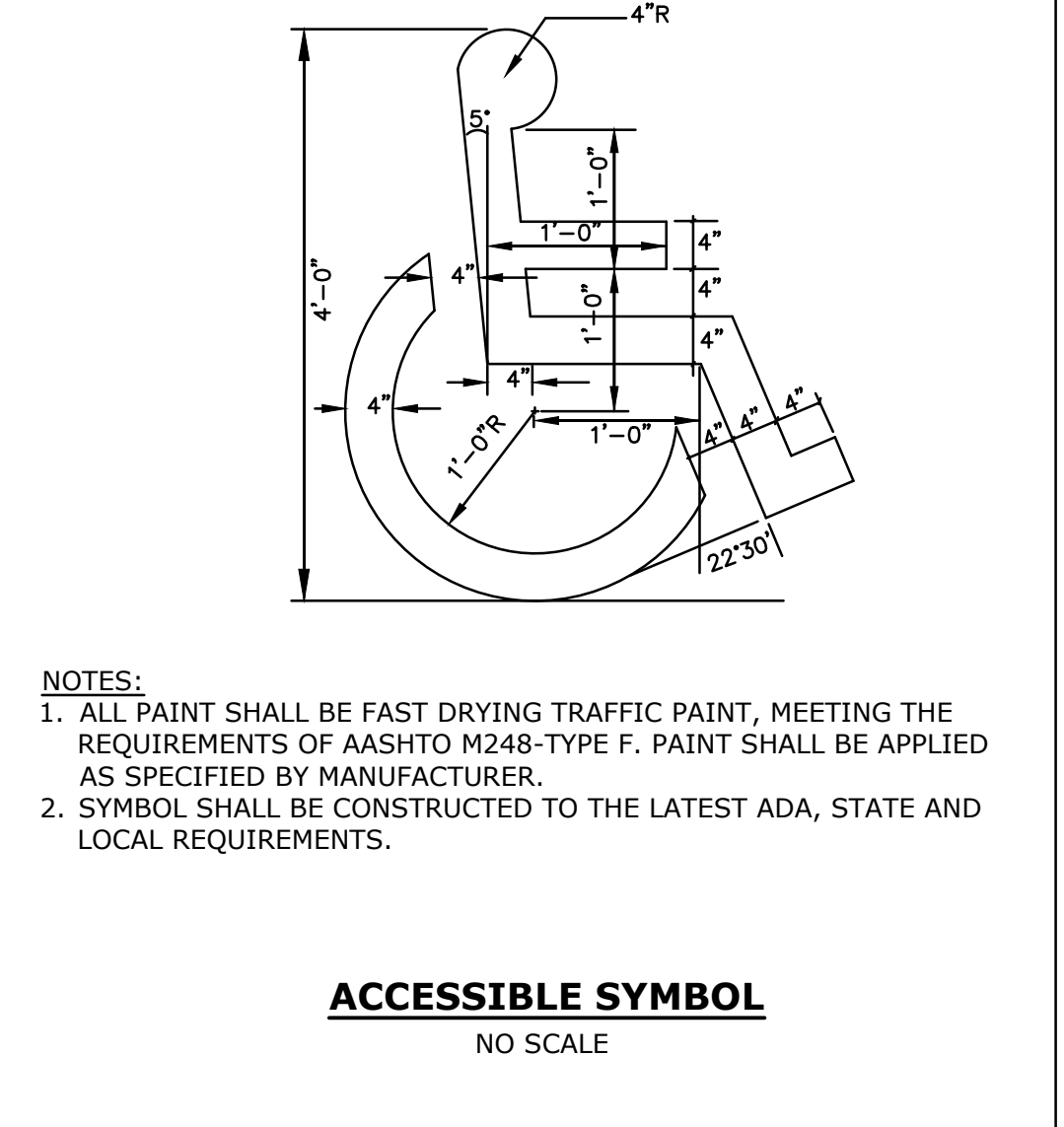
STOP BAR
NO SCALE



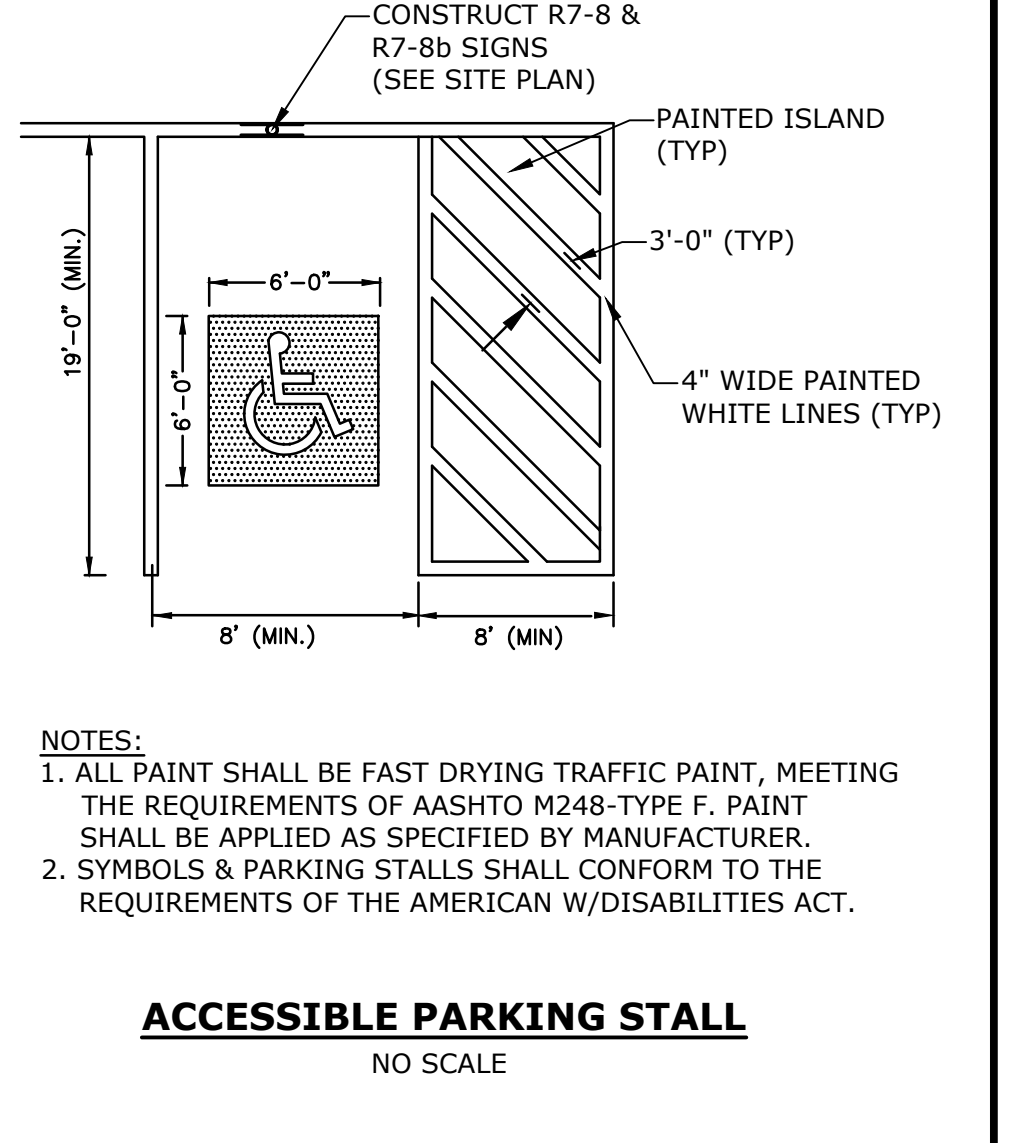
PAVEMENT MARKINGS
NO SCALE



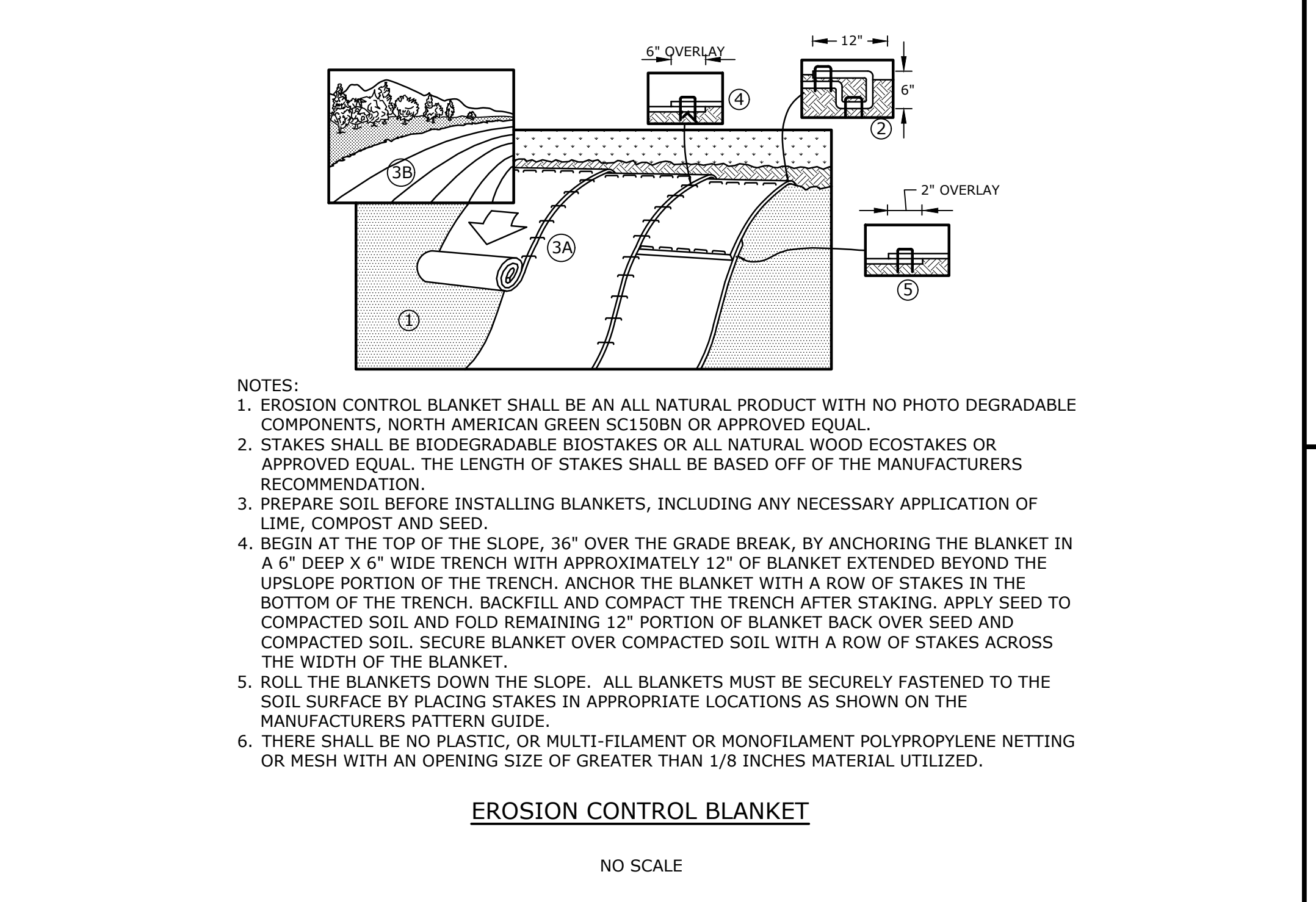
BOLLARD DETAIL
NO SCALE



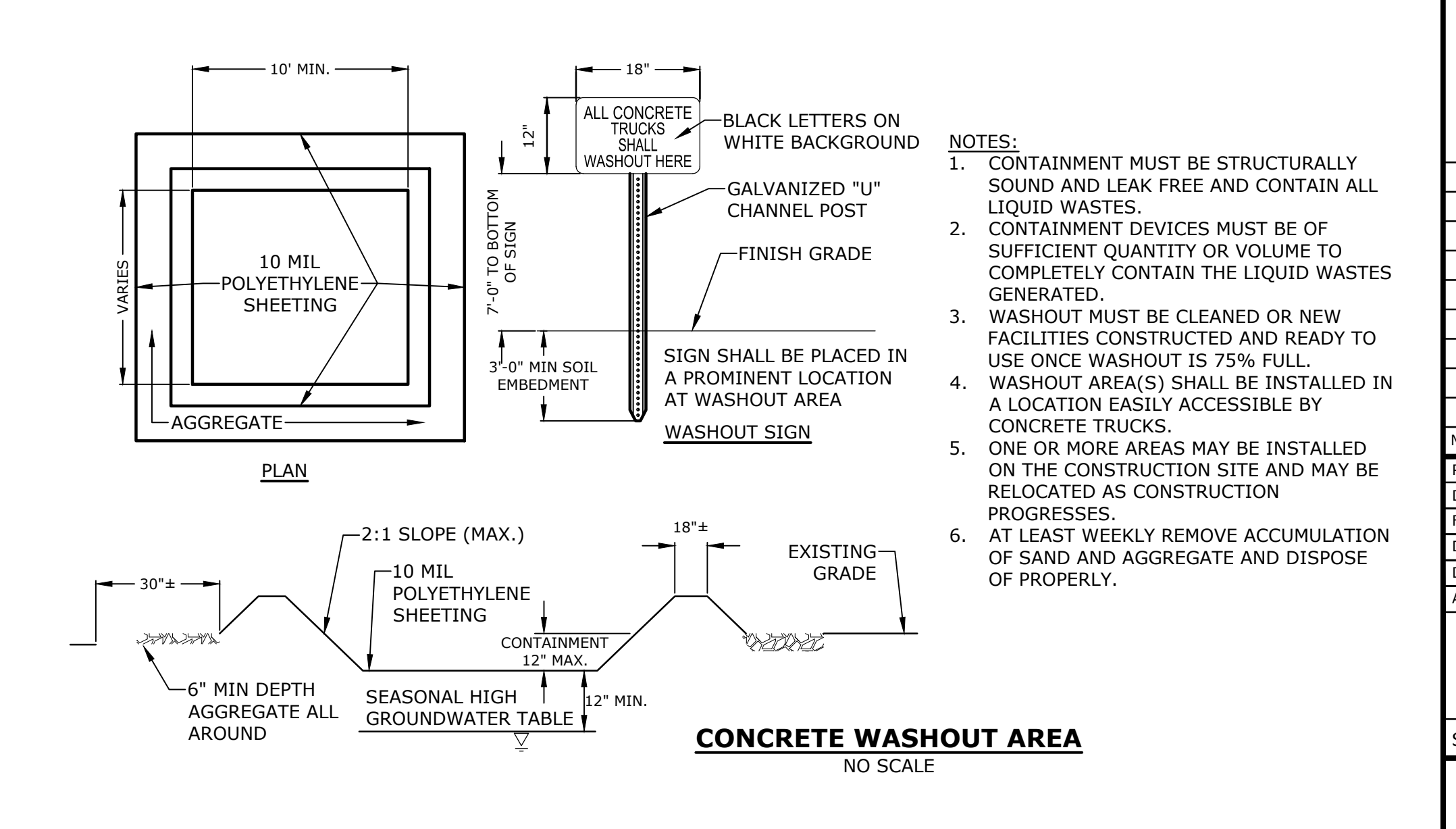
ACCESSIBLE SYMBOL
NO SCALE



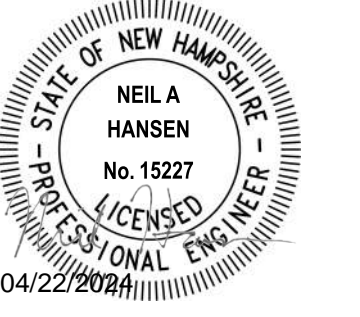
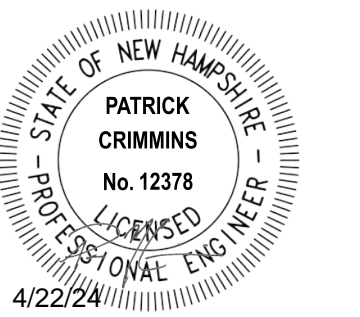
ACCESSIBLE PARKING STALL
NO SCALE



EROSION CONTROL BLANKET
NO SCALE



CONCRETE WASHOUT AREA
NO SCALE



PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

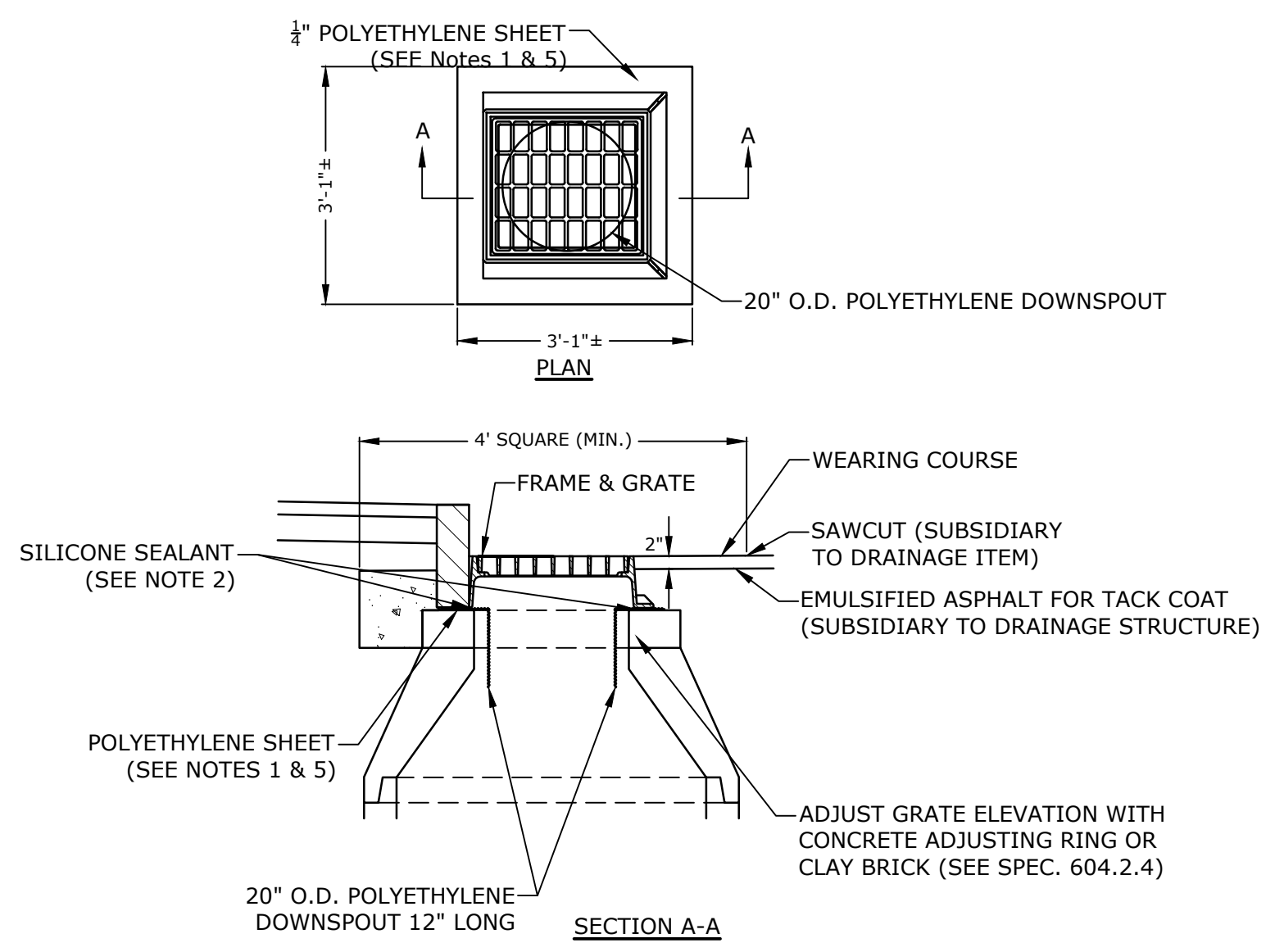
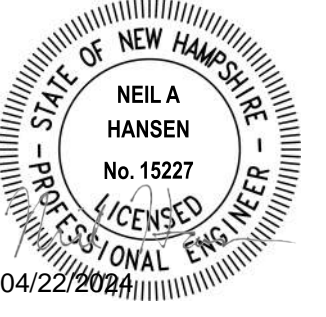
100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
DATE:	4/22/2024	
FILE:	E5071-001-C-DTLS.dwg	
DRAWN BY:	BKC/NHW	
DESIGNED/CHECKED BY:	NAH	
APPROVED BY:	PMC	

DETAILS SHEET

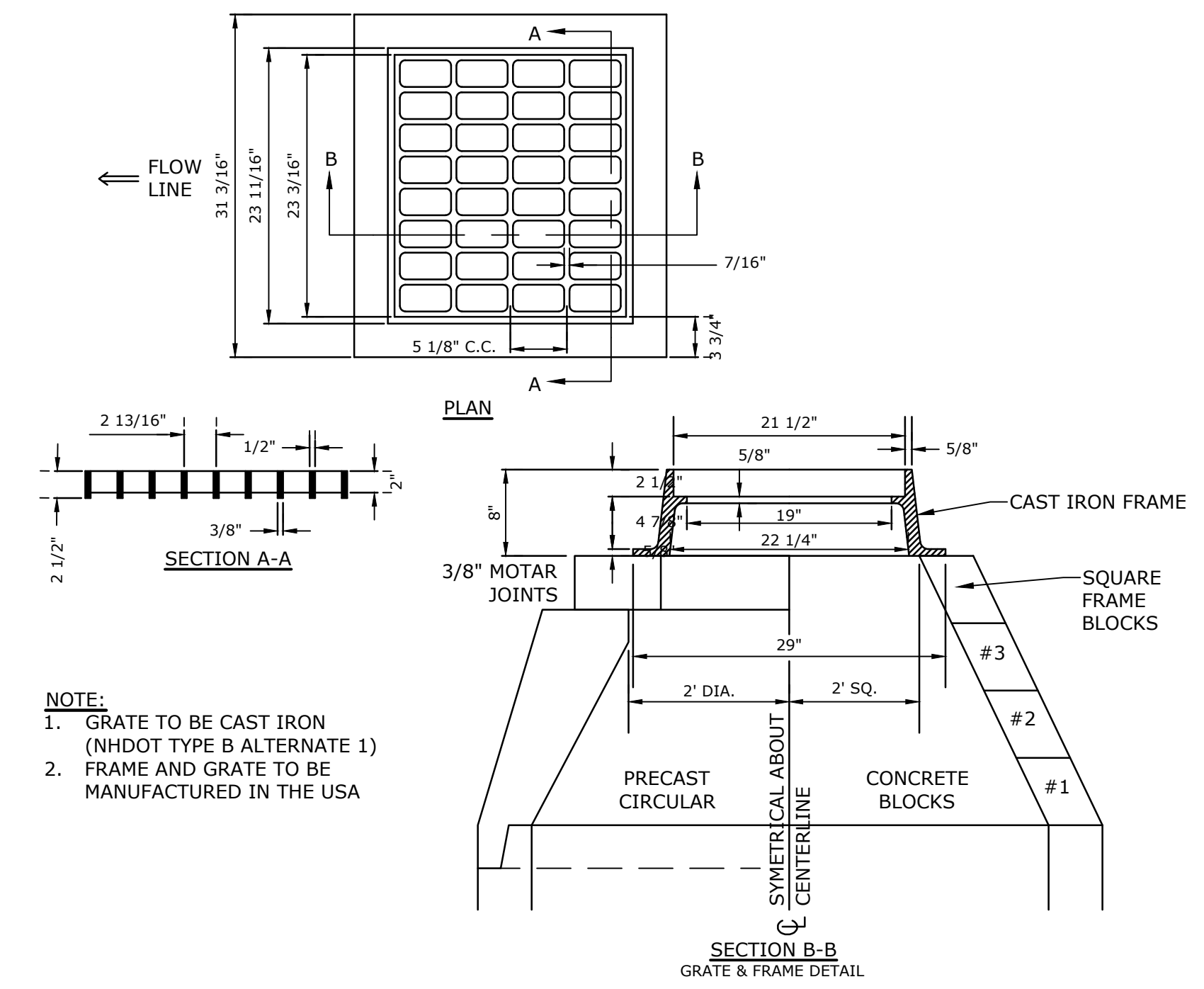
SCALE: AS SHOWN

C-803



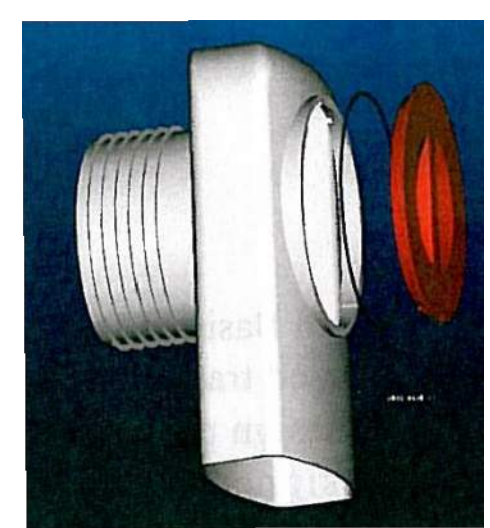
- NOTES:**
- POLYETHYLENE LINER (ITEM 604.0007) SHALL BE FABRICATED AT THE SHOP. DOWNSPOUT SHALL BE EXTRUSION FILLET WELDED TO THE POLYETHYLENE SHEET.
 - PLACE A CONTINUOUS BEAD OF AN APPROVED SILICONE SEALANT (SUBSIDIARY TO ITEM 604.0007) BETWEEN FRAME AND POLYETHYLENE SHEET.
 - PLACE CLASS AA CONCRETE TO 2" BELOW THE TOP OF THE GRATE ELEVATION (SUBSIDIARY TO DRAINAGE STRUCTURE).
 - USE ON DRAINAGE STRUCTURES 4' MIN. DIAMETER ONLY.
 - TRIM POLYETHYLENE SHEET A MAXIMUM OF 4" OUTSIDE THE FLANGE ON THE FRAME FOR THE CATCH BASIN BEFORE PLACING CONCRETE (EXCEPT AS SHOWN WHEN USED WITH 3-FLANGE FRAME AND CURB).
 - THE CENTER OF THE GRATE & FRAME MAY BE SHIFTED A MAXIMUM OF 6" FROM THE CENTER OF THE DOWNSPOUT IN ANY DIRECTION.
 - PLACED ONLY IN DRAINAGE STRUCTURES IN PAVEMENT.
 - SEE NHDOT DR-04, "DI-DB, UNDERDRAIN FLUSHING BASIN AND POLYETHYLENE LINER DETAILS", FOR ADDITIONAL INFORMATION.
 - CATCHBASINS WITHIN CITY RIGHT OF WAY SHALL HAVE A POLYETHYLENE LINER

POLYETHYLENE LINER
NO SCALE



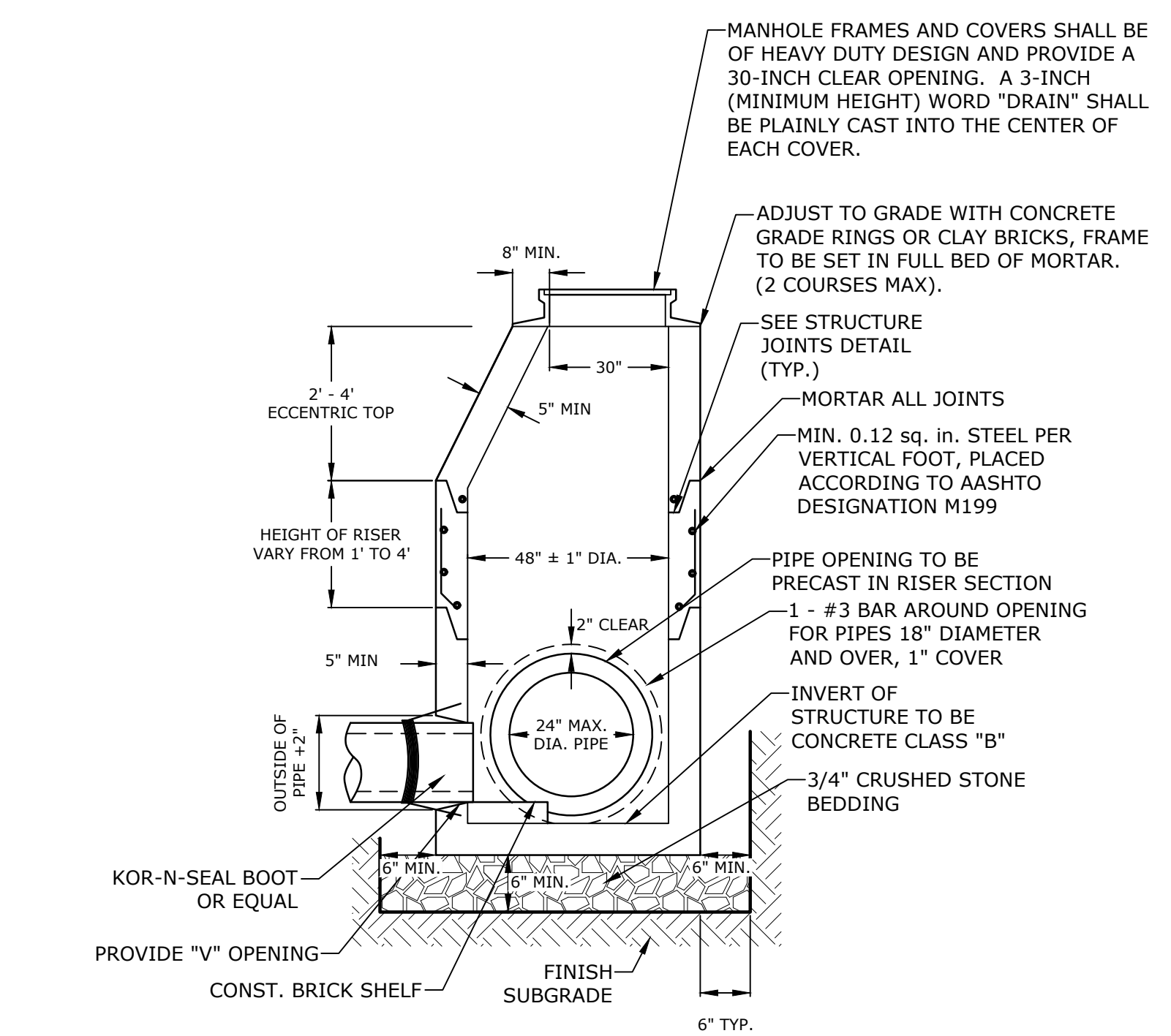
- NOTE:**
- GRATE TO BE CAST IRON (NHDOT TYPE B ALTERNATE 1)
 - FRAME AND GRATE TO BE MANUFACTURED IN THE USA

CATCH BASIN FRAME & GRATE
NO SCALE



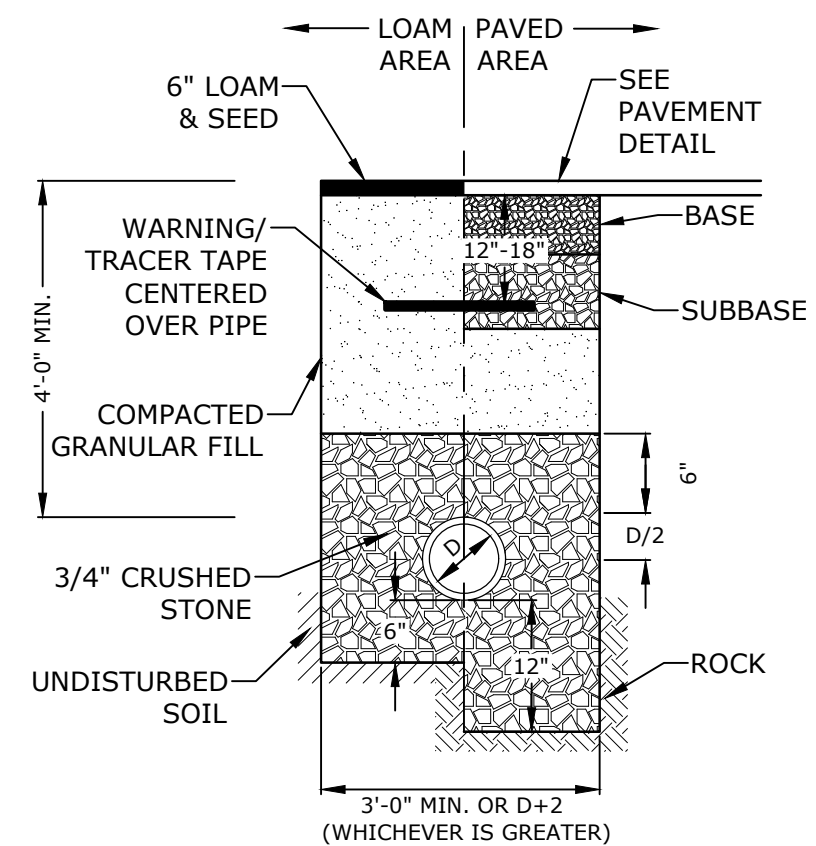
- NOTES:**
- ALL CATCH BASIN OUTLETS TO HAVE "ELIMINATOR" OIL AND FLOATING DEBRIS TRAP MANUFACTURED BY KLEANSTREAM (NO EQUAL)
 - INSTALL DEBRIS TRAP TIGHT TO INSIDE OF STRUCTURE.
 - 1/4" HOLE SHALL BE DRILLED IN TOP OF DEBRIS TRAP

"ELIMINATOR" OIL FLOATING DEBRIS TRAP



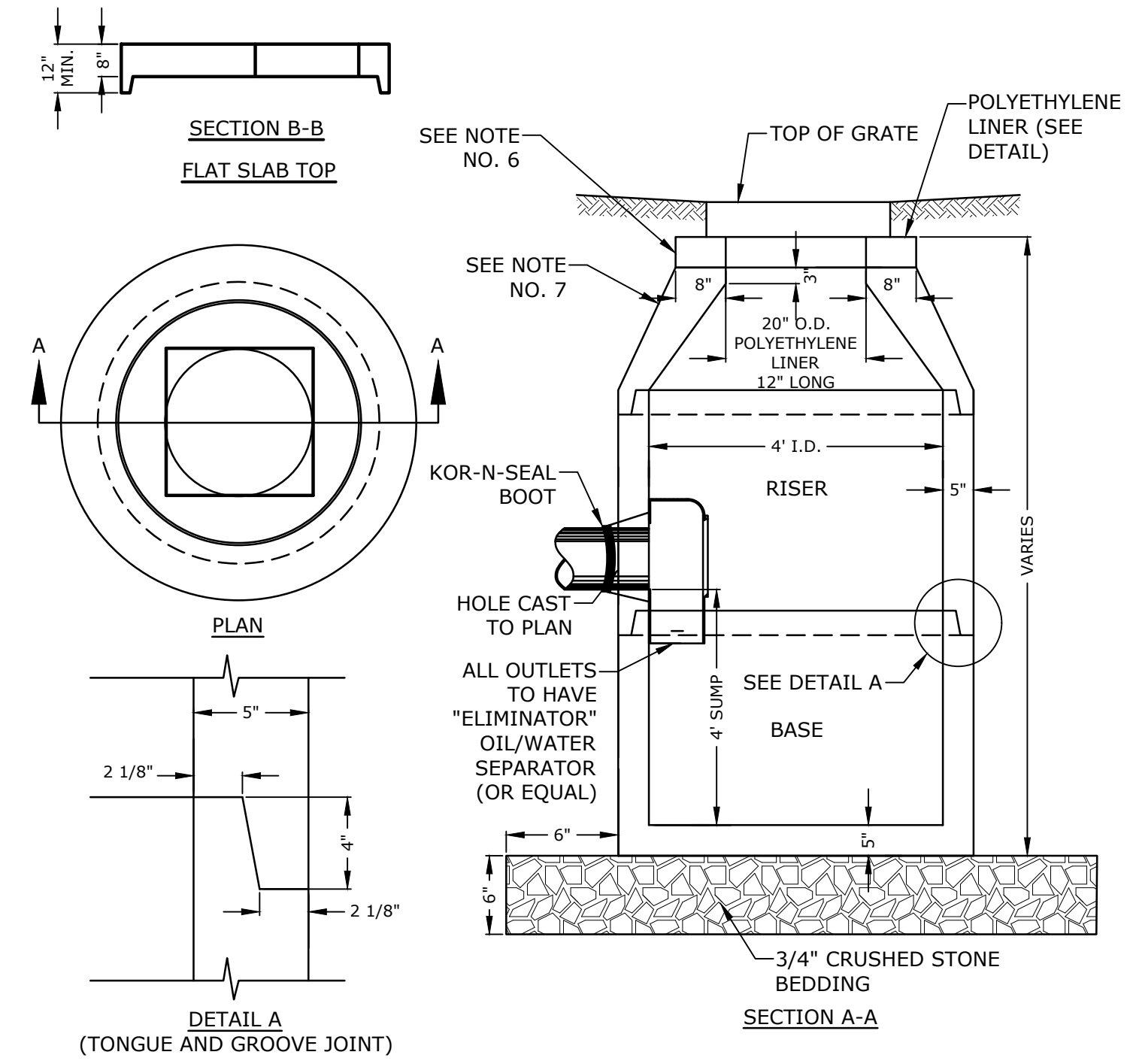
- NOTES:**
- ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
 - CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
 - THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
 - THE STRUCTURES SHALL BE DESIGNED FOR H2O LOADING.
 - CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
 - THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
 - PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
 - OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
 - 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.
 - ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZONTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

4' DIAMETER DRAIN MANHOLE
NO SCALE



- NOTES:**
- 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.
 - ALL UTILITIES SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE CITY OF PORTSMOUTH.

STORM DRAIN TRENCH
NO SCALE



- NOTES:**
- ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
 - 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.
 - THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
 - RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
 - THE STRUCTURES SHALL BE DESIGNED FOR H2O LOADING.
 - FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
 - 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.
 - PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
 - OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
 - 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.
 - THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
 - "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASIN.

4' DIAMETER CATCHBASIN
NO SCALE

PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

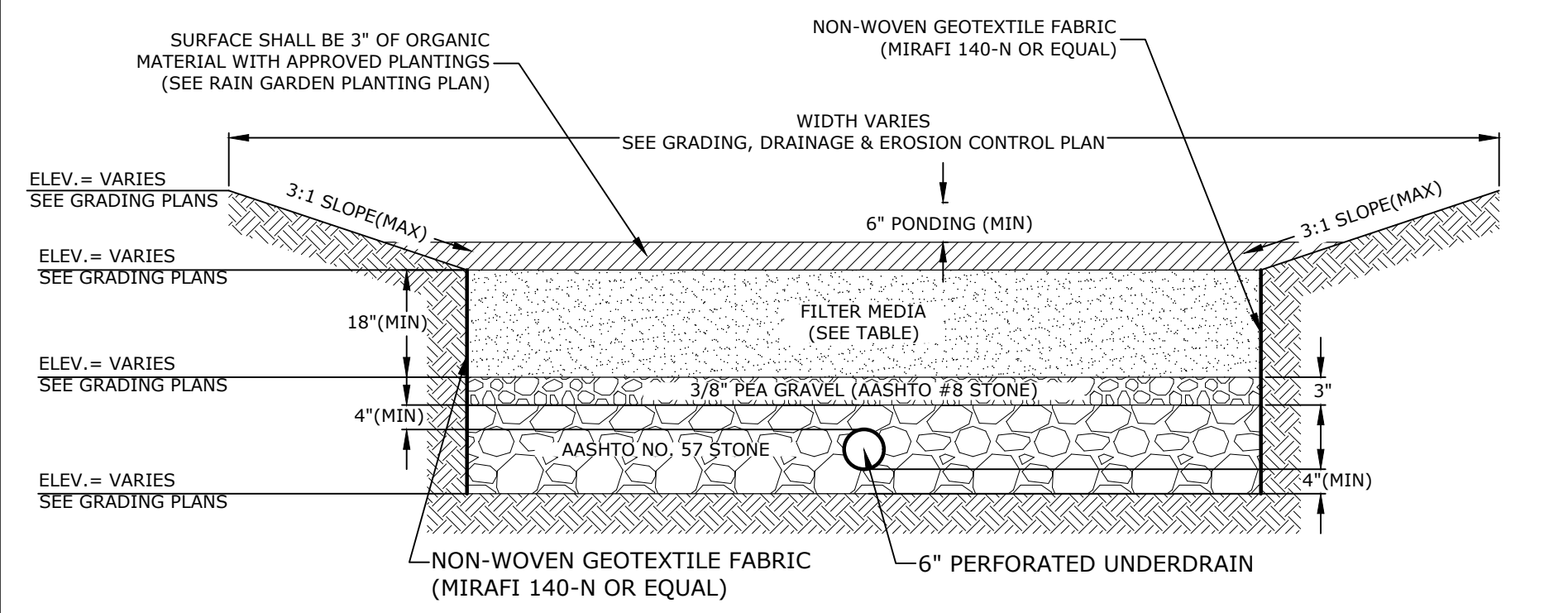
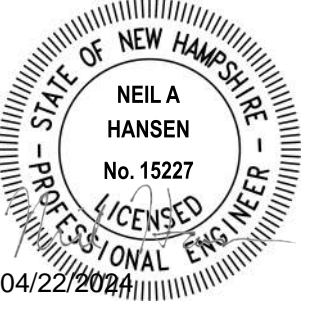
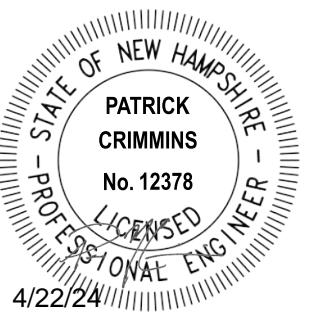
100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
DATE:	4/22/2024	
FILE:	E5071-001-C-DTLS.dwg	
DRAWN BY:	BKC/NHW	
DESIGNED/CHECKED BY:	NAH	
APPROVED BY:	PMC	

DETAILS SHEET

SCALE: AS SHOWN

C-804

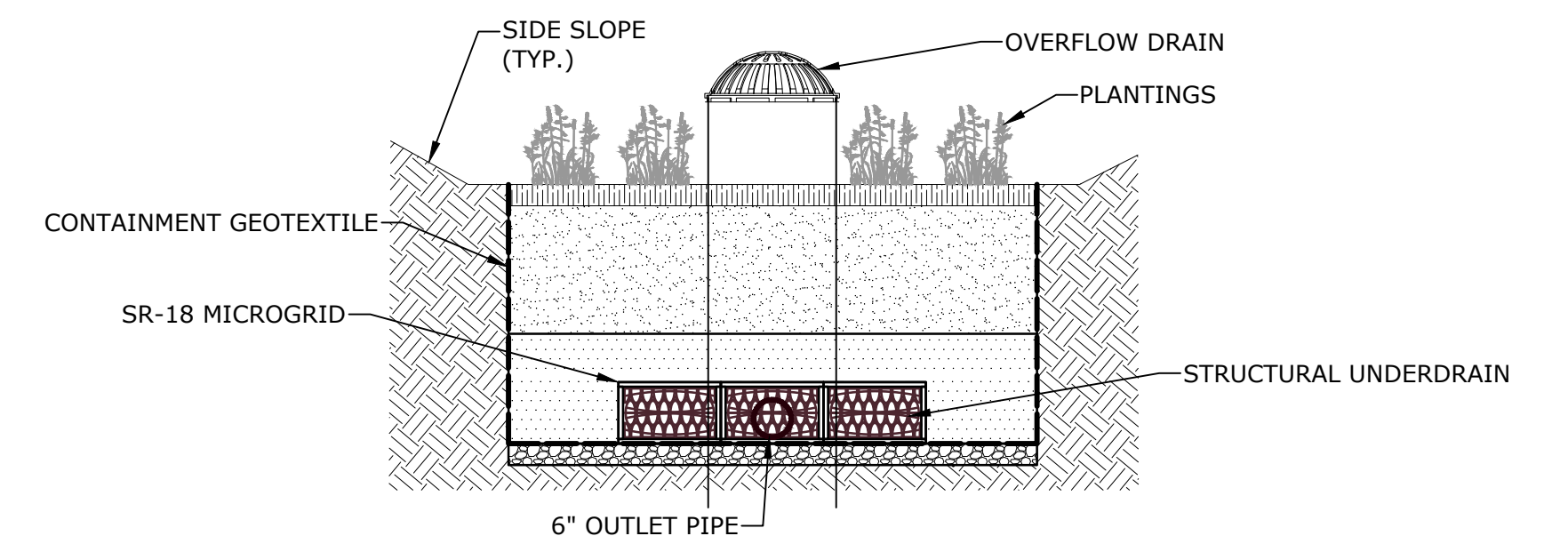
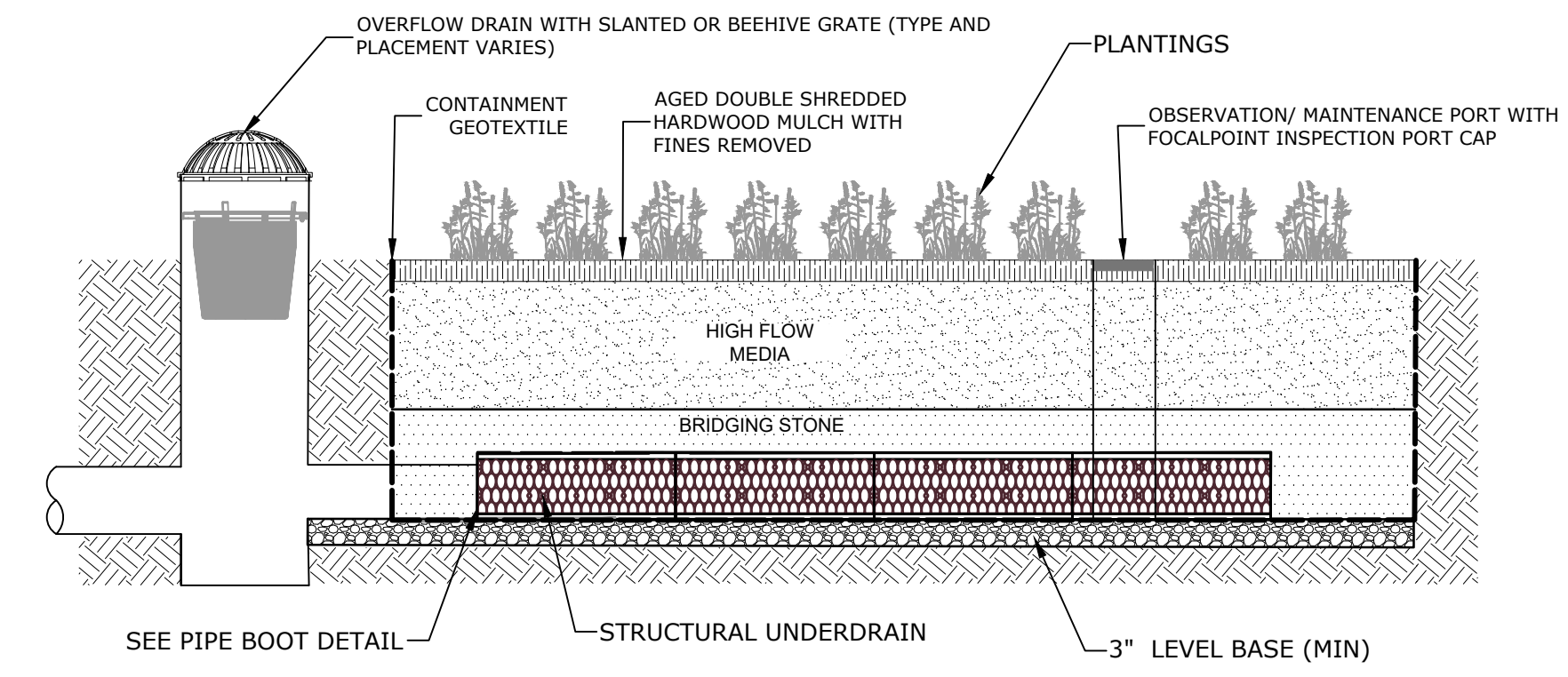


- NOTES:**
- BARK MULCH SHALL BE AGED A MINIMUM OF 12 MONTHS AND SHALL NOT FLOAT.
 - RAIN GARDENS SHALL NOT BE PLACED INTO SERVICE UNTIL THE PRACTICE HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
 - DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. CONTRACTOR SHALL KEEP ALL EXCAVATION EQUIPMENT OUTSIDE OF THE LIMIT OF THE RAIN GARDEN.
 - SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR LOCATIONS, LAYOUTS, AND ELEVATIONS.
 - THE SAND PORTION OF THE FILTER MEDIA SHALL MEET THE FOLLOWING GRADATION (ASTM C-33):

SIEVE SIZE	PERCENT PASSING
3/8"	100
#4	95-100
#8	80-100
#16	50-85
#30	25-60
#50	5-30
#100	0-10

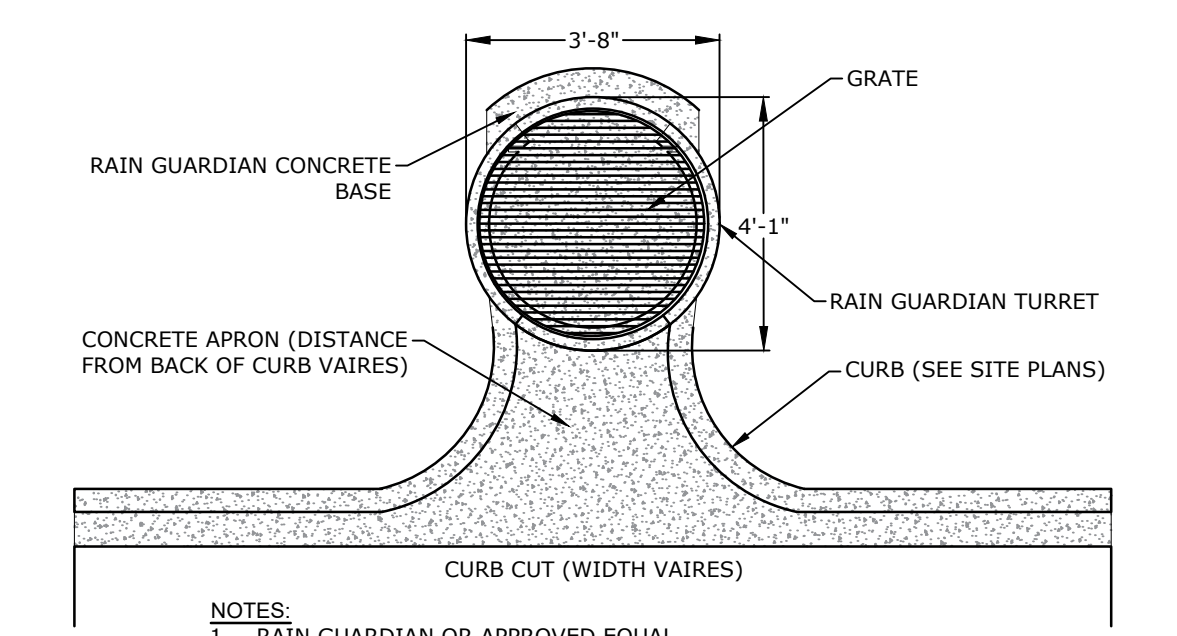
FILTER MEDIA COMPOSITION:			
COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL	PERCENT PASSING
ASTM C-33 CONCRETE SAND	50-55	SEE NOTE #5	
LOAMY SAND TOPSOIL	20-30	200	15-25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH	20-30	200	5 MAX

RAIN GARDEN
NO SCALE

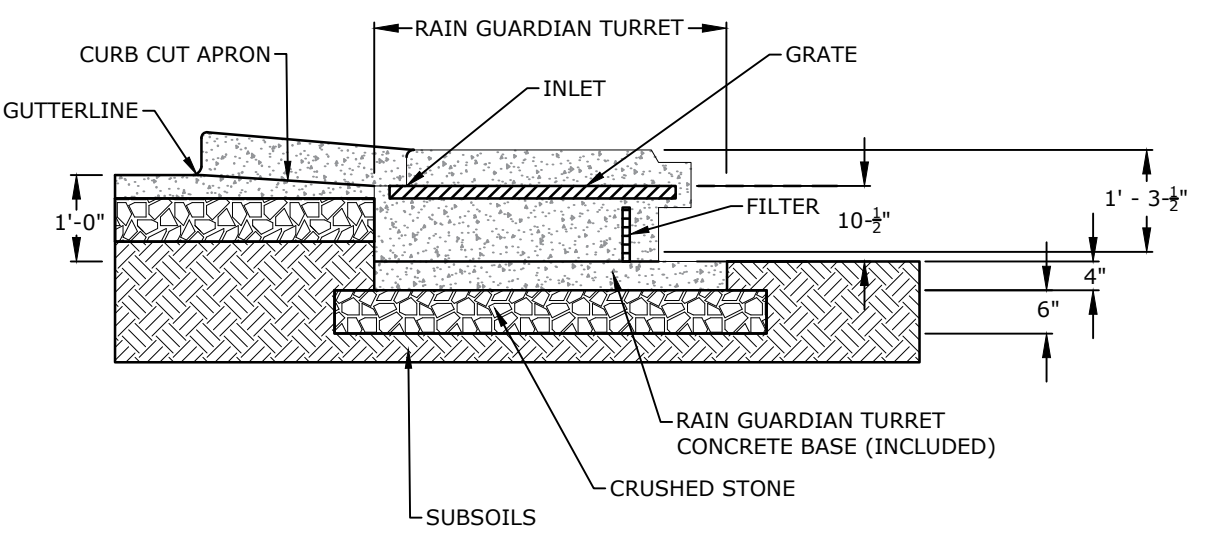


- NOTES:**
- ALL INSTALLATIONS TO BE COORDINATED WITH FOCAL POINT PRIOR TO CONSTRUCTION

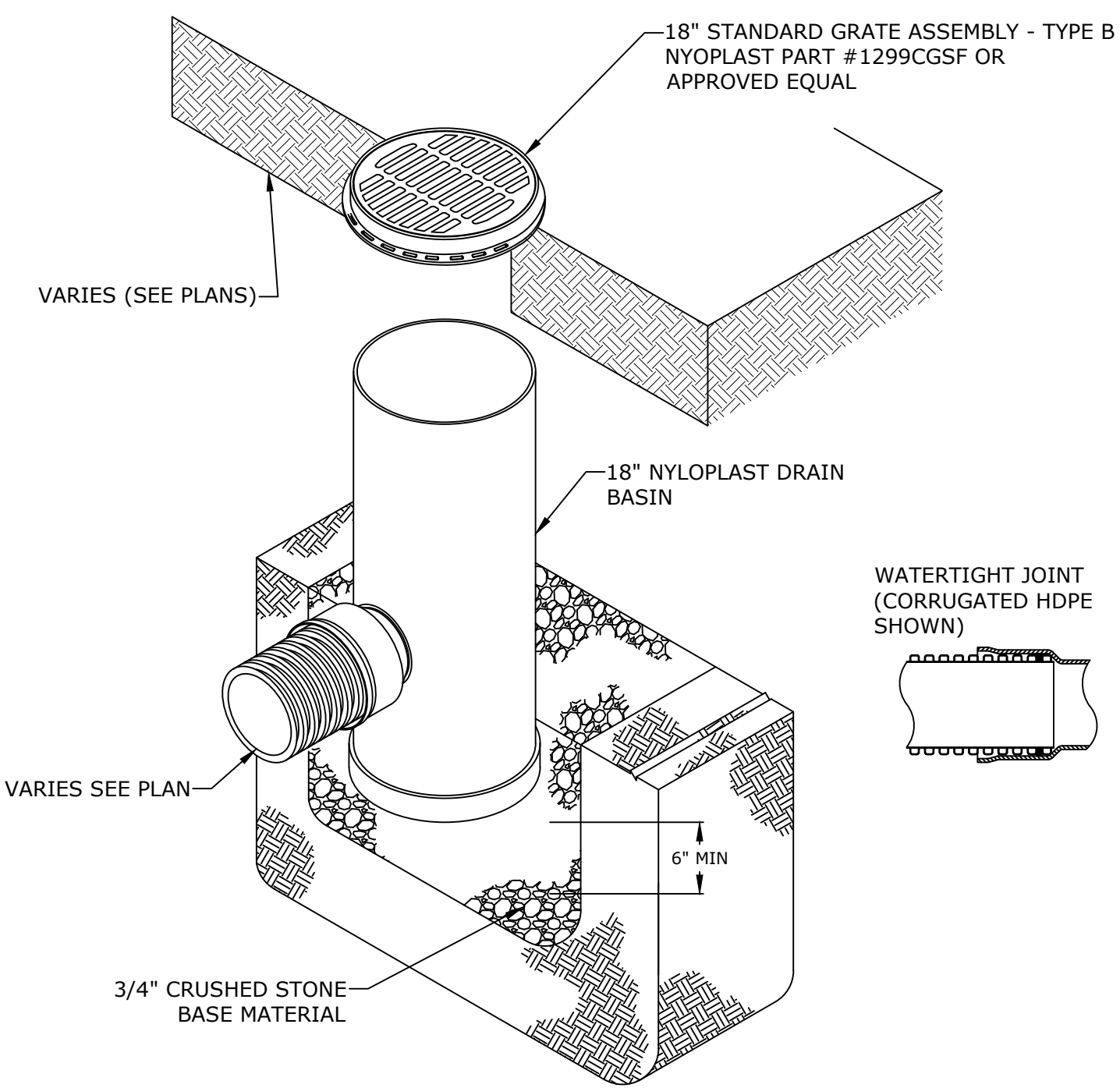
FOCAL POINT BIORETENTION CELL
NO SCALE



- NOTES:**
- RAIN GUARDIAN OR APPROVED EQUAL.
 - CURB INLET SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURE RECOMMENDATION.



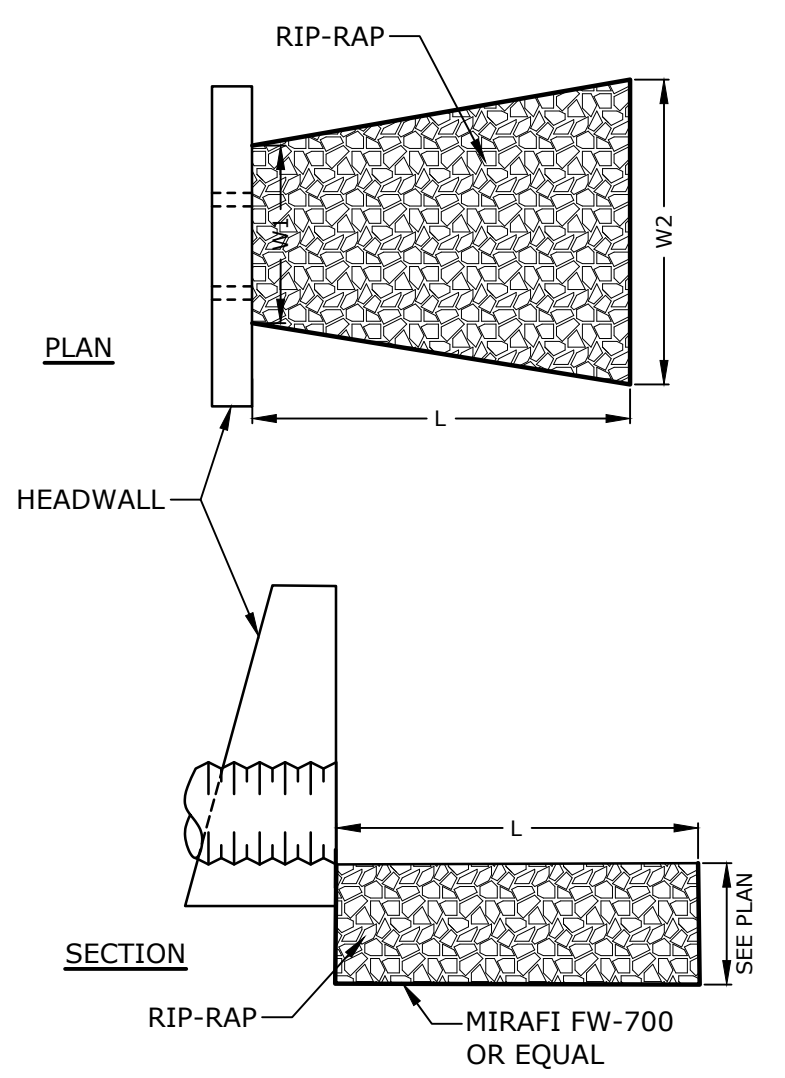
RAIN GUARDIAN TURRET
NO SCALE



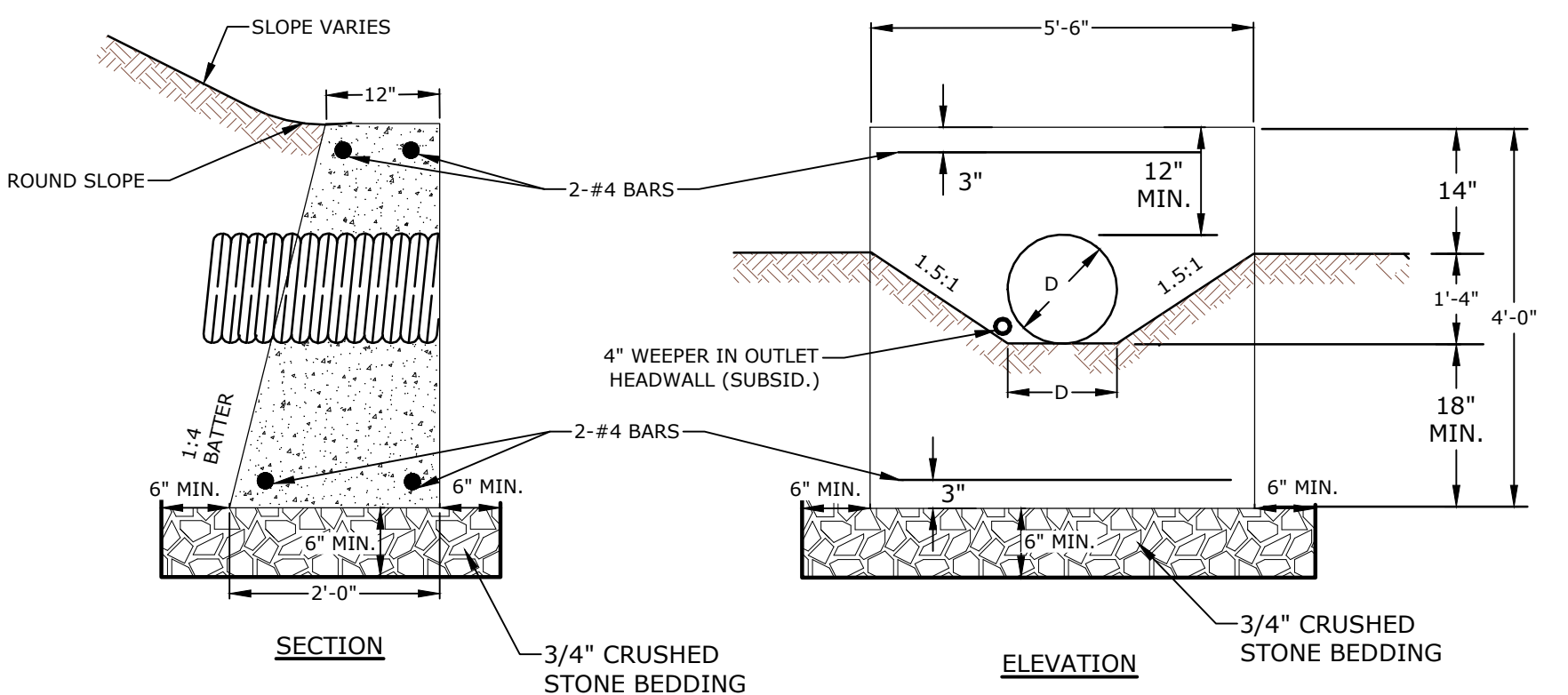
- NOTES:**
- GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
 - SEE GRADING, DRAINAGE, AND EROSION CONTROL PLAN FOR LOCATIONS.

YARD DRAIN
NO SCALE

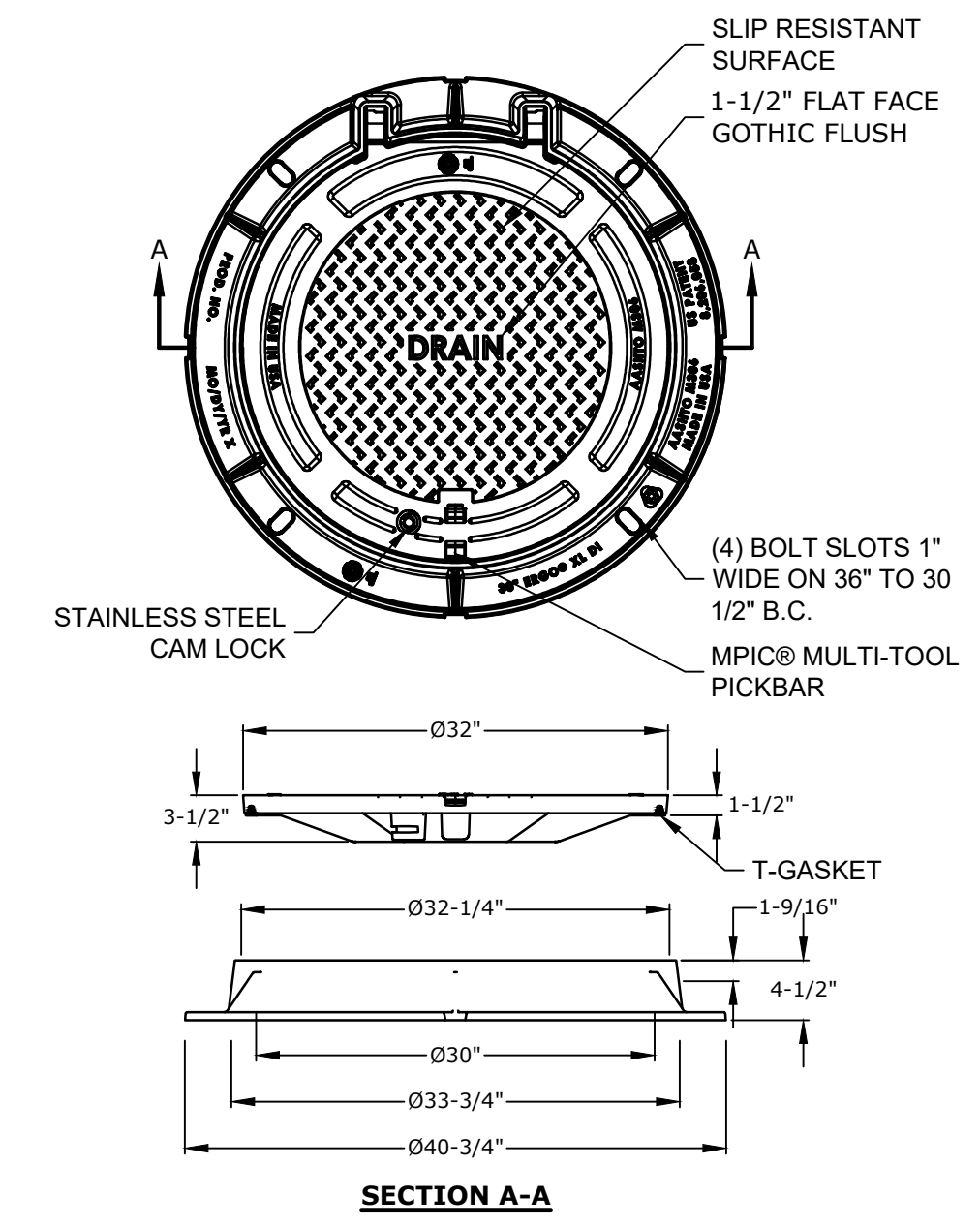
- NOTES:**
- STONE SIZE AND MAT DIMENSIONS DETAILED ON PLANS.
 - STONE SHALL CONSIST OF SUB-ANGULAR FIELD STONE OR ROUGH UNHEWN QUARRY STONE OF APPROXIMATELY RECTANGULAR SHAPE. FLAT OR ROUND ROCKS ARE NOT ACCEPTABLE. THE STONE SHALL BE HARD AND OF SUCH QUALITY THAT IT WILL NOT DISINTEGRATE ON EXPOSURE TO WATER OR WEATHERING, BE CHEMICALLY STABLE AND IT SHALL BE SUITABLE IN ALL OTHER RESPECTS FOR THE PURPOSE INTENDED. THE BULK SPECIFIC GRAVITY (SATURATED SURFACE-DRY BASIS) OF THE INDIVIDUAL STONES SHALL BE AT LEAST 2.5.
 - THE STONE SHALL BE COMPOSED OF A WELL-GRADED MIXTURE DOWN TO THE ONE-INCH SIZE PARTICLE SUCH THAT 50 PERCENT OF THE MIXTURE BY WEIGHT SHALL BE LARGER THAN THE D50 SIZE SPECIFIED. A WELL-GRADED MIXTURE IS DEFINED AS A MIXTURE COMPOSED PRIMARILY OF THE LARGER STONE SIZE BUT WITH A SUFFICIENT MIXTURE OF OTHER SIZES TO FILL THE PROGRESSIVELY SMALLER VOIDS BETWEEN THE STONES. THE DIAMETER OF THE LARGEST STONE SIZE IN SUCH A MIXTURE SHALL BE 1.5 TIMES THE D50 SIZE.



RIP-RAP APRON DETAIL
NO SCALE



PRECAST CONCRETE HEADWALL
NO SCALE



- NOTES:**
- MANHOLE FRAME AND COVER SHALL BE 32" HINGED ERGO XL BY EJ CO.
 - ALL DIMENSIONS ARE NOMINAL.
 - 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.
 - LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN HE CENTER OF THE COVER.

DRAIN MANHOLE FRAME & COVER
NO SCALE

PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

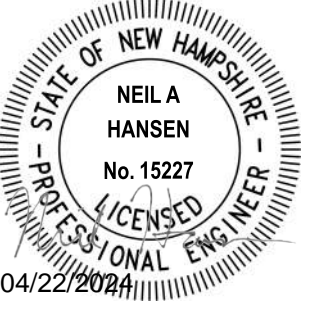
100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
PROJECT NO: E5071-001		
DATE: 4/22/2024		
FILE: E5071-001-C-DTLS.dwg		
DRAWN BY: BKC/NHW		
DESIGNED/CHECKED BY: NAH		
APPROVED BY: PMC		

DETAILS SHEET

SCALE: AS SHOWN

C-805



PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

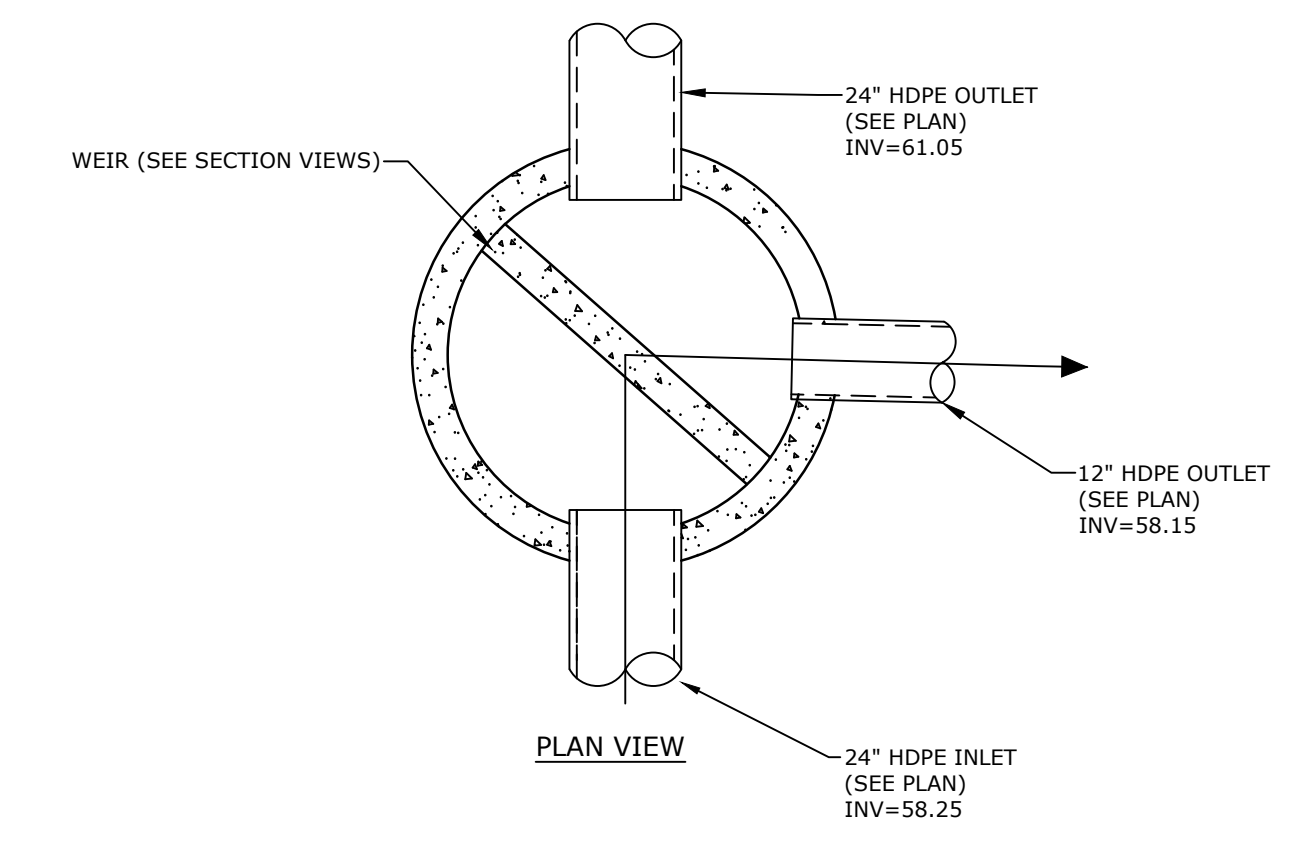
100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
	4/22/2024	
PROJECT NO:	E5071-001	
DATE:	4/22/2024	
FILE:	E5071-001-C-DTLS.dwg	
DRAWN BY:	BKC/NHW	
DESIGNED/CHECKED BY:	NAH	
APPROVED BY:	PMC	

DETAILS SHEET

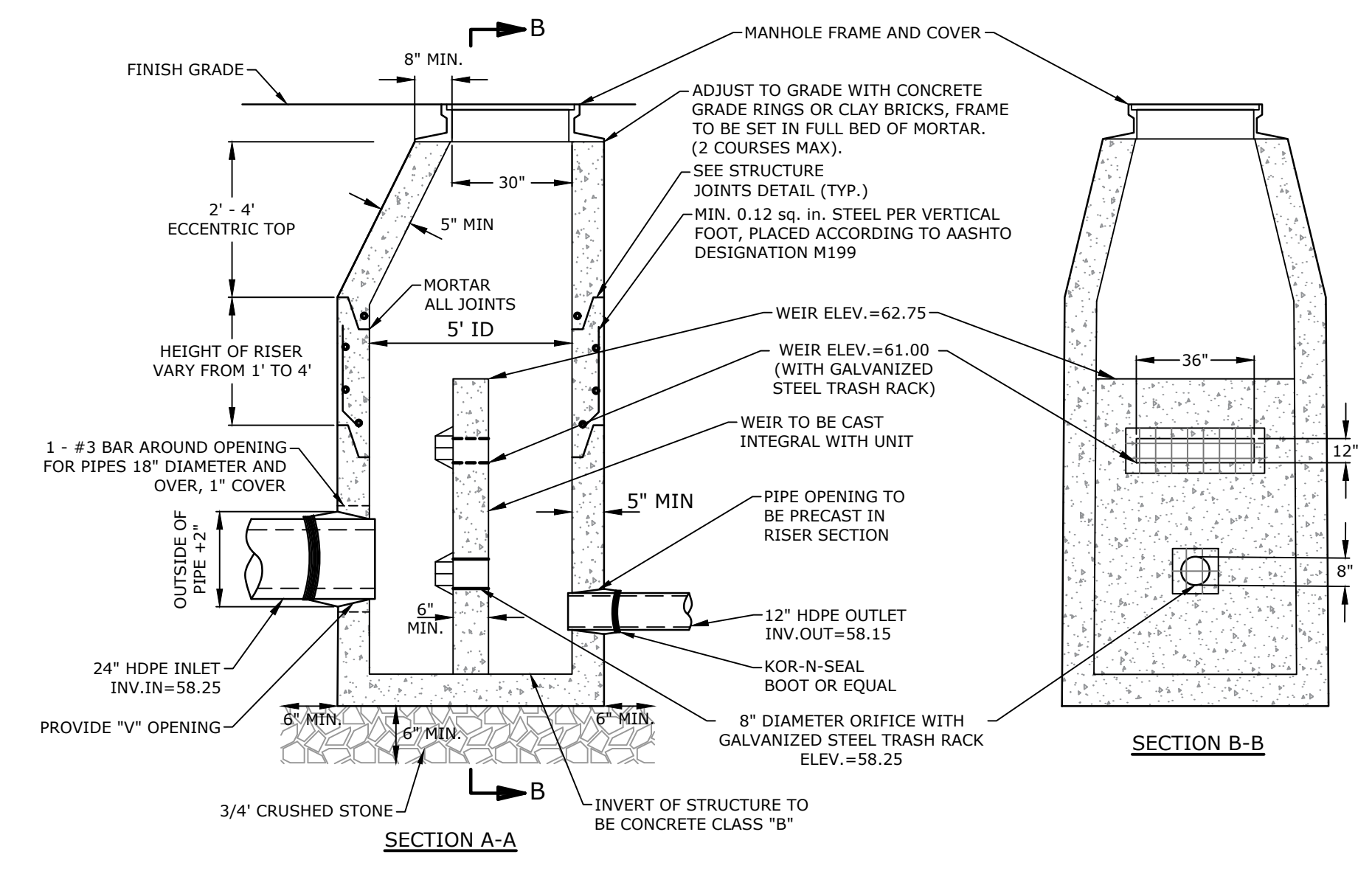
SCALE: AS SHOWN

C-806

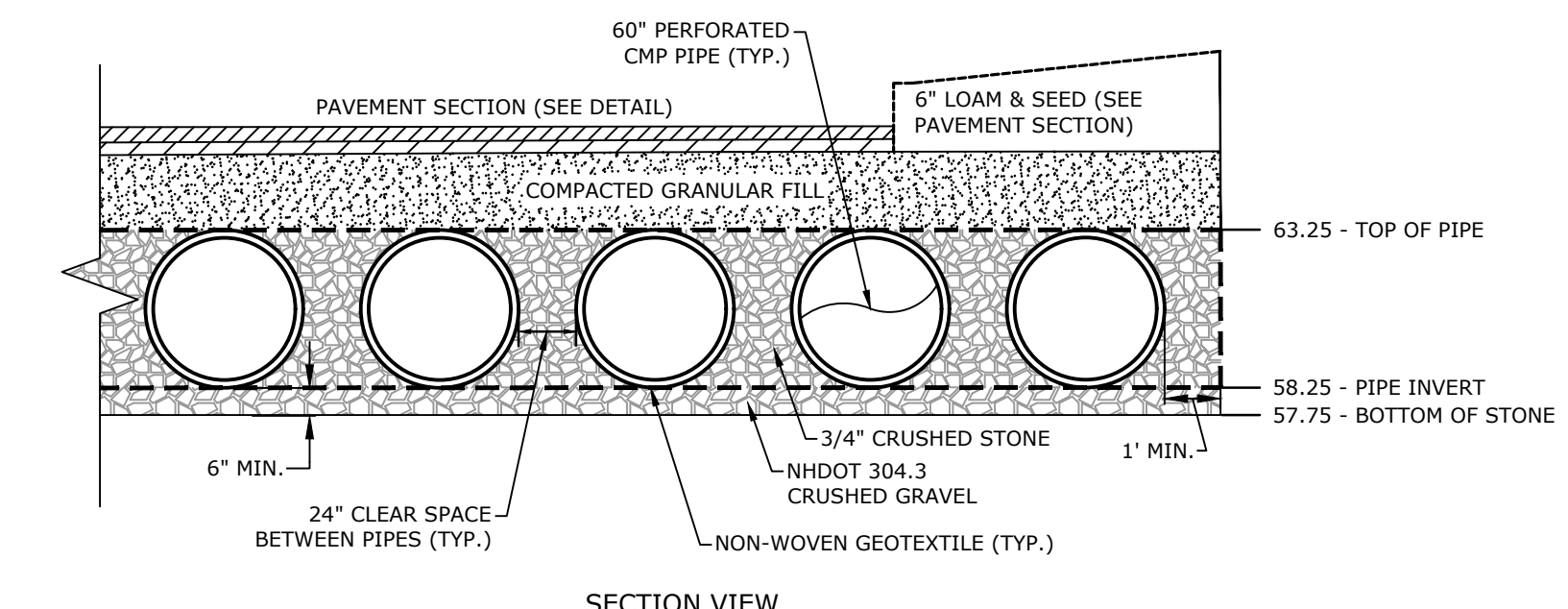


- NOTES:**
- ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
 - CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
 - THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
 - THE STRUCTURES SHALL BE DESIGNED FOR H2O LOADING.
 - CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS).
 - THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
 - PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
 - OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
 - 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.
 - ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZONTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.
 - SEE DRAINAGE MANHOLE DETAIL FOR MORE INFORMATION (CORE HOLE SIZE, MINIMUM FLOOR AND WALL THICKNESS, ETC.).
 - OPENINGS BETWEEN TRASH RACK BARS SHALL BE SMALLER THAN THE SIZE OF THE ORIFICE IT COVERS.

UNDERGROUND DETENTION BASIN OUTLET STRUCTURE (POS1)
NO SCALE

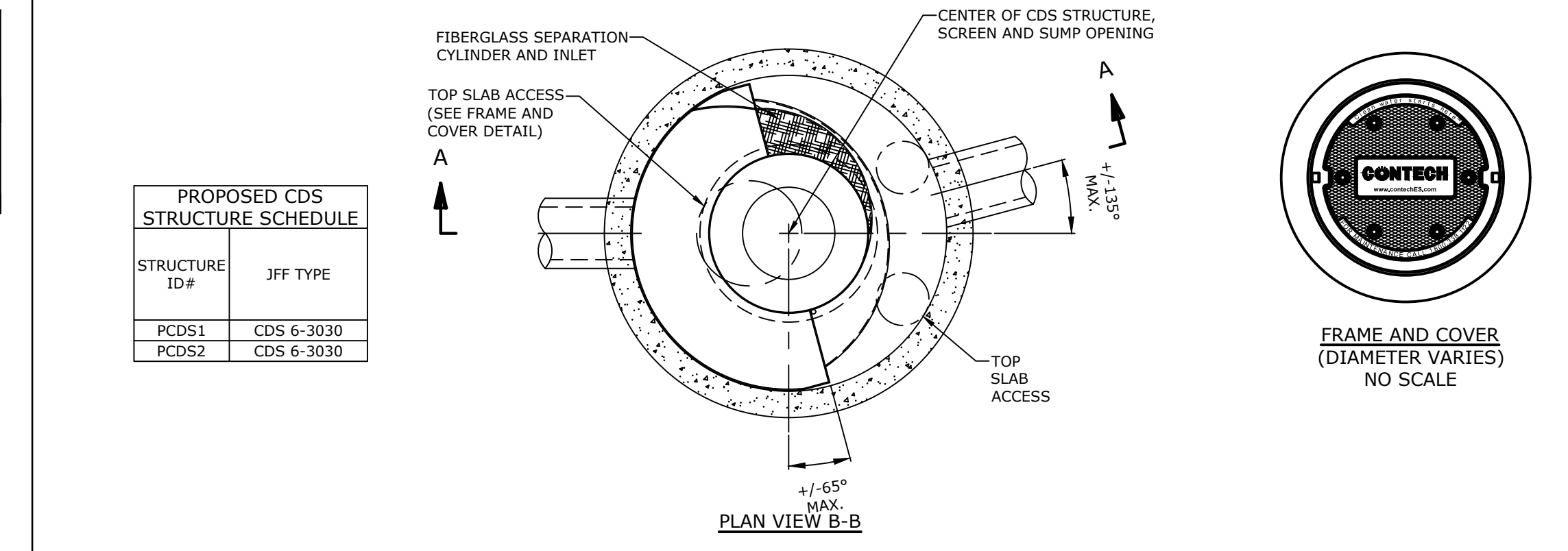


UNDERGROUND DETENTION BASIN OUTLET STRUCTURE (POS1)
NO SCALE



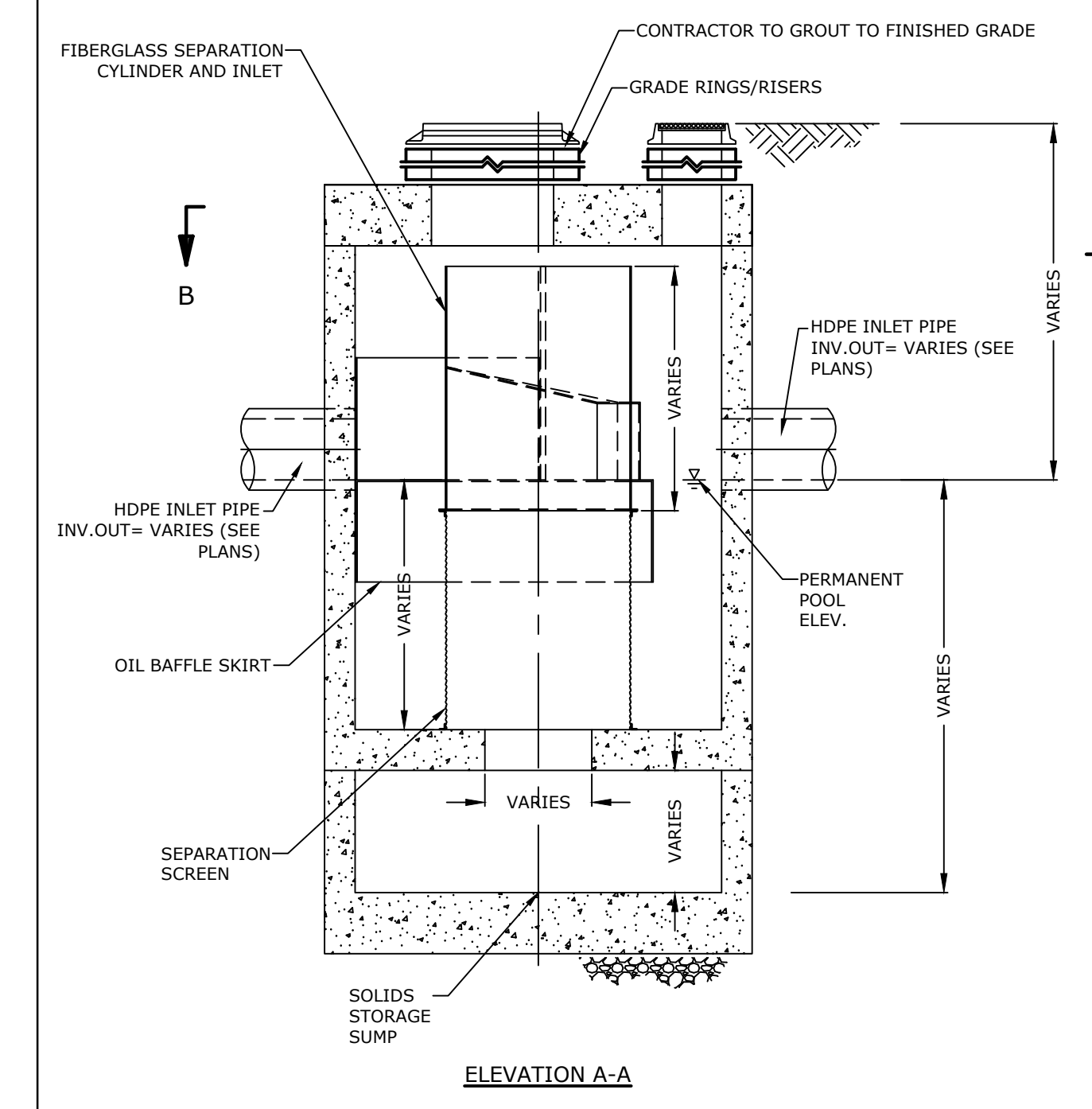
- NOTE:**
- THE UNDERGROUND DETENTION BASIN (UDB) SYSTEM SHALL BE ALUMINIZED 16 GAGE STEEL PIPE DESIGNED FOR H-20 LOADING. CONTRACTOR TO SUBMIT PIPE SPECIFICATIONS AND FINAL MANUFACTURERS DESIGN FOR REVIEW AND APPROVAL.
 - THE CONTRACTOR SHALL SUBMIT PLANS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE.
 - THE DESIGN ENGINEER SHALL PROVIDE SUFFICIENT INSPECTION TO CERTIFY THAT THE SYSTEM HAS BEEN INSTALLED PER THE PROPOSED DESIGN PLAN.
 - THE DESIGN SHALL REQUIRE INSPECTION PORTS/COVERS SUCH THAT SYSTEM CAN BE CLEANED BY VACUUM TRUCK WITH A MINIMUM OF ONE IN EACH CORNER.
 - OVERALL SYSTEM FOOTPRINT = 132' X 56'
 - APPROXIMATE LENGTH OF 60" PERFORATED CMP = 960 LF
 - APPROXIMATE LENGTH OF 60" PERFORATED CMP HEADER = 108 LF

UNDERGROUND DETENTION BASIN (UBD-1)
NO SCALE



PROPOSED CDS STRUCTURE SCHEDULE

STRUCTURE ID#	JFF TYPE
PCDS1	CDS 6-3030
PCDS2	CDS 6-3030



- GENERAL NOTES:**
- CONTECH TO PROVIDE FINAL DIMENSIONS BASED ON APPROVED FLOWS AND ALL MATERIALS UNLESS NOTED OTHERWISE.
 - CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
 - STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
 - PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

- INSTALLATION NOTES:**
- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
 - CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
 - CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
 - CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN ON GRADING PLAN.
 - CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH CDS UNIT
NO SCALE

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	54" 40"	27"	15"
CARTRIDGE LENGTH	54" 40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6" 4"	4'-3"	3'-3"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.069 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.961.47	0.98	0.54
DECK TO INSIDE TOP (MIN) (B)	5.004.00	4.00	4.00

SITE SPECIFIC DATA REQUIREMENTS		SITE SPECIFIC DATA REQUIREMENTS	
STRUCTURE ID	JFF-1	STRUCTURE ID	JFF-2
MODEL SIZE	JFPD0808	MODEL SIZE	JFPD0808
WATER QUALITY FLOW RATE (cfs)	2.73	WATER QUALITY FLOW RATE (cfs)	2.87
PEAK FLOW RATE (cfs)	2.94	PEAK FLOW RATE (cfs)	2.94
RETURN PERIOD OF PEAK FLOW (yrs)	25	RETURN PERIOD OF PEAK FLOW (yrs)	25
# OF CARTRIDGES REQUIRED (H/F / DD)	15/3	# OF CARTRIDGES REQUIRED (H/F / DD)	15/3
CARTRIDGE SIZE	54"	CARTRIDGE SIZE	54"

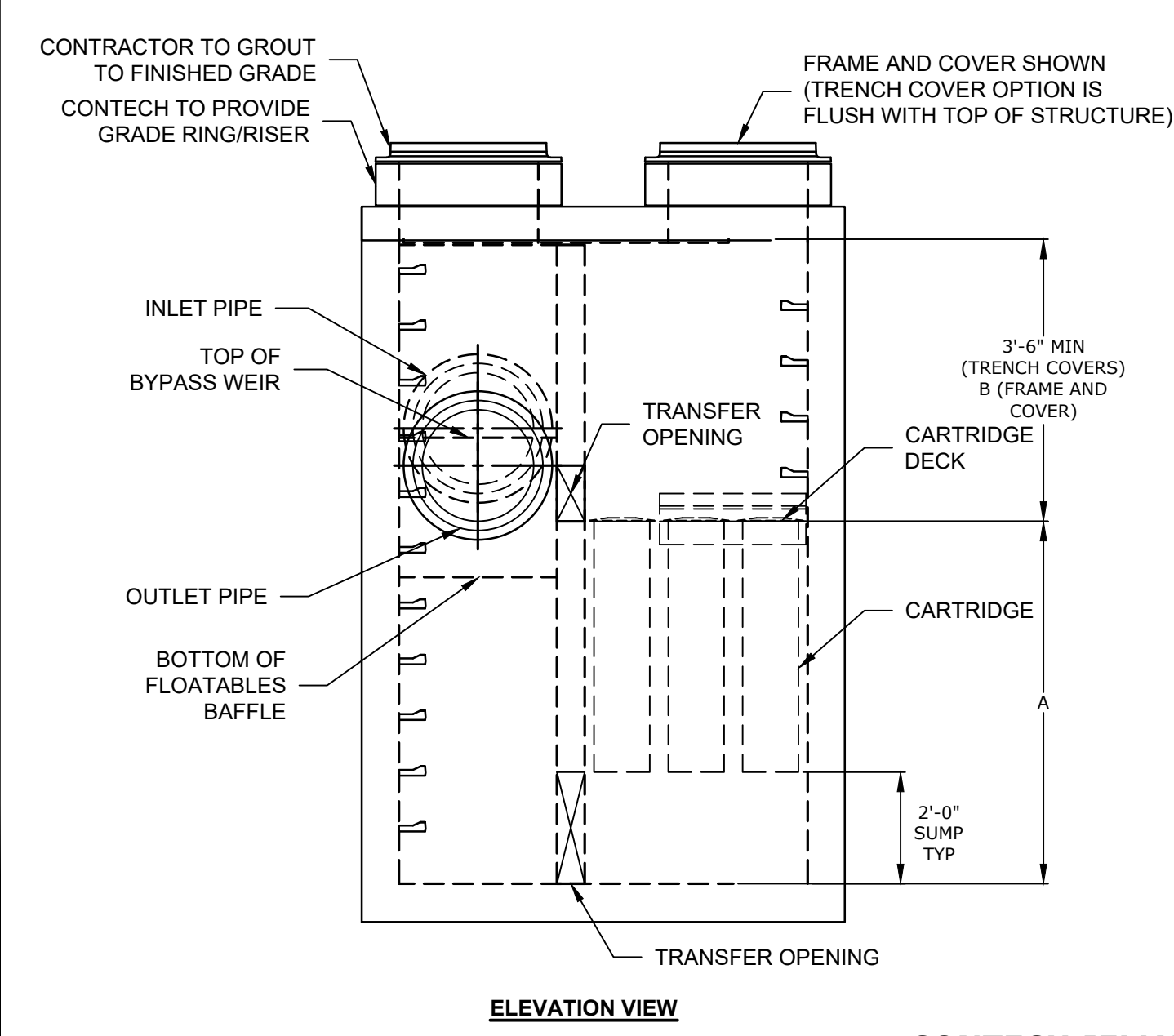
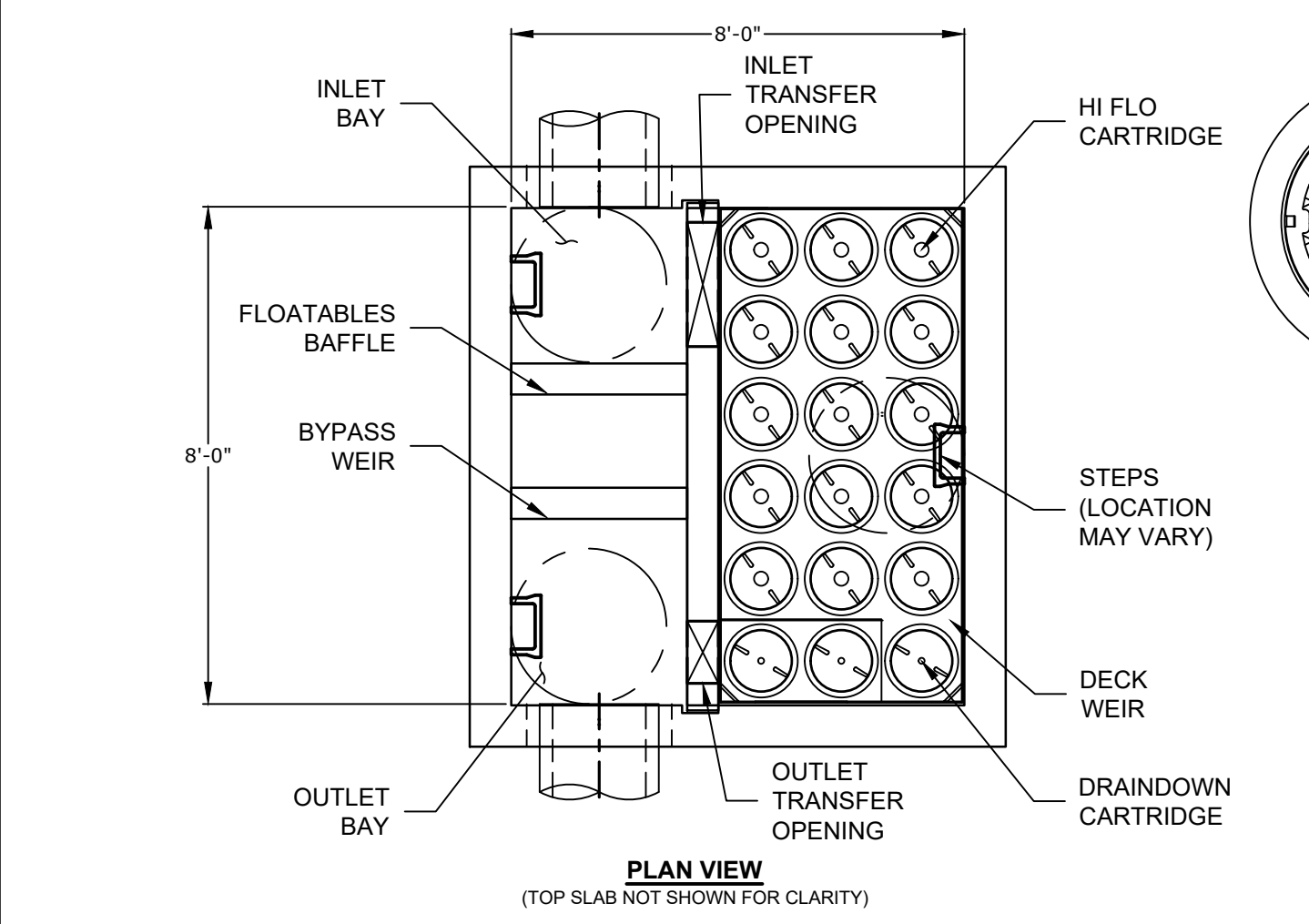
- GENERAL NOTES:**
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
 - FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
 - JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
 - 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.
 - STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
 - OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
 - THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
 - 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:**
- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
 - CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED).
 - CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
 - CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
 - 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.

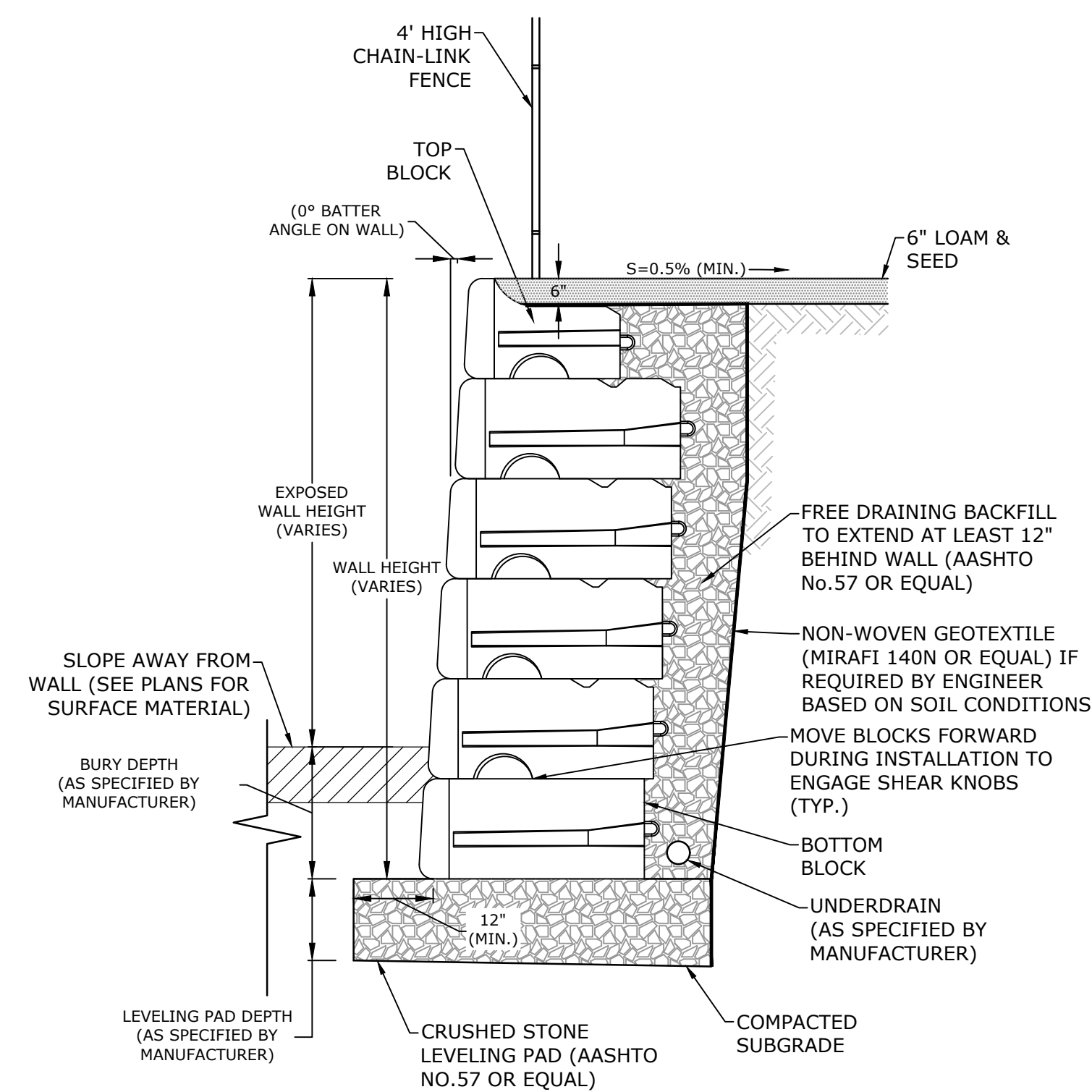
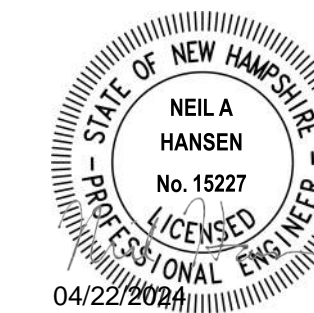
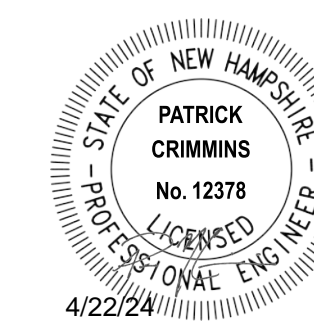
- NOTE:**
- A QUALIFIED ENGINEER SHALL PROVIDE SUFFICIENT INSPECTION TO CERTIFY THAT THE SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED DESIGN PLANS PER THE REQUIREMENTS OF THE ALTERATION OF TERRAIN PERMIT. CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO THE CONSTRUCTION OF THE UNDERGROUND FILTRATION UNITS.



CONTECH JELLYFISH STORMWATER FILTER (JFPD0808)
NO SCALE

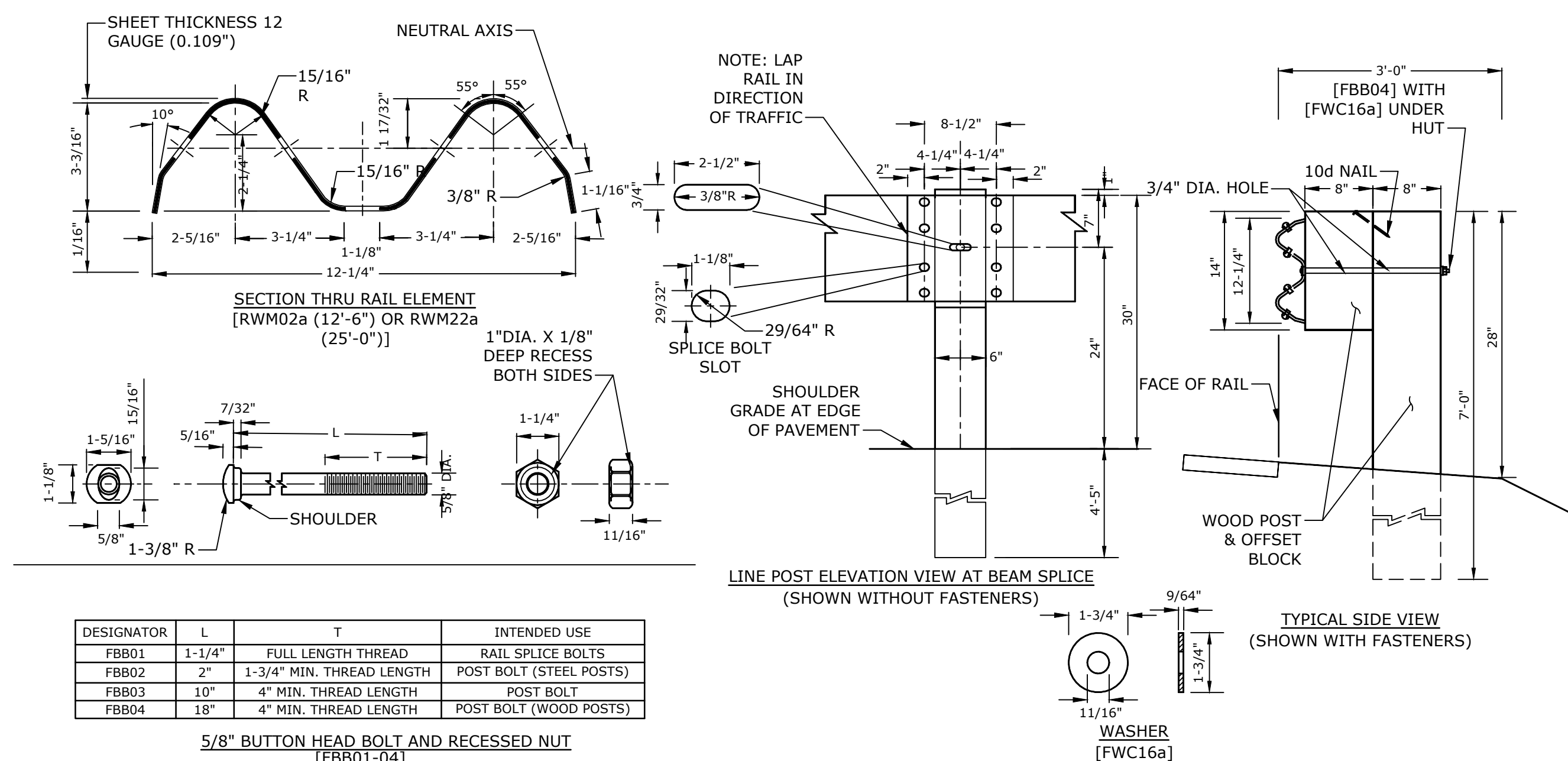


Last Saved: 4/19/2024
 Plotted On: Apr 19, 2024 1:13:13 pm By: Dcurcio
 Tighe & Bond \\lgn\shared\cadd\p\proj\15\1500 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-C-DTLS.dwg



- NOTES:**
- RETAINING WALL SHALL BE BY REDI ROCK LEDGESTONE OR APPROVED EQUAL.
 - THE CONTRACTOR SHALL SUBMIT DESIGN AND CALCULATIONS FOR THE RETAINING WALL THAT SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE. CALCULATIONS SHALL INCLUDE A GLOBAL STABILITY ANALYSIS.
 - MINIMUM DESIGN PARAMETERS:
 - GLOBAL STABILITY FACTOR OF SAFETY = 1.3
 - OVERTURNING FACTOR OF SAFETY = 1.5
 - SLIDING FACTOR OF SAFETY = 1.5
 - GEOGRID PULLOUT FACTOR OF SAFETY = 1.5
 - SEISMIC FACTOR OF SAFETY = 1.1
 - WALL DESIGNS SHALL CONSIDER EFFECTS OF SLOPE, TRAFFIC LOADS, BUILDING LOADS, GUARDRAIL AND/OR FENCING AS REQUIRED.
 - WALL DESIGN ENGINEER SHALL CONSIDER HEIGHT AND SPECIFY FENCE WHERE REQUIRED.
 - ALL INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION MANUAL AND THE WALL DESIGN ENGINEER'S DESIGN PLANS AND SPECIFICATIONS.
 - THE WALL DESIGN ENGINEER SHALL COMPLETE SUFFICIENT INSPECTIONS DURING CONSTRUCTION TO CERTIFY WORK IS COMPLETED IN ACCORDANCE WITH DESIGN.
 - CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS OF WALL WITH WALL DESIGNER'S CERTIFICATION TO OWNER.
 - CONTRACTOR SHALL DIRECT SURFACE RUNOFF AWAY FROM THE WALL DURING CONSTRUCTION.
 - ANY SURFACE DRAINAGE FEATURES, FINISH GRADING, PAVEMENT OR OTHER SURFACE TREATMENT SHALL BE INSTALLED IN THE AREA OF THE WALL IMMEDIATELY AFTER THE WALL IS COMPLETE OR OTHER MEASURES SHALL BE TAKEN TO PROTECT THE WALL FROM RUNOFF.
 - CONTRACTOR SHALL SUPPLY SAMPLE TO THE OWNER FOR APPROVAL PRIOR TO WALL CONSTRUCTION.

TYPICAL BLOCK RETAINING WALL SECTION
NO SCALE



DESIGNATOR	L	T	INTENDED USE
FBB01	1-1/4"	FULL LENGTH THREAD	RAIL SPLICE BOLTS
FBB02	2"	1-3/4" MIN. THREAD LENGTH	POST BOLT (STEEL POSTS)
FBB03	10"	4" MIN. THREAD LENGTH	POST BOLT
FBB04	18"	4" MIN. THREAD LENGTH	POST BOLT (WOOD POSTS)

5/8" BUTTON HEAD BOLT AND RECESSED NUT
[FBB01-04]

- NOTES:**
- SEE SITE PLAN FOR LIMITS OF GUARDRAIL.
 - DESIGNATION PROVIDED IN BRACKETS () REFERENCE STANDARD ELEMENTS DETAILED IN "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE" (1979) - AASHTO - AGC - ARTBA JOINT COOPERATIVE COMMITTEE.
 - ALL DIMENSIONS SUBJECT TO MANUFACTURER'S TOLERANCES.
 - USE 6'-0" LONG POSTS WHEN FILL SLOPE IS 4:1 OR FLATTER AND/OR WHEN FIELD CONDITIONS DICTATE (e.g., LEDGE FILLS), AS DETERMINED BY THE ENGINEER.

WOOD POST/STEEL BEAM GUARDRAIL
NO SCALE

PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

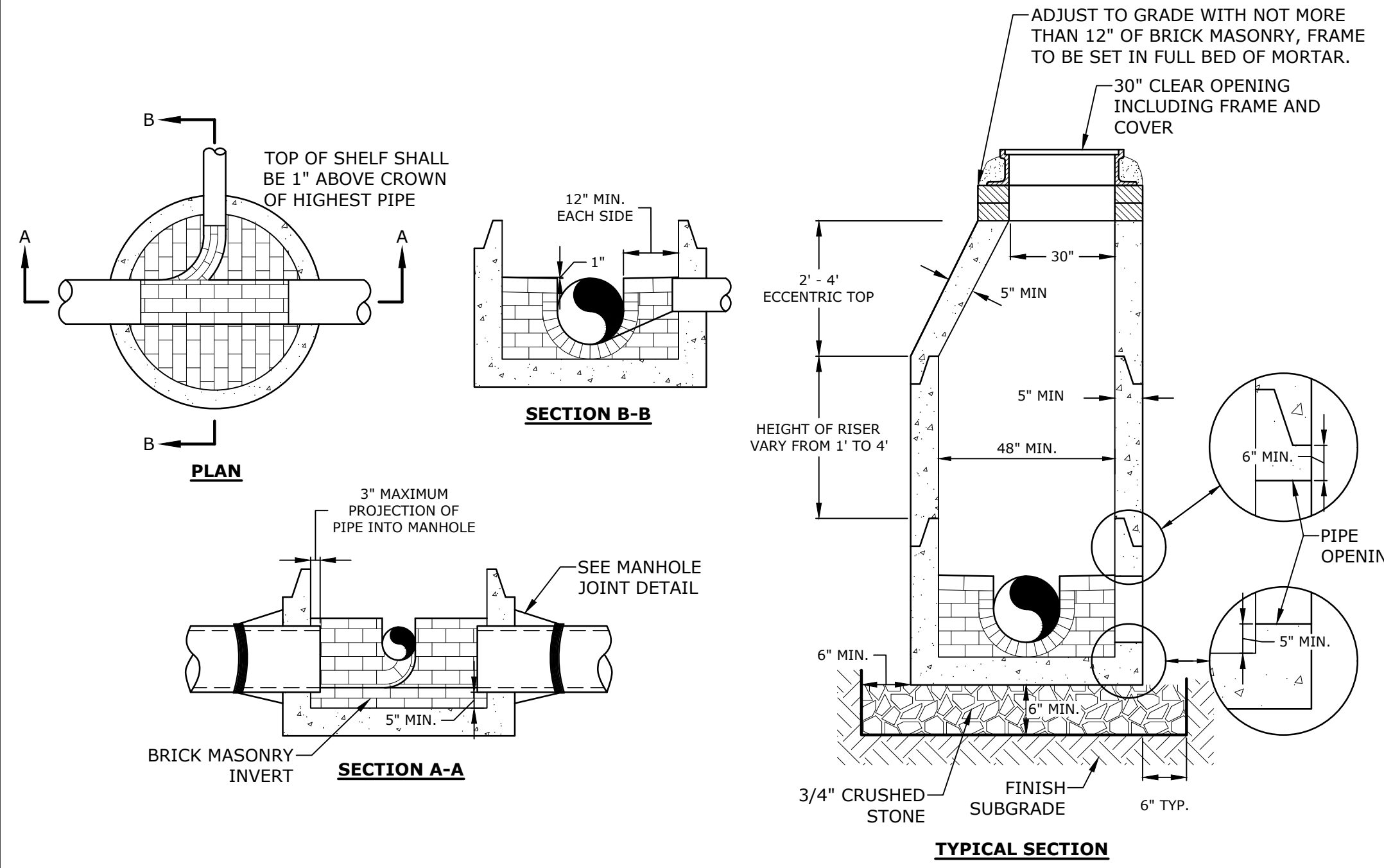
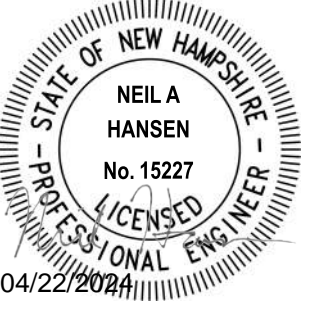
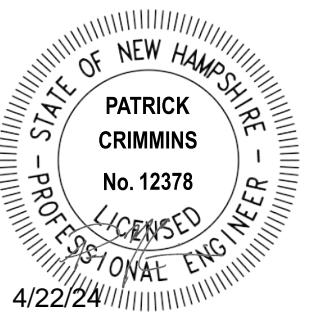
100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
PROJECT NO: E5071-001		
DATE: 4/22/2024		
FILE: E5071-001-C-DTLS.dwg		
DRAWN BY: BKC/NHW		
DESIGNED/CHECKED BY: NAH		
APPROVED BY: PMC		

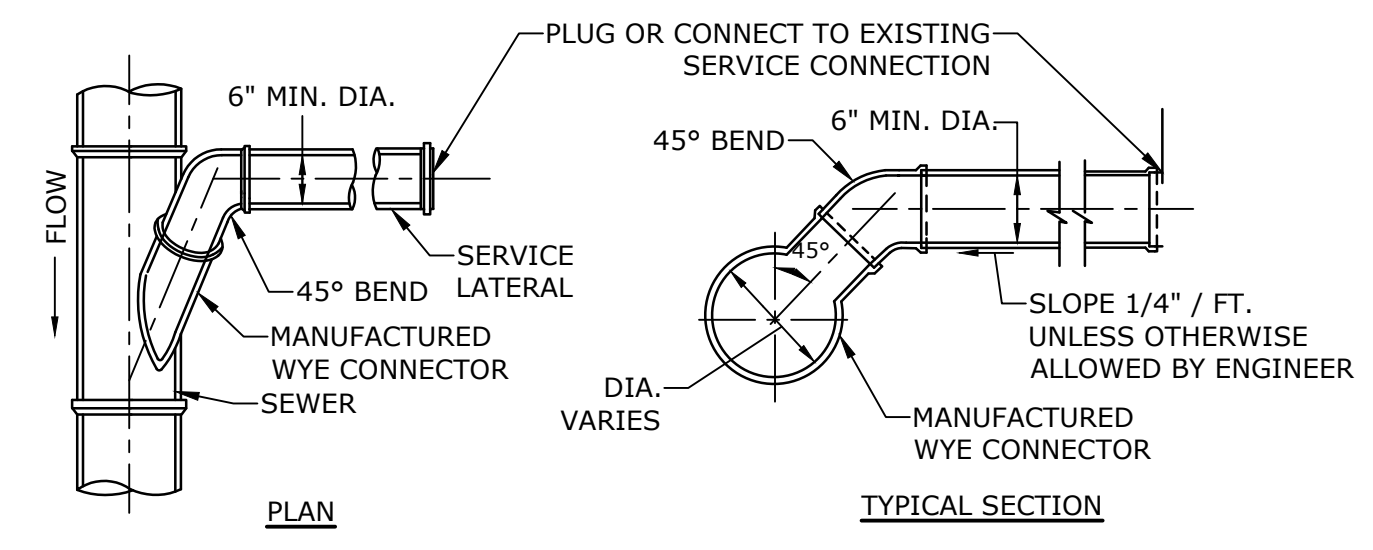
DETAILS SHEET

SCALE: AS SHOWN

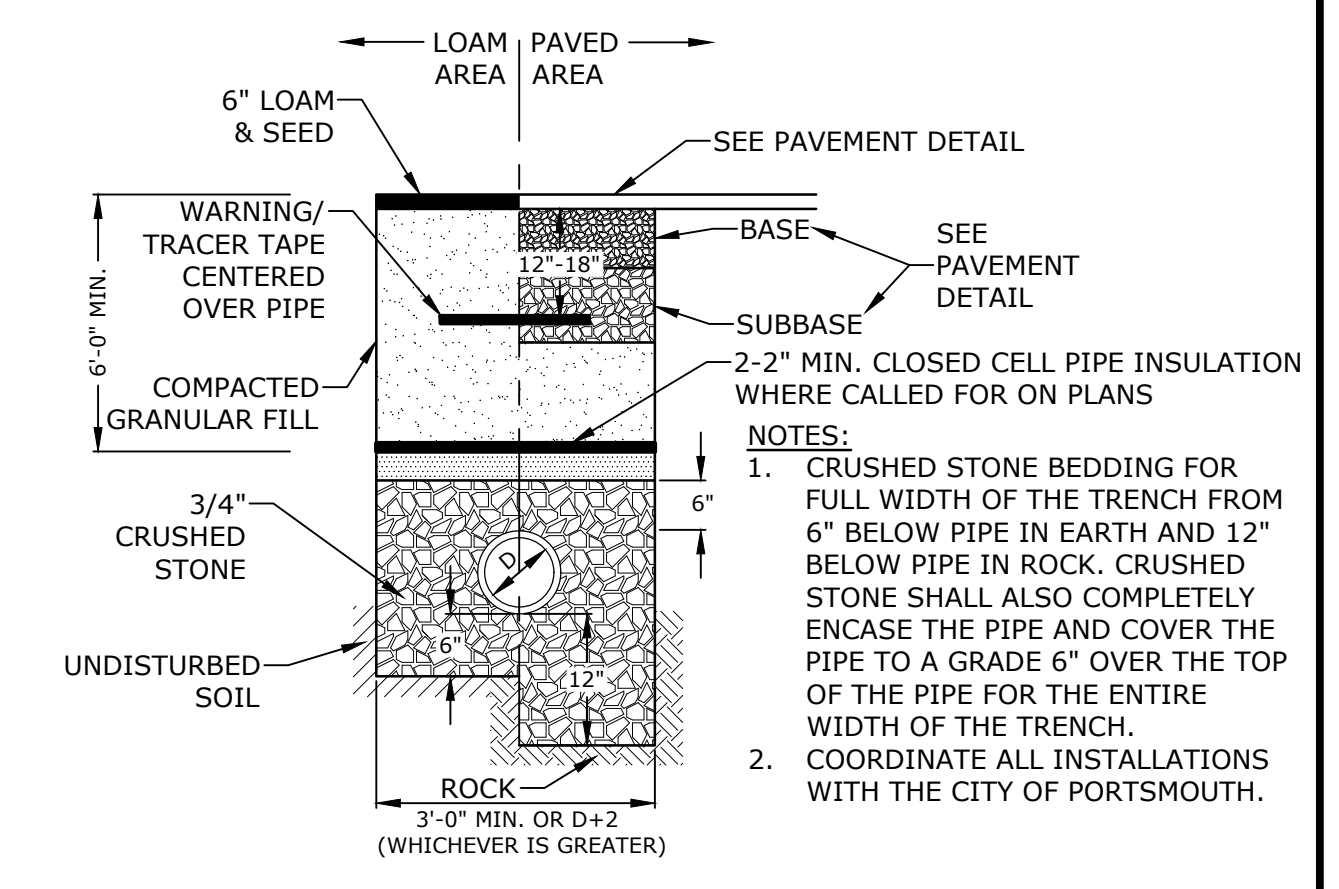
C-807



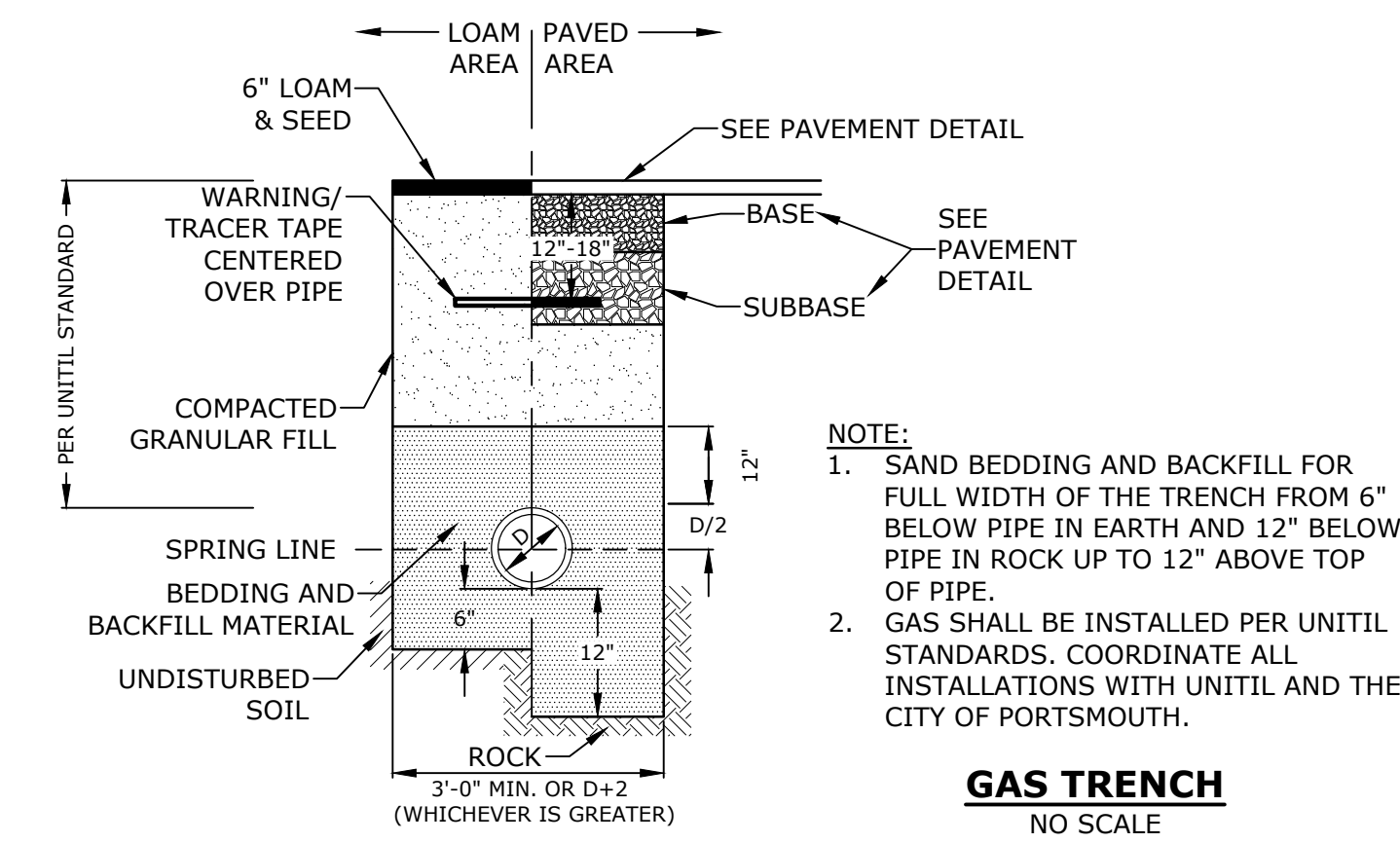
SEWER MANHOLE
NO SCALE



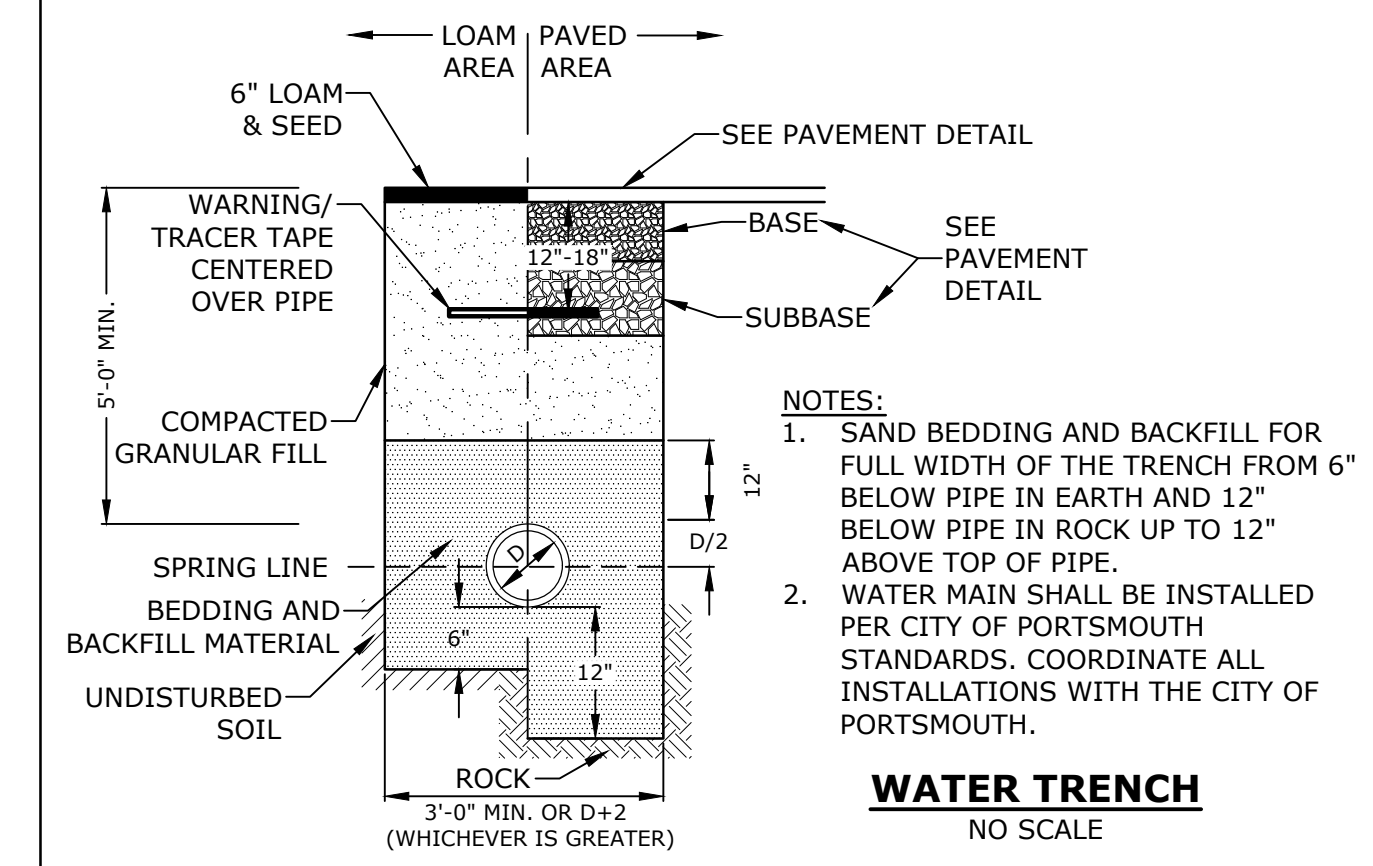
STANDARD SERVICE LATERAL CONNECTION
NO SCALE



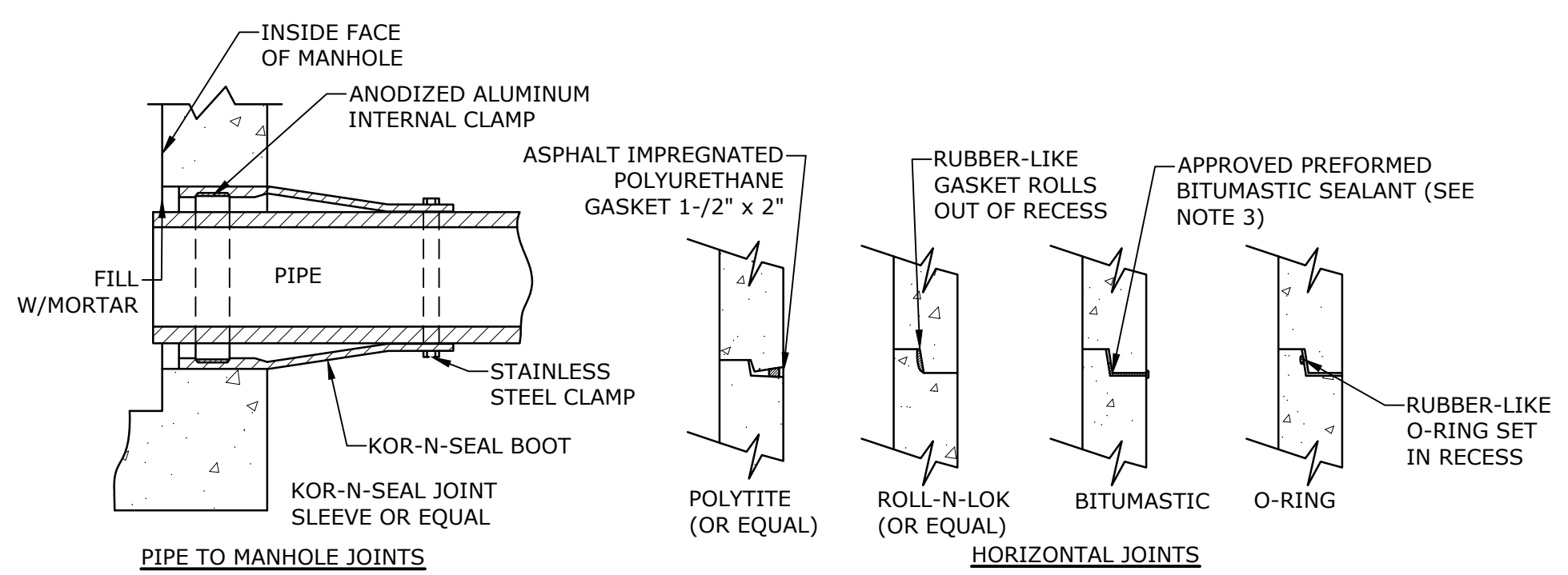
SEWER SERVICE TRENCH
NO SCALE



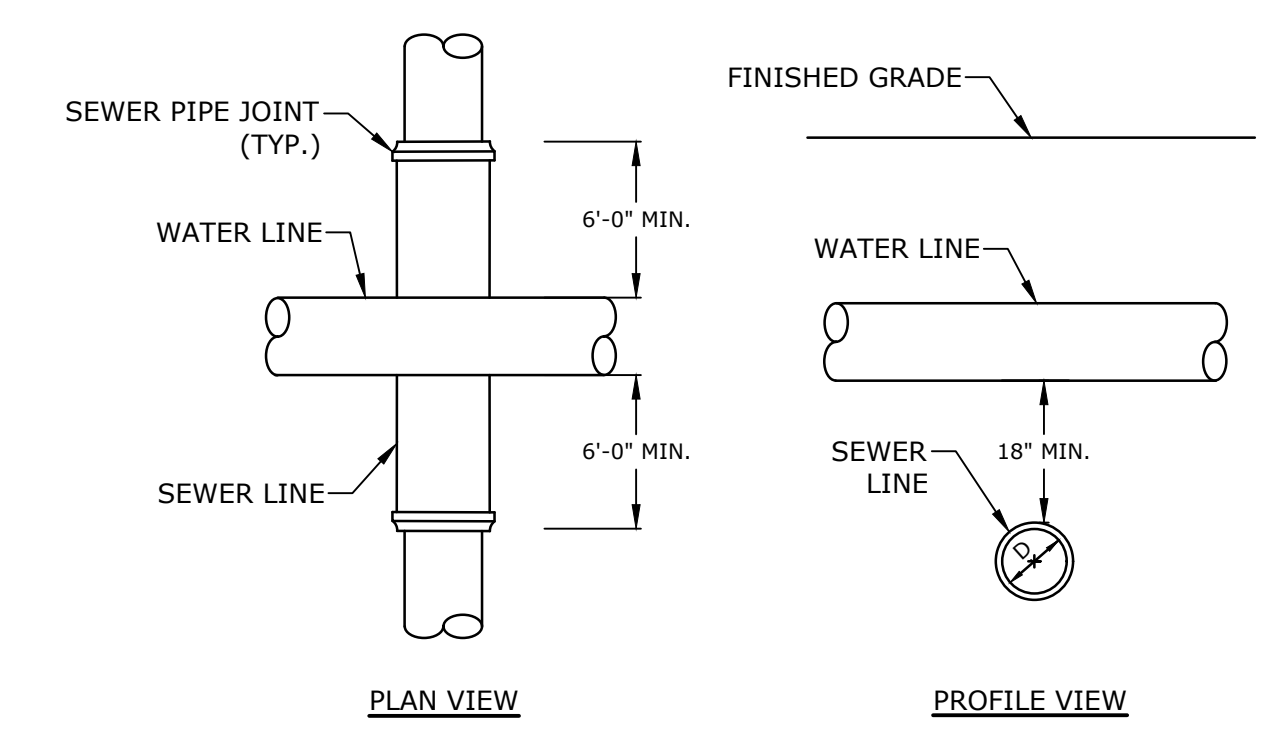
GAS TRENCH
NO SCALE



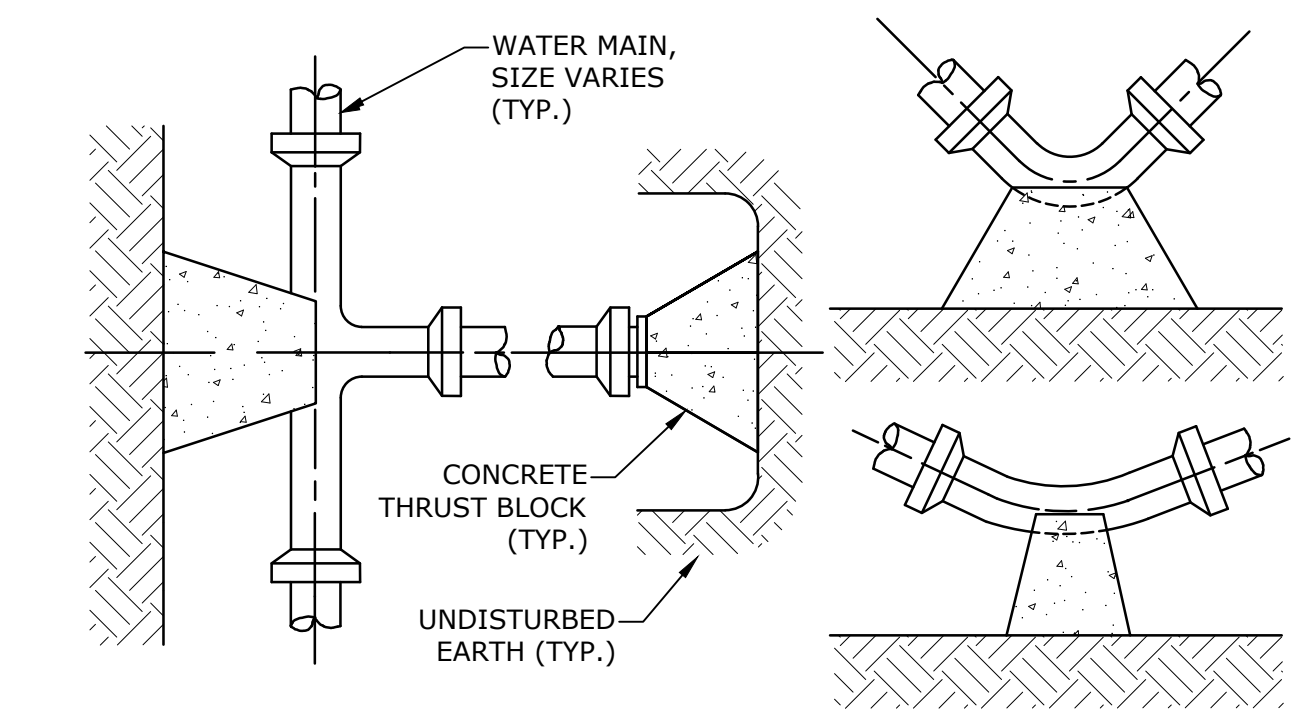
WATER TRENCH
NO SCALE



MANHOLE JOINTS
NO SCALE



WATER & SEWER CROSSING
NO SCALE



THRUST BLOCKING DETAIL
NO SCALE

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:**
- 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.
 - ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
 - PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
 - WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.
 - INSTALLATION AND STANDARD DIMENSIONAL REQUIREMENTS SHALL BE WITH CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS.

- NOTES:**
- INVERT AND SHELF TO BE PLACED AFTER EACH LEAKAGE TEST.
 - 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.
 - TWO (2) COATS OF BITUMINOUS WATERPROOF COATING SHALL BE APPLIED TO ENTIRE EXTERIOR OF MANHOLE.
 - FRAMES AND COVERS:** MANHOLE FRAMES AND COVERS WITHIN CITY RIGHT OF WAY SHALL BE CITY STANDARD HINGE COVERS MANUFACTURED BY E.J. 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.
 - HORIZONTAL JOINTS SHALL BE SEALED FOR WATER TIGHTNESS USING A DOUBLE ROW OF ELASTOMERIC OR MASTIC-LIKE SEALANT.
 - BARREL AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE DESIGNED FOR H20 LOADING, AND CONFORMING TO ASTM C478-06.

- NOTES:**
- A 10 FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED FROM ANY EXISTING OR PROPOSED WATER LINE.
 - AN 18" MINIMUM EDGE TO EDGE VERTICAL SEPARATION SHALL BE PROVIDED, WITH WATER ABOVE SEWER, AT ALL CROSSINGS.
 - SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN.
 - WHERE AN 18" VERTICAL SEPARATION CANNOT BE PROVIDED, SEWER PIPE SHALL BE CONSTRUCTED USING A SDR 26 PVC PIPE MEETING THE REQUIREMENTS OF SEWER FORCE MAIN STANDARDS. THE SDR26 PIPE SHALL BE USED FOR THE ENTIRE RUN BETWEEN MANHOLES ON EITHER SIDE OF CROSSING.
 - CROSSINGS SHALL CONFORM TO THE CITY OF PORTSMOUTH STANDARDS AND SPECIFICATIONS.
 - ALL FUTURE SEWER CONNECTIONS SHALL MEET THE ABOVE REQUIREMENTS.

PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION

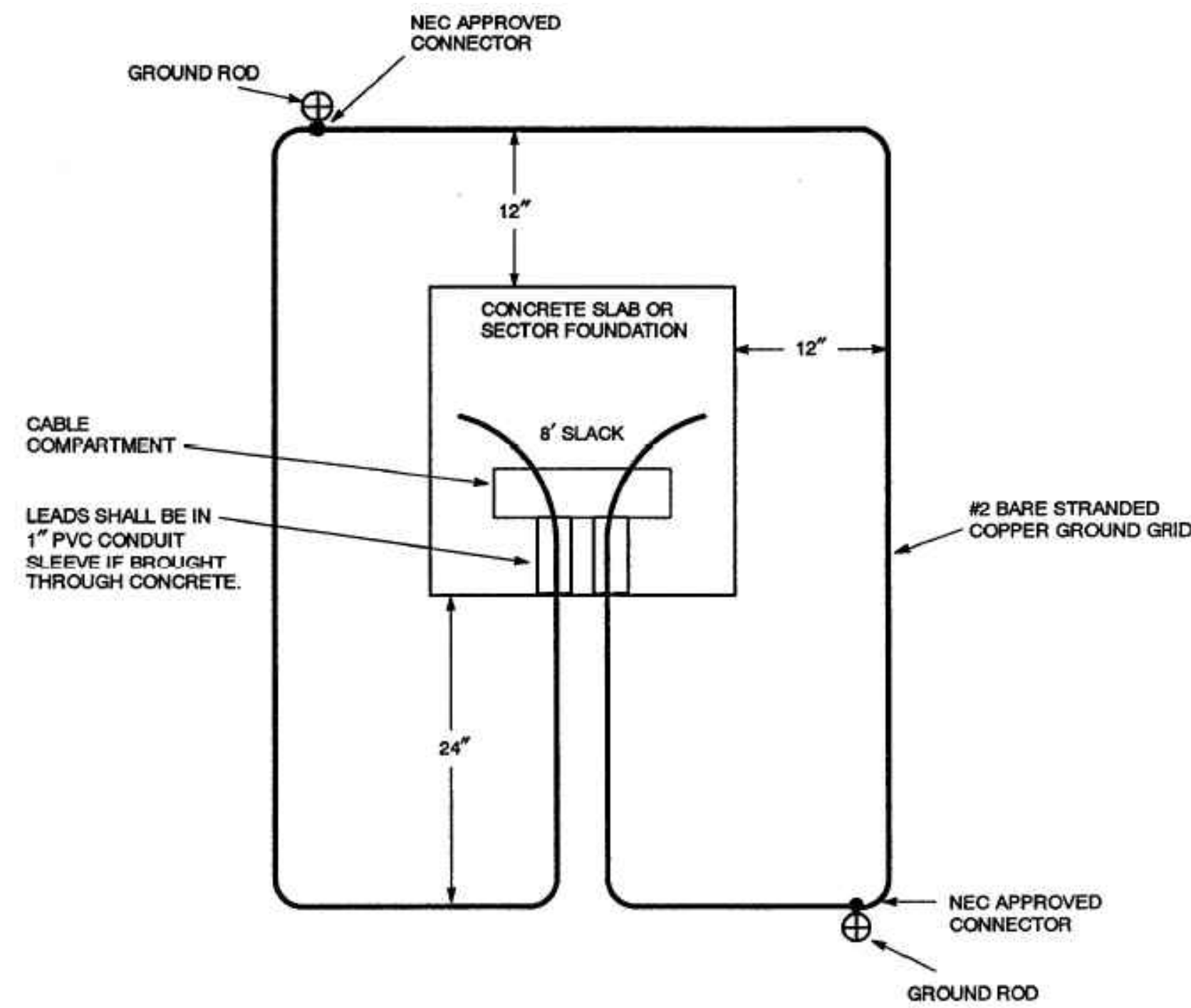
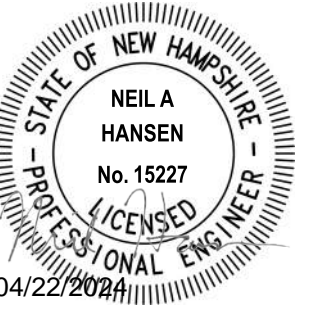
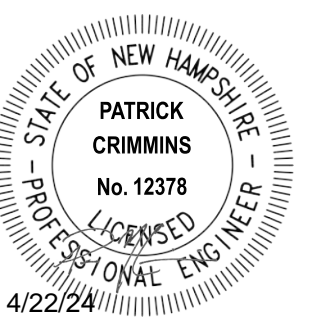
PROJECT NO:	E5071-001
DATE:	4/22/2024
FILE:	E5071-001-C-DTLS.dwg
DRAWN BY:	BKC/NHW
DESIGNED/CHECKED BY:	NAH
APPROVED BY:	PMC

DETAILS SHEET

SCALE: AS SHOWN

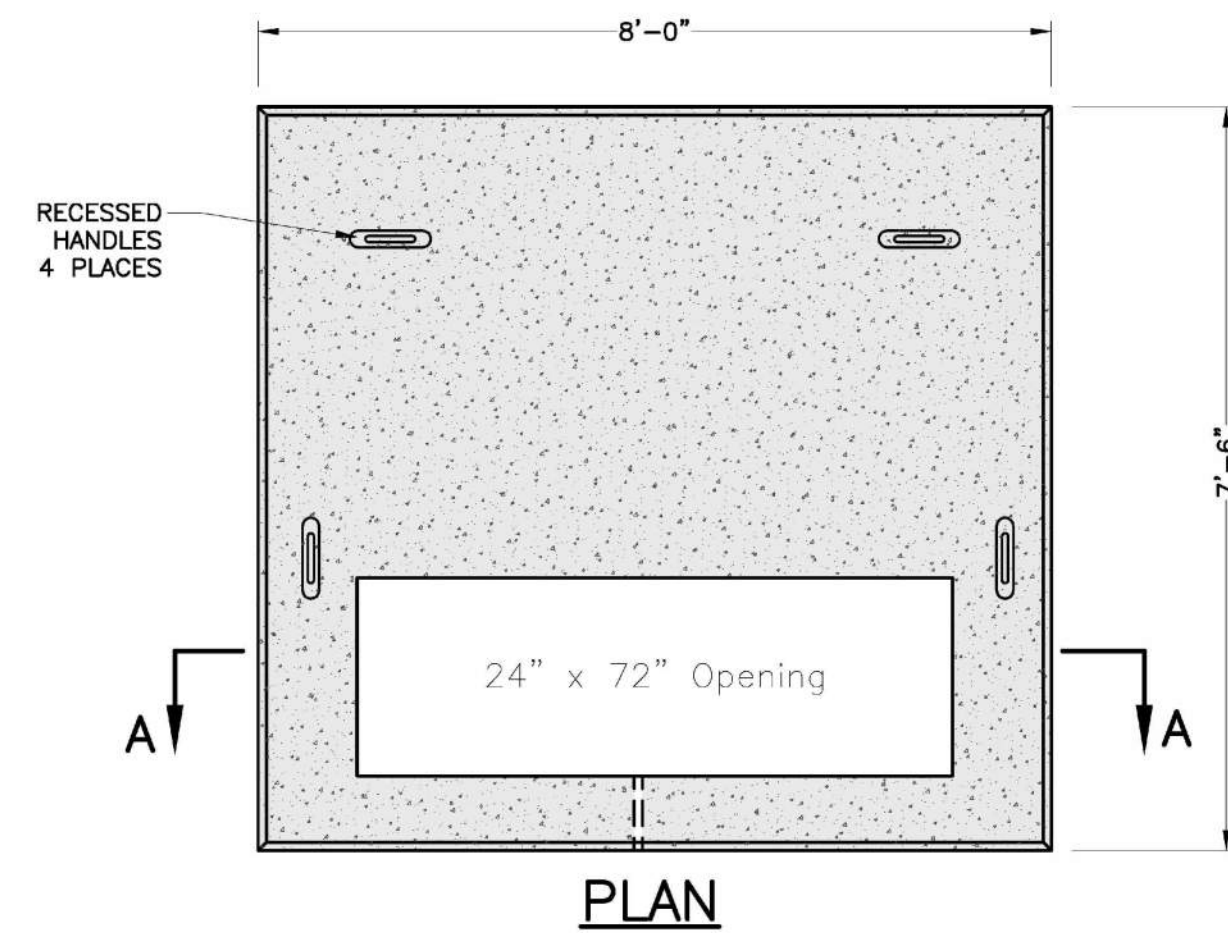
C-808

Last Saved: 4/19/2024 1:13:13 PM By: Dcunzio
 Plotted On: Apr 19, 2024 1:13:13 PM
 Tighe & Bond \\tgbond\com\dwg\proj\100 Durgin Lane\Drawings\AutoCAD\Sheet\E5071-001-C-DTLS.dwg

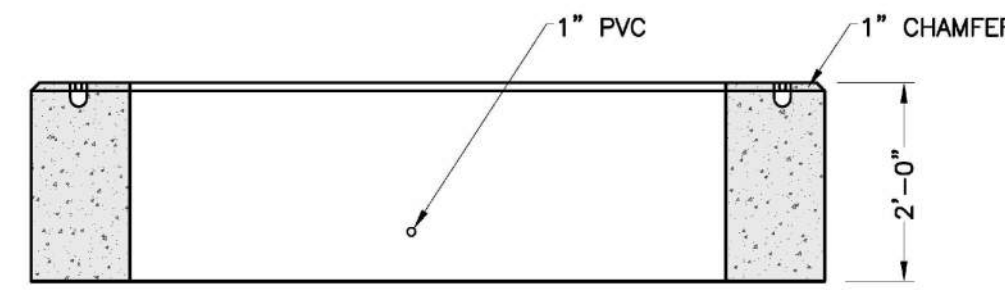


NOTES:
THE GROUND GRID SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AND IS TO BE BURIED AT LEAST 12 INCHES BELOW GRADE. EIGHT FEET OF EXTRA WIRE FOR EACH GROUND GRID LEG SHALL BE LEFT EXPOSED IN THE CABLE COMPARTMENT TO ALLOW FOR THE CONNECTION TO THE TRANSFORMER. THE TWO 8-FOOT GROUND RODS MAY BE EITHER GALVANIZED STEEL OR COPPERWELD AND THEY SHALL BE CONNECTED TO THE GRID WITH NEC APPROVED CONNECTORS.

PAD-MOUNTED EQUIPMENT GROUNDING GRID DETAIL
NO SCALE



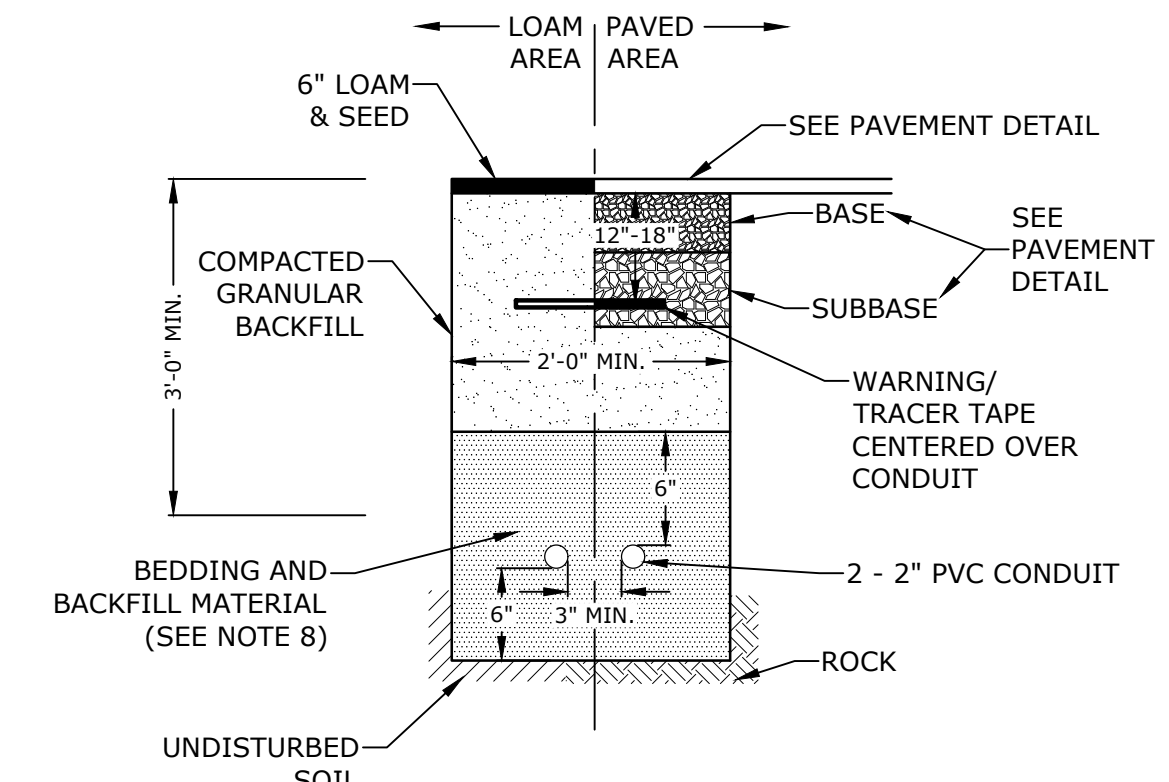
PLAN



SECTION A-A

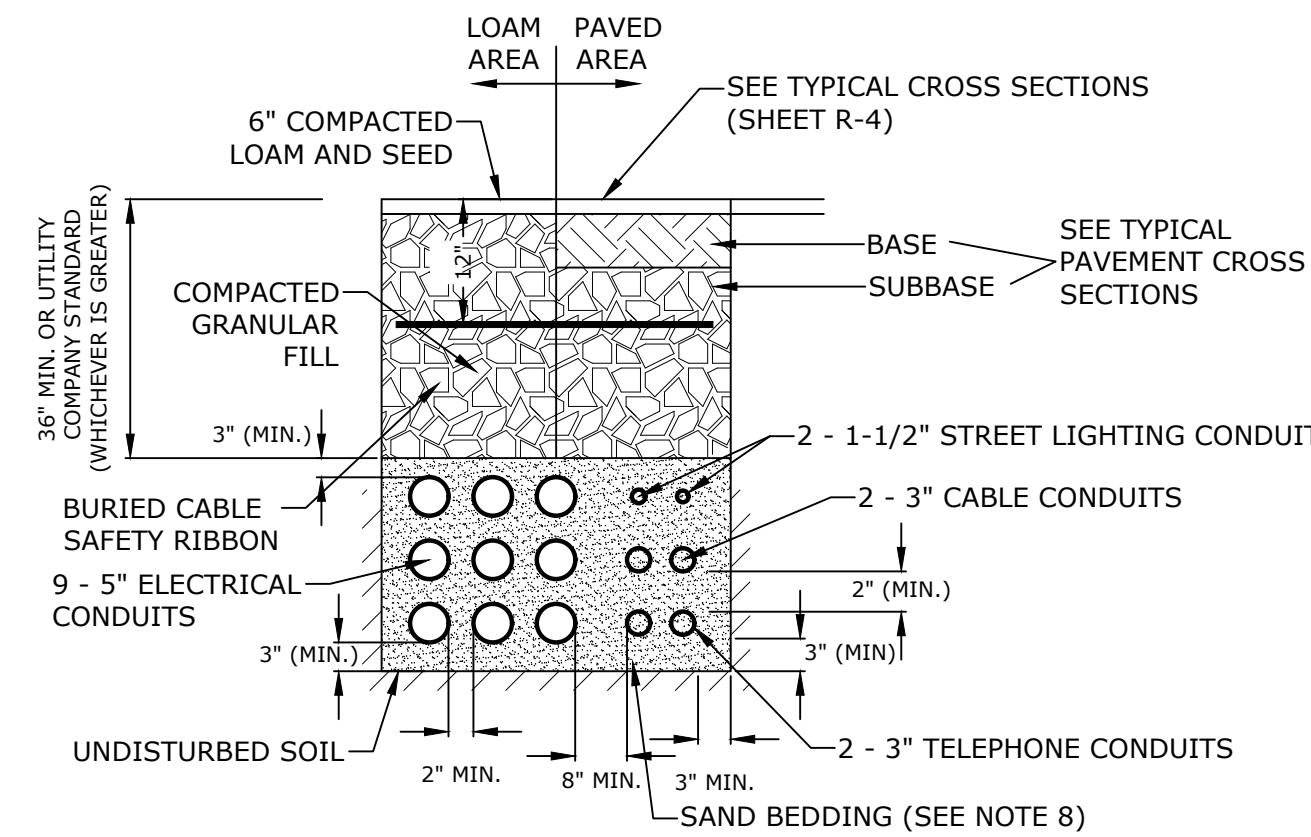
NOTES:
1. DIMENSIONS SHOWN REPRESENT TYPICAL REQUIREMENTS. MANHOLE LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED WITH EVERSOURCE PRIOR TO CONSTRUCTION
2. CONCRETE MINIMUM STRENGTH - 4,000 PSI @ 28 DAYS
3. STEEL REINFORCEMENT - ASTM A615, GRADE 60
4. PAD MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS

3-PHASE TRANSFORMER PAD
NO SCALE



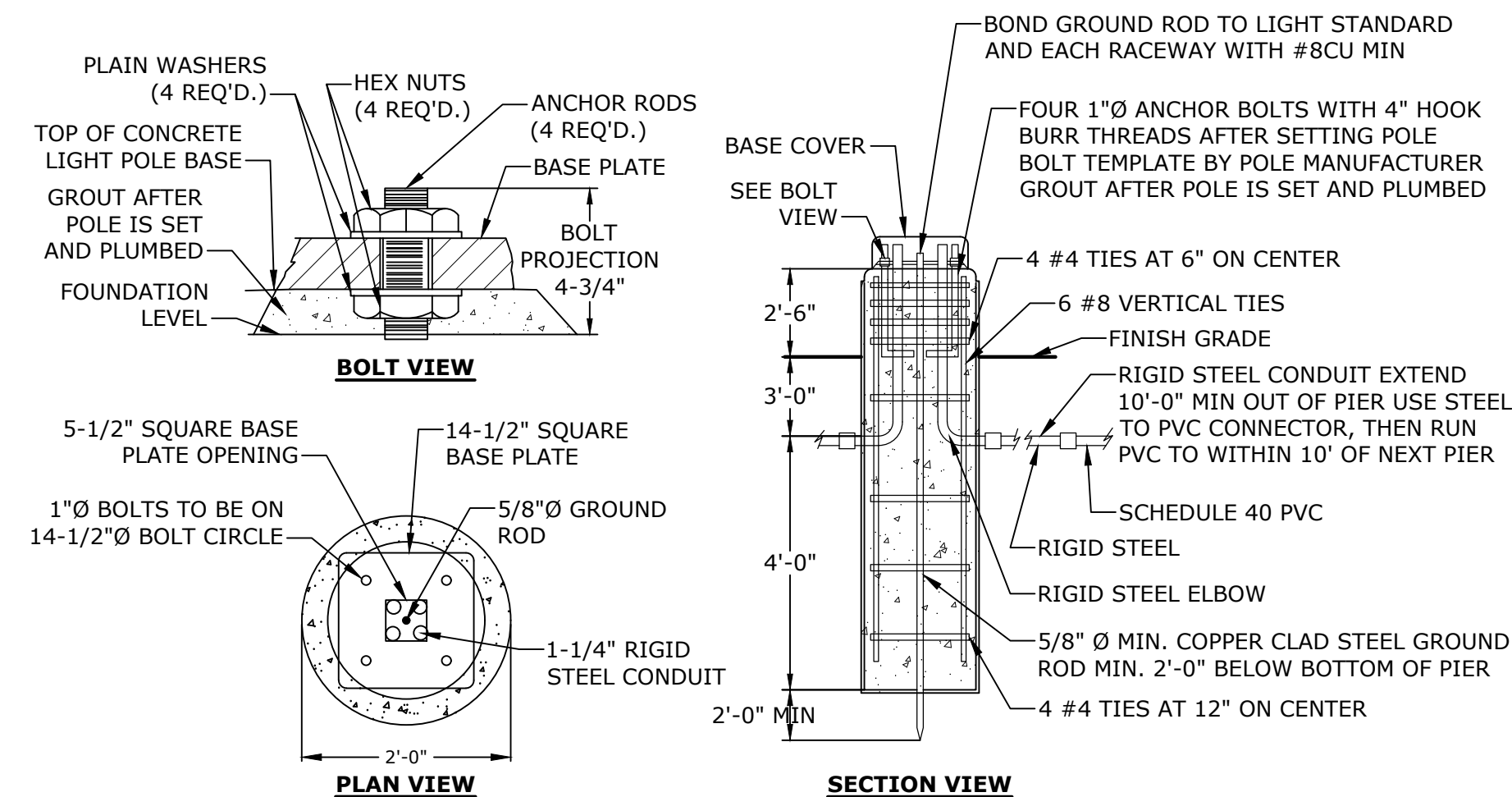
NOTES:
1. NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED AS SHOWN ON ELECTRICAL DRAWINGS. CONTRACTOR TO PROVIDE ONE SPARE CONDUIT FOR EACH UTILITY TO BUILDING.
2. DIMENSIONS SHOWN REPRESENT MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY COMPANY STANDARDS, BUT 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.
9. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW CONDUIT UP TO 6" ABOVE TOP OF CONDUIT.

LIGHTING CONDUIT TRENCH
NO SCALE



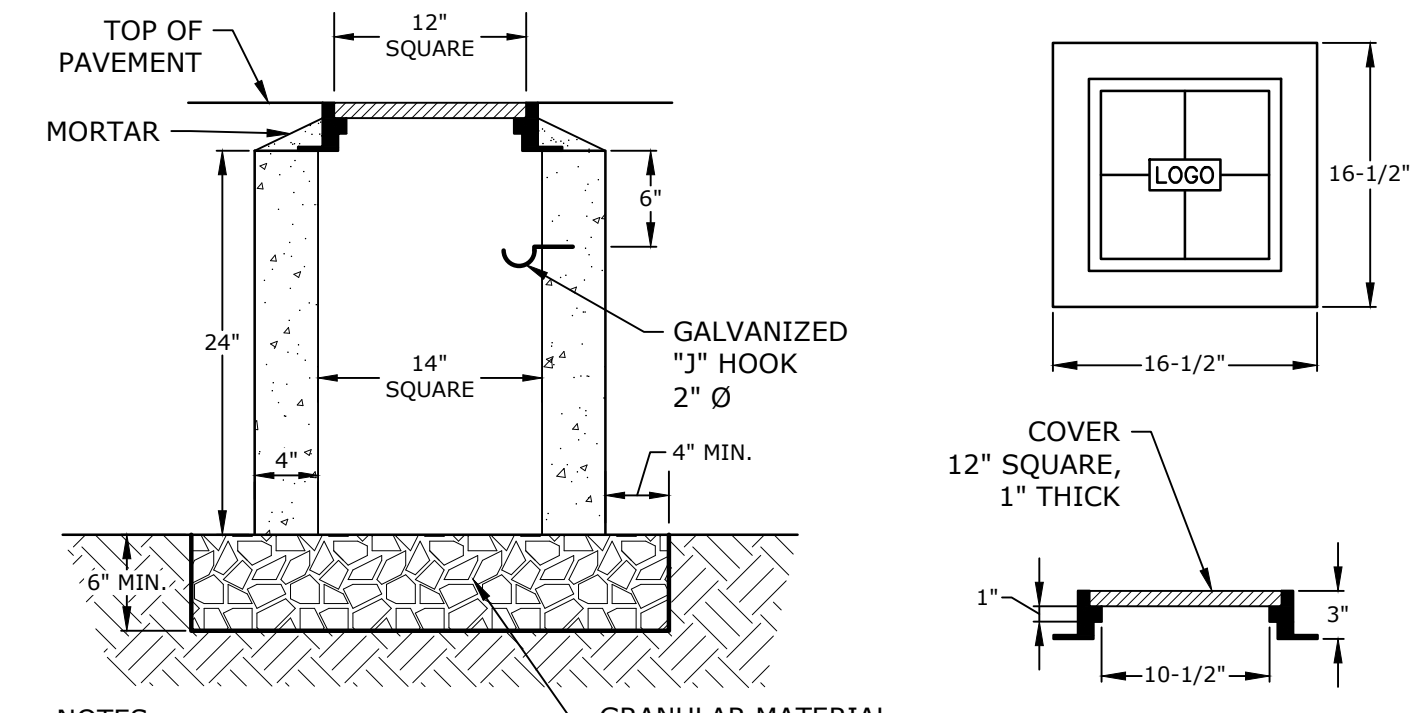
NOTES:
1. NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED BY LOCAL UTILITY OR AS SHOWN ON ELECTRICAL DRAWINGS. CONTRACTOR TO PROVIDE ONE SPARE CONDUIT FOR EACH UTILITY TO BUILDING.
2. DIMENSIONS SHOWN REPRESENT OWNERS MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY 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
NO SCALE



NOTES:
1. PAINT BASE SAFETY YELLOW (UNLESS PROTECTED BY CURBED ISLAND).
2. CONCRETE TO BE CLASS A, 4000 PSI, AIR ENTRAINED STEEL TO BE 60 KSI
3. REFER TO ELECTRICAL PLANS FOR WIRING DETAILS.
4. LIGHT POLE BASE DETAIL FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL, TO INCLUDE PERFORMANCE SPECIFICATIONS, CALCULATIONS AND NH LICENSED STRUCTURAL ENGINEER'S STAMP FOR LIGHT POLE FOUNDATION.

TYPICAL LIGHT POLE BASE
NO SCALE



NOTES:
1. 14" X 14" CONCRETE PULL BOX, NHDOT ITEM 614.511

CONCRETE PULL BOX
NO SCALE

PROPOSED MULTI-FAMILY DEVELOPMENT

100 DURGIN LANE OWNER, LLC

100 DURGIN LANE PORTSMOUTH, NEW HAMPSHIRE

MARK	DATE	DESCRIPTION
A	4/22/2024	TAC SUBMISSION
DATE:	4/22/2024	
FILE:	E5071-001-C-DTLS.dwg	
DRAWN BY:	BKC/NHW	
DESIGNED/CHECKED BY:	NAH	
APPROVED BY:	PMC	

DETAILS SHEET

SCALE: AS SHOWN

C-809

LAYOUT AND MATERIALS NOTES

1. REVIEW CONTRACT DOCUMENTS AND FIELD CONDITIONS BEFORE COMMENCING WORK. REPORT ERRORS, OMISSIONS, OR INCONSISTENCIES PROMPTLY TO THE LANDSCAPE ARCHITECT.
2. CONTACT UTILITY COMPANIES AS REQUIRED BY STATE AND LOCAL REGULATIONS BEFORE DIGGING. LOCATE AND MARK EXISTING UTILITIES.
3. THE CONTRACTOR SHALL OBTAIN ALL PERMITS WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.
4. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
5. DIMENSIONS REFERRED TO AS "EQUAL" INDICATE SPACING WHICH IS EQUIDISTANT MEASURED TO THE CENTERLINES.
6. MEASUREMENTS ARE TO THE FINISHED FACE OF BUILDINGS, WALLS, OR OTHER FIXED SITE IMPROVEMENTS. DIMENSIONS TO CENTERLINES ARE IDENTIFIED.
7. INSTALL INTERSECTING ELEMENTS AT 90-DEGREE ANGLES, UNLESS OTHERWISE NOTED.
8. PROVIDE EXPANSION JOINTS WHERE FLATWORK MEETS VERTICAL STRUCTURES, SUCH AS WALLS, CURBS, STEPS, AND OTHER HARDSCAPE.
9. CONTROL JOINTS SHOULD BE SPACED NO GREATER THAN TEN (10) LINEAR FEET MAXIMUM, UNLESS OTHERWISE SPECIFIED.
10. CONTROL JOINT RECOMMENDATIONS TO MINIMIZE CRACKING SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL.
11. ALL TOP OF WALLS AND FENCES ARE TO BE HELD LEVEL, UNLESS OTHERWISE SPECIFIED.
12. SAMPLES OF SPECIFIED MATERIALS SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO ORDERING.
13. THE CONTRACTOR SHALL PROVIDE A FULL-SCALE MOCKUP AND RECEIVE APPROVAL FROM THE LANDSCAPE ARCHITECT BEFORE BEGINNING CONSTRUCTION OF PAVEMENT.
14. ALL SITE FURNITURE LOCATIONS ARE TO BE STAKED BY CONTRACTOR AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

PLANTING NOTES

1. CONTACT UTILITY COMPANIES AS REQUIRED BY STATE AND LOCAL REGULATIONS BEFORE DIGGING. LOCATE AND MARK EXISTING UTILITIES.
2. REFER TO CIVIL ENGINEER'S GRADING PLANS FOR FINAL GRADING AND UTILITY LOCATIONS.
3. THE CONTRACTOR SHALL OBTAIN ALL PERMITS WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.
4. LANDSCAPE ARCHITECT TO REVIEW PLANT MATERIALS AT SOURCE OR BY PHOTOGRAPHS PRIOR TO DIGGING OR SHIPPING OF PLANT MATERIAL.
5. CONTRACTOR IS TO VERIFY ALL QUANTITIES. IF QUANTITIES ON PLANT LIST DIFFER FROM GRAPHIC INDICATIONS, GRAPHICS SHALL PREVAIL.
6. EXACT LOCATIONS OF TREES AND B&B SHRUBS ARE TO BE STAKED BY THE CONTRACTOR FOR LANDSCAPE ARCHITECT REVIEW AND APPROVAL PRIOR TO INSTALLATION. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO ADJUST PLANTS TO EXACT LOCATION IN THE FIELD.
7. PLANT MATERIAL NOT MEETING THE STANDARDS CONTAINED WITHIN CONTRACT DOCUMENTS SHALL BE REPLACED AT NO COST TO THE OWNER.
8. PROVIDE MATCHING SIZES AND FORMS FOR EACH PLANT OF THE SAME SPECIES DESIGNATED ON THE DRAWINGS UNLESS OTHERWISE INDICATED.
9. ALL PLANT MATERIAL IS TO BE INSTALLED PLUMB/PER THE SPECIFICATIONS CONTAINED WITHIN THE CONTRACT DOCUMENTS.
10. PRUNE EXISTING AND/OR NEWLY PLANTED TREES ONLY AS DIRECTED BY THE LANDSCAPE ARCHITECT.
11. PLANT MATERIAL SHALL HAVE ALL WIRE, TWINE, BASKETS, BURLAP, AND ALL OTHER NON-BIODEGRADABLE CONTAINMENT MATERIAL REMOVED FROM THE TRUNK AND/OR ROOT BALL OF THE PLANT PRIOR TO PLANTING. ROOT BALLS SHALL BE FREE OF WEEDS.
12. FINISH GRADE OF PLANTING BEDS SHALL BE ONE (1) INCH BELOW ADJACENT PAVER OR HEADER, UNLESS OTHERWISE SPECIFIED.
13. MULCH OR PLANTING BED DRESSING SHALL BE PLACED IN ALL PLANTING AREAS AS SPECIFIED. MULCH OR PLANTING BED DRESSING SHALL NOT BE PLACED WITHIN SIX (6) INCHES OF TREE TRUNKS. MULCHING SHOULD BE REPEATED ANNUALLY DURING THE AUTUMN TO A 3" DEPTH, SOIL PEP MULCH SHALL BE USED UNLESS OTHERWISE SPECIFIED..
14. ALL PLANT MATERIAL SHOULD RECEIVE AN ORGANIC FERTILIZER IN LIMITED APPLICATION FOLLOWING INSTALLATION. TYPE AND APPLICATION RATE AND METHOD OF APPLICATION TO BE SPECIFIED BY THE CONTRACTOR & APPROVED BY THE LANDSCAPE ARCHITECT.
15. STOCKPILED PLANT MATERIAL TO BE PLACED IN THE SHADE AND PROPERLY HAND-WATERED UNTIL PLANTED.
16. PRESERVE & PROTECT ALL EXISTING VEGETATION INDICATED TO REMAIN AT ALL TIMES.
17. TO THE GREATEST EXTENT POSSIBLE, TOPSOIL THAT IS REMOVED DURING CONSTRUCTION SHALL BE STOCKPILED FOR LATER USE IN AREAS REQUIRING REVEGETATION/PLANTING.
18. ALL MATERIALS USED SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARDS FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
19. ALL DISTURBED AREAS ARE TO BE REVEGETATED

SEEDING NOTES

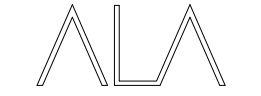
1. REVEGETATED AREAS ARE TO BE HYRO-SEEDED, FOLLOWED BY THE APPLICATION OF STRAW MULCH.
2. APPLY STRAW MULCH AT A MINIMUM RATE OF 1.5 TONS PER ACRE OF AIR DRY MATERIAL. SPREAD STRAW MULCH UNIFORMLY OVER THE AREA WITH MECHANICAL MULCH SPREADER/CRIMPER. DO NOT MULCH WHEN WIND VELOCITY EXCEEDS 10 MPH.
3. IMMEDIATELY UPON COMPLETION OF THE MULCHING AND BINDING OPERATION, THE SEEDED AREAS SHALL BE IRRIGATED, KEEPING THE TOP 2 INCHES OF SOIL EVENLY MOIST UNTIL SEED HAS UNIFORMLY GERMINATED AND GROWN TO A HEIGHT OF 2 INCHES.
4. WATERING APPLICATION SHALL BE DONE IN A MANNER WHICH WILL PROVIDE UNIFORM COVERAGE BUT WHICH WILL NOT CAUSE EROSION, MOVEMENT, OR DAMAGE TO THE FINISHED SURFACE.

GRADING AND DRAINAGE NOTES

1. MATERIALS/WASTE CREATED BY REMOVAL PROCEDURES SHALL BE LEGALLY DISPOSED OF AWAY FROM THE JOB SITE.
2. NOTIFY LOCAL UNDERGROUND SERVICE COMPANIES FOR UTILITY FINDS 48 HOURS PRIOR TO ANY EXCAVATION.
3. THE CONTRACTOR IS TO REVIEW ARCHITECTURAL DRAWINGS FOR THE VERIFICATION OF CONNECTIONS TO DRAINS OVER STRUCTURE.
4. THE CONTRACTOR IS TO REVIEW ARCHITECTURAL DRAWINGS FOR THE VERIFICATION OF WATERPROOFING OF SLAB PENETRATIONS.
5. THE CONTRACTOR IS TO REVIEW CIVIL ENGINEER'S DRAWINGS FOR THE VERIFICATION OF CONNECTIONS TO DRAINS.
6. GRADING AND EXCAVATION WORK SHALL BE COMPLETED DURING DRY AND NON-FREEZING CONDITIONS.
7. POSITIVE DRAINAGE SHALL BE PROVIDED AWAY FROM ALL STRUCTURES.
8. SOIL COMPACTION SHALL BE 95% PROCTOR DENSITY MINIMUM BENEATH PAVEMENTS, STEPS, WALLS AND LIGHT FOUNDATIONS, UNLESS OTHERWISE SPECIFIED.

ABBREVIATIONS TABLE

APPROX	APPROXIMATE	MH	MANHOLE
ARCH	ARCHITECT	MIN	MINIMUM
AVG	AVERAGE	MISC	MISCELLANEOUS
B+B	BALED AND BURLAPPED	N	NORTH
BF	BOTTOM OF FOOTING	NIC	NOT IN CONTRACT
BLDG	BUILDING	NO	NUMBER
BM	BENCHMARK	NOM	NOMINAL
BOC	BACK OF CURB	NTS	NOT TO SCALE
BR	BOTTOM OF RAMP	OC	ON CENTER
BS	BOTTOM OF STEP	OD	OUTSIDE DIAMETER
BW	BOTTOM OF WAL	OPP	OPPOSITE
CAL	CALIPER	PAR	PARALLEL
CAP	CAPACITY	PC	POINT OF CURVATURE
CF	CUBIC FEET	PE	POLYURETHANE
CHAM	CHAMFER	PERF	PERFORATED
CIP	CAST IN PLACE	PED	PEDESTRIAN
CJ	CONTROL JOINT	PI	POINT OF INTERSECTION
CL	CENTER LINE	PL	PROPERTY LINE
CLR	CLEARANCE	PT	POINT, POINT OF TANGENCY
CM	CENTIMETER	PVC	POLYVINYL CHLORIDE
CO	CLEAN OUT	PVMT	PAVEMENT
COMP	COMPACTED	PVR	PAVER
CONC	CONCRETE	QTY	QUANTITY
CONST	CONSTRUCTION	R	RADIUS
CONT	CONTINUOUS	REF	REFERENCE
CONTR	CONTRACTOR	REINF	REINFORCE(D)
CU	CUBIC	REQ'D	REQUIRED
CY	CUBIC YARD	REV	REVISION, REVISED
DEMO	DEMOLISH, DEMOLITION	ROW	RIGHT OF WAY
DIA	DIAMETER	RT	RIGHT
DIM	DIMENSION	S	SOUTH
DTL	DETAIL	SS	SANITARY SEWER
DWG	DRAWING	SCH	SCHEDULE
E	EAST	SD	STORM DRAIN
EA	EACH	SEC	SECTION
EJ	EXPANSION JOINT	SF	SQUARE FOOT (FEET)
EL	ELEVATION	SHT	SHEET
ELEC	ELECTRICAL	SIM	SIMILAR
ENG	ENGINEER	SNT	SEALANT
EQ	EQUAL	SPECS	SPECIFICATIONS
EQUIP	EQUIPMENT	SQ	SQUARE
EST	ESTIMATE	ST	STORM SEWER
E.W.	EACH WAY	SY	SQUARE YARD
EXIST	EXISTING	STA	STATION
EXP	EXPANSION, EXPOSED	STD	STANDARD
FFE	FINISHED FLOOR ELEVATION	STL	STEEL
FG	FINISHED GRADE	STRL	STRUCTURAL
FIN	FINISH	SYM	SYMMETRICAL
FL	FLOW LINE	T&B	TOP AND BOTTOM
FOW	FACE OF WAL	TBC	TOP OF BACK CURB
FT	FOOT (FEET)	TC	TOP OF CURB
FTG	FOOTING	TF	TOP OF FOOTING
GA	GAUGE	TRANS	ELECTRIC TRANSFORMER
GAL	GALVANIZED	TOC	TOP OF CONCRETE
GEN	GENERAL	TOPO	TOPOGRAPHY
HORIZ	HORIZONTAL	TSL	TOP OF SLAB
HP	HIGH POINT	TR	TOP OF RAMP
HT	HEIGHT	TS	TOP OF STEP
ID	INSIDE DIAMETER	TW	TOP OF WAL
INV	INVERT ELEVATION	TYP	TYPICAL
IN	INCH(ES)	VAR	VARIABLE
INCL	INCLUDE(D)	VERT	VERTICAL
IRR	IRRIGATION	VEH	VEHICLE
JT	JOINT	VOL	VOLUME
LIN	LINEAR	W/	WITH
LF	LINEAR FEET	W/O	WITHOUT
LP	LOW POINT	WT	WEIGHT
LT	LIGHT	WWF	WELDED WIRE FABRIC
MATL	MATERIAL	YD	YARD
MAX	MAXIMUM	@	AT
MEMB	MEMBRANE		
MD	MAIN DISCONNECT SWITCH		



ACETO LANDSCAPE ARCHITECTS
207.221.3390 | ACETO.LA.COM

SEAL

PROJECT TITLE

100 Durgin Ln

PREPARED FOR

100 DURGIN LANE OWNER,
LLC

100 DURGIN LANE
PORTSMOUTH, NH

REVISIONS DATE

ISSUE DATE

April 19, 2024

SHEET TITLE

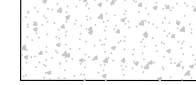

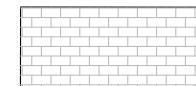


NOTES

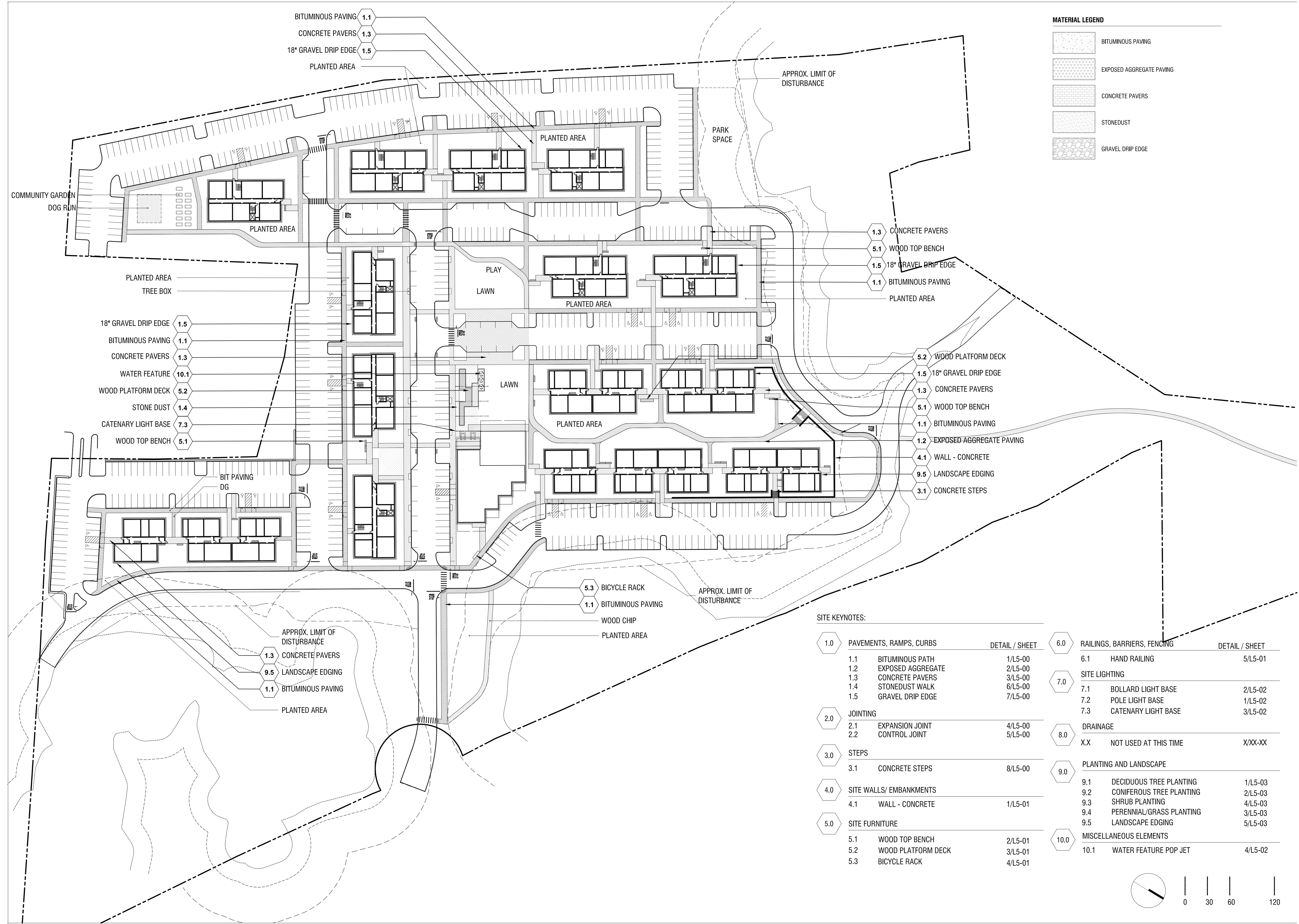
SHEET INFORMATION

NOTICE OF CONSTRUCTION
L-0-01

REVISIONS	DATE

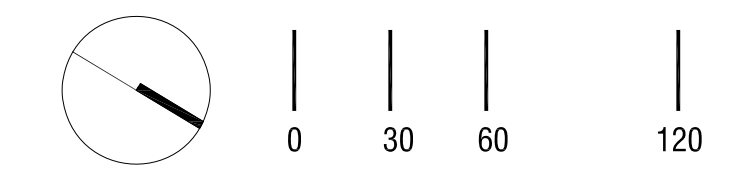
MATERIAL LEGEND

	BITUMINOUS PAVING
	EXPOSED AGGREGATE PAVING
	CONCRETE PAVERS
	STONEDUST
	GRAVEL DRIP EDGE



SITE KEYNOTES:

1.0 PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0 RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1 BITUMINOUS PATH	1/L5-00	6.1 HAND RAILING	5/L5-01
1.2 EXPOSED AGGREGATE	2/L5-00	7.0 SITE LIGHTING	
1.3 CONCRETE PAVERS	3/L5-00	7.1 BOLLARD LIGHT BASE	2/L5-02
1.4 STONEDUST WALK	6/L5-00	7.2 POLE LIGHT BASE	1/L5-02
1.5 GRAVEL DRIP EDGE	7/L5-00	7.3 CATENARY LIGHT BASE	3/L5-02
2.0 JOINTING		8.0 DRAINAGE	
2.1 EXPANSION JOINT	4/L5-00	X.X NOT USED AT THIS TIME	X/XX-XX
2.2 CONTROL JOINT	5/L5-00	9.0 PLANTING AND LANDSCAPE	
3.0 STEPS		9.1 DECIDUOUS TREE PLANTING	1/L5-03
3.1 CONCRETE STEPS	8/L5-00	9.2 CONIFEROUS TREE PLANTING	2/L5-03
4.0 SITE WALLS/ EMBANKMENTS		9.3 SHRUB PLANTING	4/L5-03
4.1 WALL - CONCRETE	1/L5-01	9.4 PERENNIAL/GRASS PLANTING	3/L5-03
5.0 SITE FURNITURE		9.5 LANDSCAPE EDGING	5/L5-03
5.1 WOOD TOP BENCH	2/L5-01	10.0 MISCELLANEOUS ELEMENTS	
5.2 WOOD PLATFORM DECK	3/L5-01	10.1 WATER FEATURE POP JET	4/L5-02
5.3 BICYCLE RACK	4/L5-01		



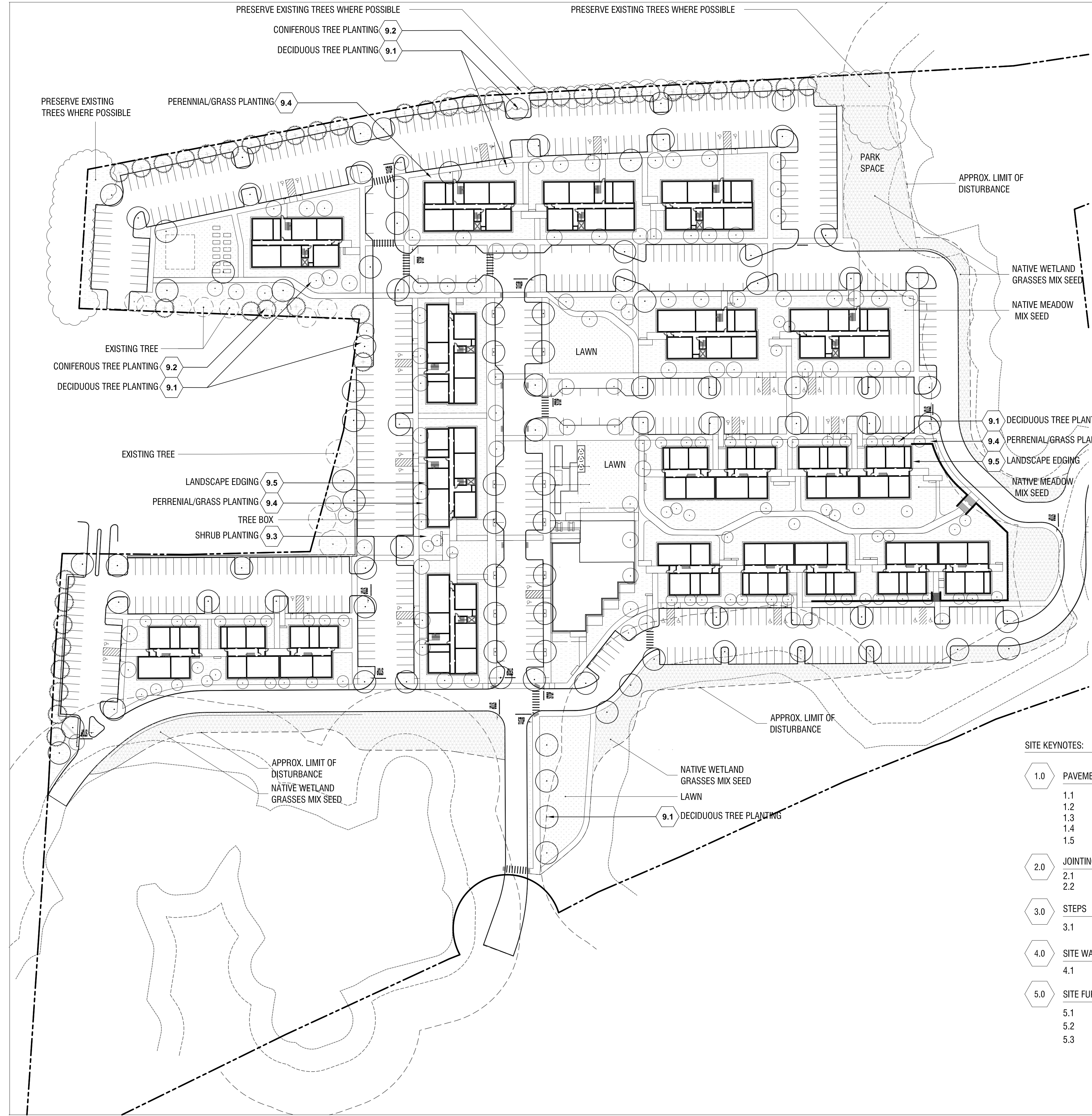
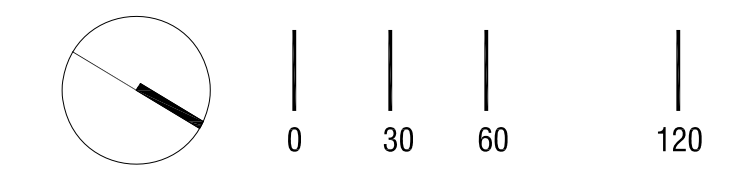
NO.	DESCRIPTION	DATE

POTENTIAL PLANT SCHEDULE

SYMB.	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	SPACING
TREES					
QP	QUERCUS PALUSTRIS	PIN OAK	X	3" CAL. MIN.	PER PLAN
AR	ACER RUBRUM 'BOWHALL'	BOWHALL MAPLE	X	3" CAL. MIN.	PER PLAN
QR	QUERCUS ROBUR X BICOLOR 'LONG'	REGAL PRINCE OAK	X	3" CAL. MIN.	PER PLAN
AS	ACER SACCHARUM	SUGAR MAPLE	X	3" CAL. MIN.	PER PLAN
BP	BETULA PAPPYRIFERA	PAPER BIRCH (SINGLE-STEM)	X	3" CAL. MIN.	PER PLAN
AC	AMELANCHIER CANADENSIS	SERVICEBERRY (MULTI-STEM)	X	8" HT. B&B	PER PLAN
TREES - EVERGREEN					
AB	ABIES BALSAMEA 'COOKS'	'BALSAM FIR 'COOKS'	X	#2	PER PLAN
TC	TSUGA CANADENSIS	EASTERN HEMLOCK	X	#2	PER PLAN
AB	THUJA OCCIDENTALIS	ARBORVITAE	X	7-8'	PER PLAN
SHRUBS					
MP	MYRICA PENNSYLVANICA	BAYBERRY	X	#5	PER PLAN
RA	RHUS AROMATICA	LOW-GRO SUMAC	X	#2	PER PLAN
IG	ILEX GLABRA	INKBERRY	X	#2	PER PLAN
PERENNIALS AND ORNAMENTAL GRASSES					
AU	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	X	#1	12" O.C.
CP	COMPTONIA PEREGRINA	SWEET FERN	X	#1	12" O.C.
EP	EUTROCHUM PURPUREUM	SWEET JOE PYE WEED	X	#1	12" O.C.
SS	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	X	#1	24" O.C.
LUS	LUZULA SYLVATICA	GREATER WOOD RUSH	X	#1	18" O.C.
BG	BOUTELOUA GRACILIS	BLUE GRAMA	X	#1	18" O.C.
SH	SPOROBOLUS HETEROLEPIS	PRAIRIE DROPS EED	X	#1	12" O.C.
EPE	ERAGROSTIS PECTINACEA	PURPLE LOVE GRASS	X	#1	12" O.C.
P	PANICUM	SWITCHGRASS	X	#1	12" O.C.
DM	DRYOPTERIS MARGINALIS	MARGINAL WOOD FERN	X	#1	12" O.C.
LAWN & SEEDING					
LOAM & SEED	XX SF	TURF GRASS MIX PER PLAN, SEE SEED SUPPLIER SPEC. FOR APPLICATION RATE			
NATIVE WETLAND GRASSES MIX SEED	XX SF	NATIVE GRASS MIX PER PLAN, SEE SEED SUPPLIER SPEC. FOR APPLICATION RATE			
NATIVE MEADOW MIX SEED	XX SF	MEADOW MIX PER PLAN, SEE SEED SUPPLIER SPEC. FOR APPLICATION RATE			

SITE KEYNOTES:

1.0	PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0	RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1	BITUMINOUS PATH	1/L5-00	6.1	HAND RAILING	5/L5-01
1.2	EXPOSED AGGREGATE	2/L5-00	7.0	SITE LIGHTING	
1.3	CONCRETE PAVERS	3/L5-00	7.1	BOLLARD LIGHT BASE	2/L5-02
1.4	STONEDUST WALK	6/L5-00	7.2	POLE LIGHT BASE	1/L5-02
1.5	GRAVEL DRIP EDGE	7/L5-00	7.3	CATENARY LIGHT BASE	3/L5-02
2.0	JOINTING		8.0	DRAINAGE	
2.1	EXPANSION JOINT	4/L5-00	XX	NOT USED AT THIS TIME	X/XX-XX
2.2	CONTROL JOINT	5/L5-00	9.0	PLANTING AND LANDSCAPE	
3.0	STEPS		9.1	DECIDUOUS TREE PLANTING	1/L5-03
3.1	CONCRETE STEPS	8/L5-00	9.2	CONIFEROUS TREE PLANTING	2/L5-03
4.0	SITE WALLS/ EMBANKMENTS		9.3	SHRUB PLANTING	4/L5-03
4.1	WALL - CONCRETE	1/L5-01	9.4	PERENNIAL/GRASS PLANTING	3/L5-03
5.0	SITE FURNITURE		9.5	LANDSCAPE EDGING	5/L5-03
5.1	WOOD TOP BENCH	2/L5-01	10.0	MISCELLANEOUS ELEMENTS	
5.2	WOOD PLATFORM DECK	3/L5-01	10.1	WATER FEATURE POP JET	4/L5-02
5.3	BICYCLE RACK	4/L5-01			



1.0 PAVEMENTS, RAMPS, CURBS

1.1 BITUMINOUS PATH 1/L5-00

1.2 EXPOSED AGGREGATE 2/L5-00

1.3 CONCRETE PAVERS 3/L5-00

1.4 STONEDUST WALK 6/L5-00

1.5 GRAVEL DRIP EDGE 7/L5-00

2.0 JOINTING

2.1 EXPANSION JOINT 4/L5-00

2.2 CONTROL JOINT 5/L5-00

3.0 STEPS

3.1 CONCRETE STEPS 8/L5-00

4.0 SITE WALLS/ EMBANKMENTS

4.1 WALL - CONCRETE 1/L5-01

5.0 SITE FURNITURE

5.1 WOOD TOP BENCH 2/L5-01

5.2 WOOD PLATFORM DECK 3/L5-01

5.3 BICYCLE RACK 4/L5-01

6.0 RAILINGS, BARRIERS, FENCING

6.1 HAND RAILING 5/L5-01

7.0 SITE LIGHTING

7.1 BOLLARD LIGHT BASE 2/L5-02

7.2 POLE LIGHT BASE 1/L5-02

7.3 CATENARY LIGHT BASE 3/L5-02

8.0 DRAINAGE

XX NOT USED AT THIS TIME X/XX-XX

9.0 PLANTING AND LANDSCAPE

9.1 DECIDUOUS TREE PLANTING 1/L5-03

9.2 CONIFEROUS TREE PLANTING 2/L5-03

9.3 SHRUB PLANTING 4/L5-03

9.4 PERENNIAL/GRASS PLANTING 3/L5-03

9.5 LANDSCAPE EDGING 5/L5-03

10.0 MISCELLANEOUS ELEMENTS

10.1 WATER FEATURE POP JET 4/L5-02

SEAL

PROJECT TITLE

100 Durgin Ln

PREPARED FOR

100 DURGIN LANE OWNER, LLC
100 DURGIN LANE
PORTSMOUTH, NH

REVISIONS DATE

REVISIONS	DATE

ISSUE DATE

April 19, 2024

SHEET TITLE

PHOTOMETRIC PLAN

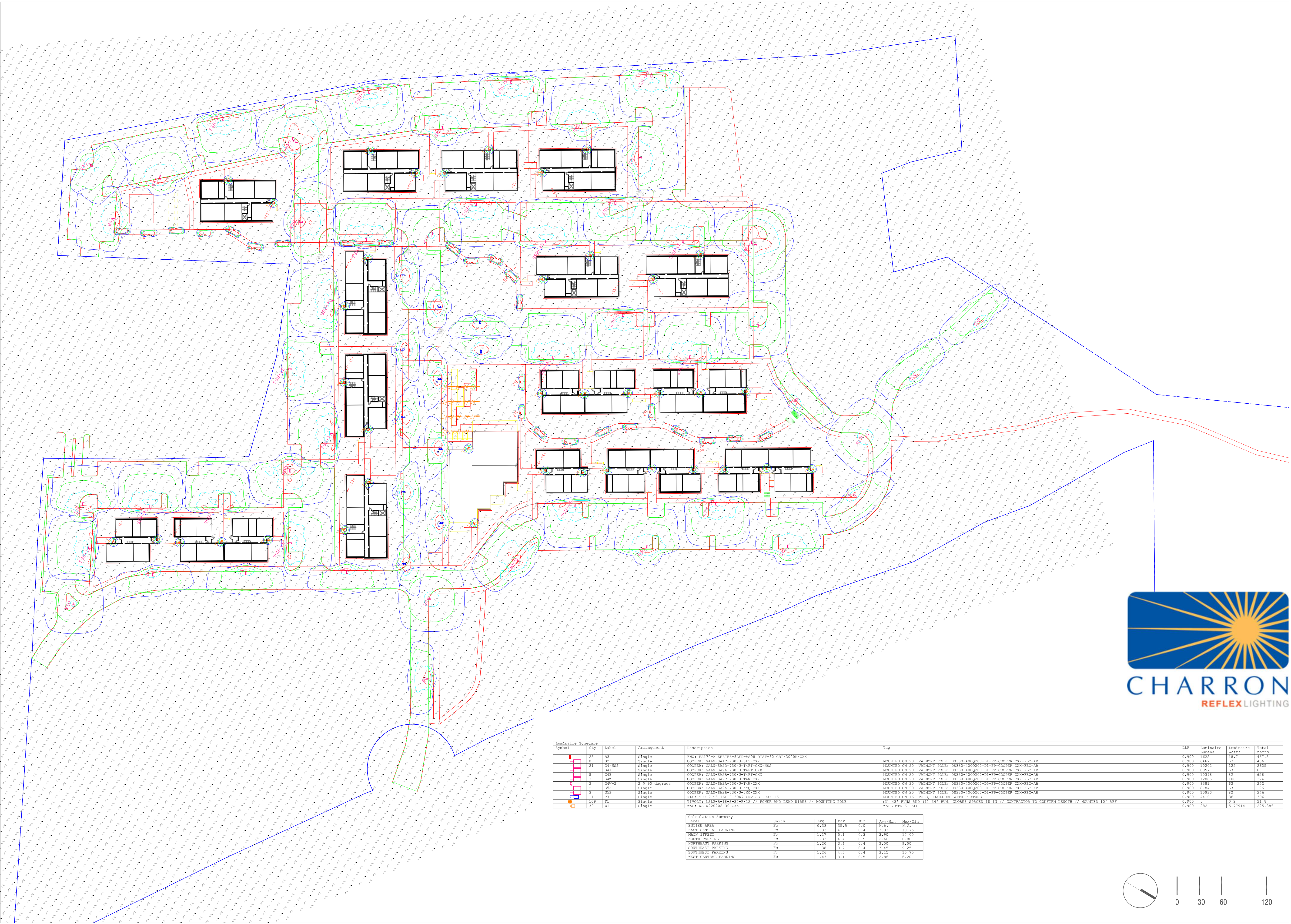
SHEET INFORMATION

NOT FOR CONSTRUCTION
L3-00



Luminaire Schedule Symbol	Qty	Label	Arrangement	Description	Tag	LMF	Luminaire Lumens	Luminaire Watts	Total Watts
B	25	B3	Single	BMO: FA10-A SERIES-BLED-A508 DIST-90 CRI-3000K-CXX		0.900	1622	15.7	461.5
B	9	G2	Single	COOPER: GAIN-SALC-30-U-BL3-CXX	MOUNTED ON 20" VALMONT POLE: DS330-4002200-D1-FF-COOPER CXX-FBC-AB	0.900	6467	59	456
B	21	G4-HSS	Single	COOPER: GAIN-SALC-30-U-TRIP-CXX-HSS	MOUNTED ON 20" VALMONT POLE: DS330-4002200-D1-FF-COOPER CXX-FBC-AB	0.900	10202	125	2625
B	1	G4A	Single	COOPER: GAIN-SAZA-30-U-TRIP-CXX	MOUNTED ON 20" VALMONT POLE: DS330-4002200-D1-FF-COOPER CXX-FBC-AB	0.900	6357	63	63
B	8	G4B	Single	COOPER: GAIN-SAB-30-U-TRIP-CXX	MOUNTED ON 20" VALMONT POLE: DS330-4002200-D1-FF-COOPER CXX-FBC-AB	0.900	13398	82	654
B	3	G4W	Single	COOPER: GAIN-SACC-30-U-TNW-CXX	MOUNTED ON 20" VALMONT POLE: DS330-4002200-D1-FF-COOPER CXX-FBC-AB	0.900	12885	108	324
B	2	G4W-2	2 @ 90 degrees	COOPER: GAIN-SAZA-30-U-TNW-CXX	MOUNTED ON 20" VALMONT POLE: DS330-4002200-D5-FF-COOPER CXX-FBC-AB	0.900	6381	63	252
B	2	G5A	Single	COOPER: GAIN-SAZA-30-U-SW-CXX	MOUNTED ON 20" VALMONT POLE: DS330-4002200-D1-FF-COOPER CXX-FBC-AB	0.900	8784	63	126
B	3	G5B	Single	COOPER: GAIN-SAB-30-U-SW-CXX	MOUNTED ON 20" VALMONT POLE: DS330-4002200-D1-FF-COOPER CXX-FBC-AB	0.900	10930	82	246
B	11	B3	Single	WLS: TRC-CP-FLC-1-180-TWO-SIDE-CXX-16	MOUNTED ON 18" POLE, INCIDENT WITH FIXTURE	0.900	4410	36	396
B	109	T1	Single	TIVOLI: SL12-B-18-S-30-P-12 // POWER AND LEAD WIRES // MOUNTING POLE	(13) 41" BUNS AND (11) 34" BUN, GLASSES SPACED 18 IN // CONTRACTOR TO CONFIRM LENGTH // MOUNTED 10' AFF	0.900	5	0.2	21.8
B	39	W1	Single	WAC: WS-W220208-3P-CXX	WALL WED 6" AFF	0.900	282	5.77914	225.346

Calculation Summary						
Area	Units	Avg	Max	Min	Avg/Min	Max/Min
PARKING AREA	FC	0.33	35.5	0.0	N/A	N/A
EAST CENTRAL PARKING	FC	1.33	4.3	0.4	3.33	10.75
MAIN STREE	FC	1.17	5.1	0.0	5.90	17.00
NORTH PARKING	FC	1.33	4.4	0.5	2.66	8.80
NORTHEAST PARKING	FC	1.20	3.6	0.4	3.00	9.00
SOUTHEAST PARKING	FC	1.38	3.7	0.4	3.45	9.25
SOUTHWEST PARKING	FC	1.28	4.3	0.4	3.16	10.75
WEST CENTRAL PARKING	FC	1.43	3.1	0.5	2.86	6.25

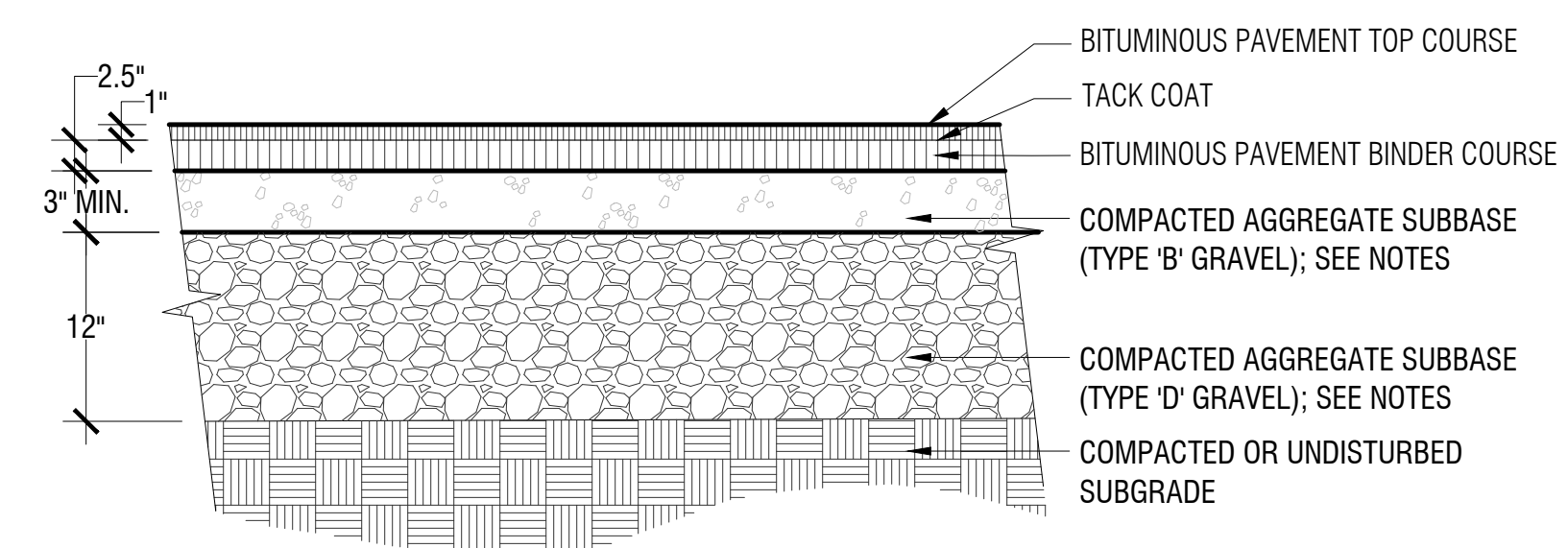


REVISIONS	DATE

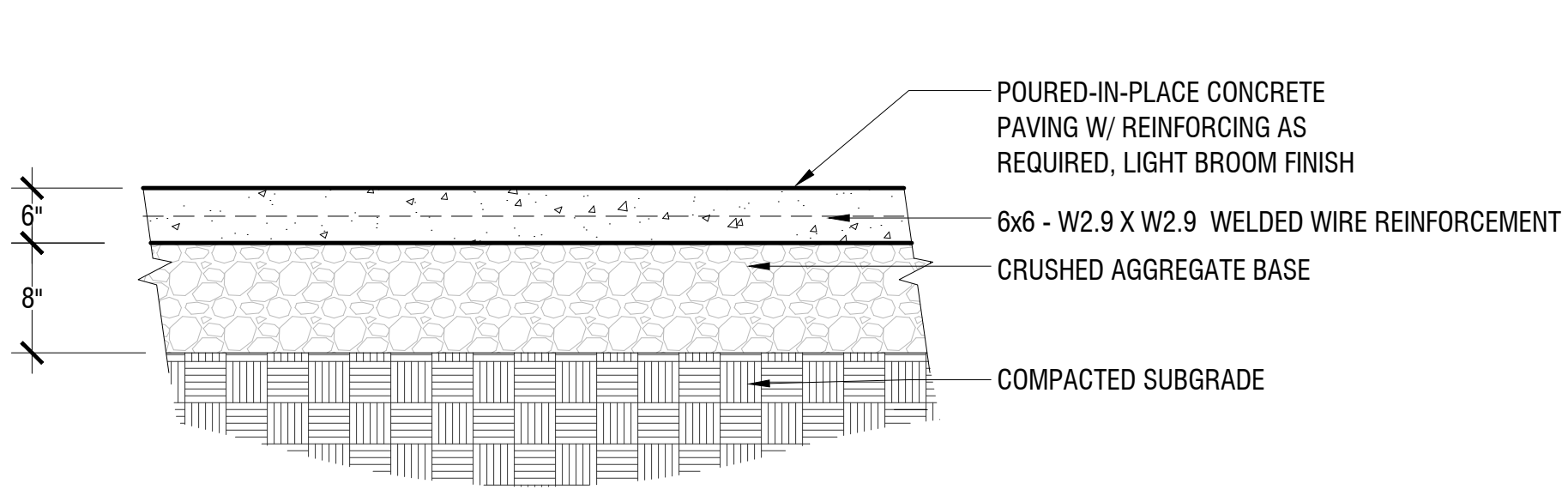
April 19, 2024

SITE DETAILS

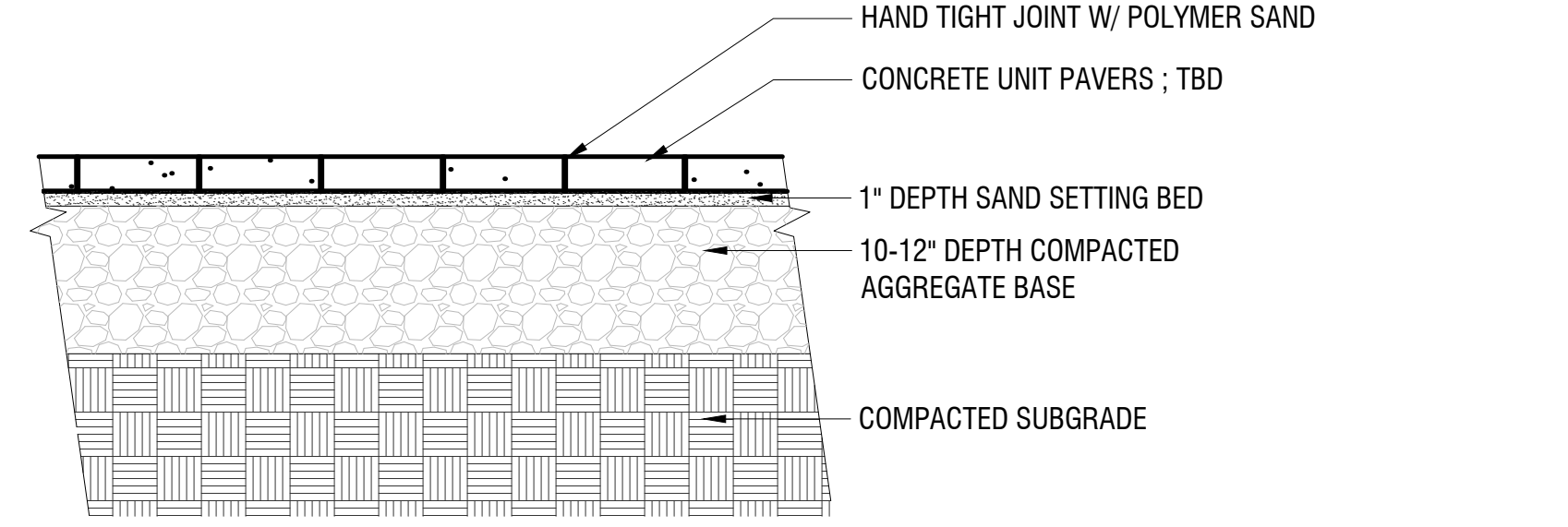
L5-00
NOT FOR CONSTRUCTION



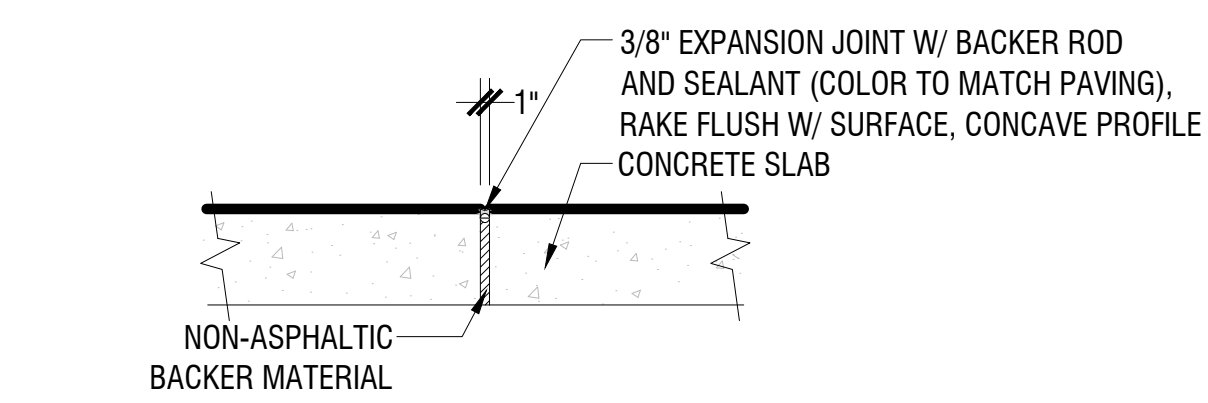
1 Bituminous Paving
1":1'-0"
1.1



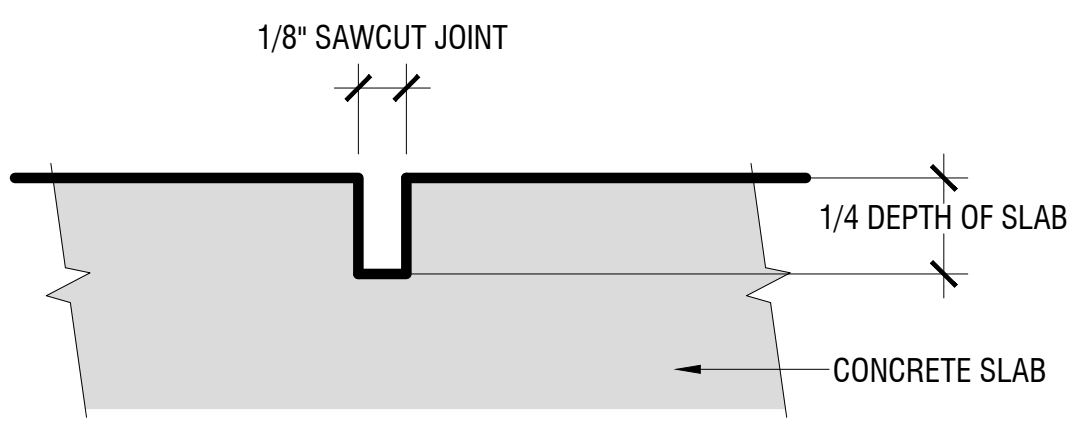
2 Exposed Aggregate
1":1'-0"
1.2



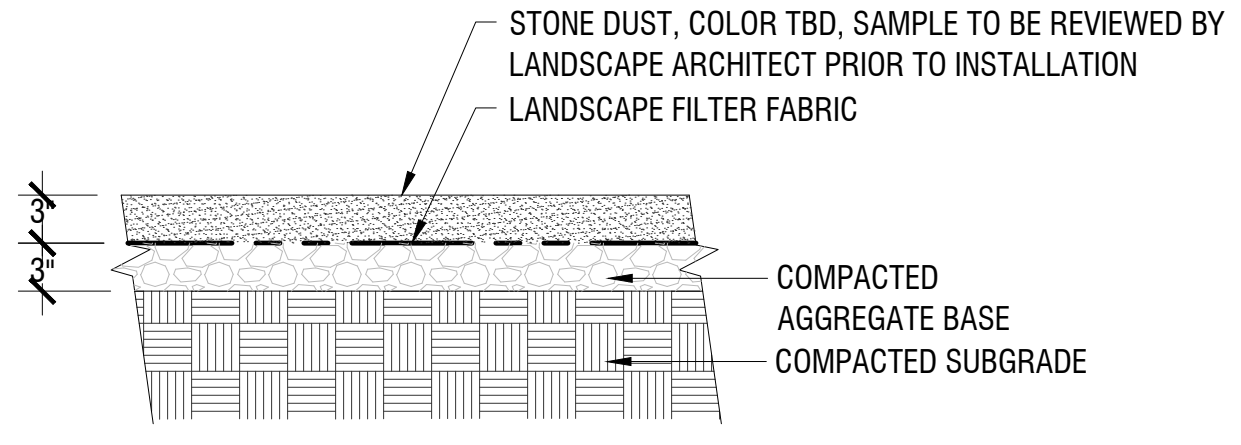
3 Concrete Unit Paving
1":1'-0"
1.3



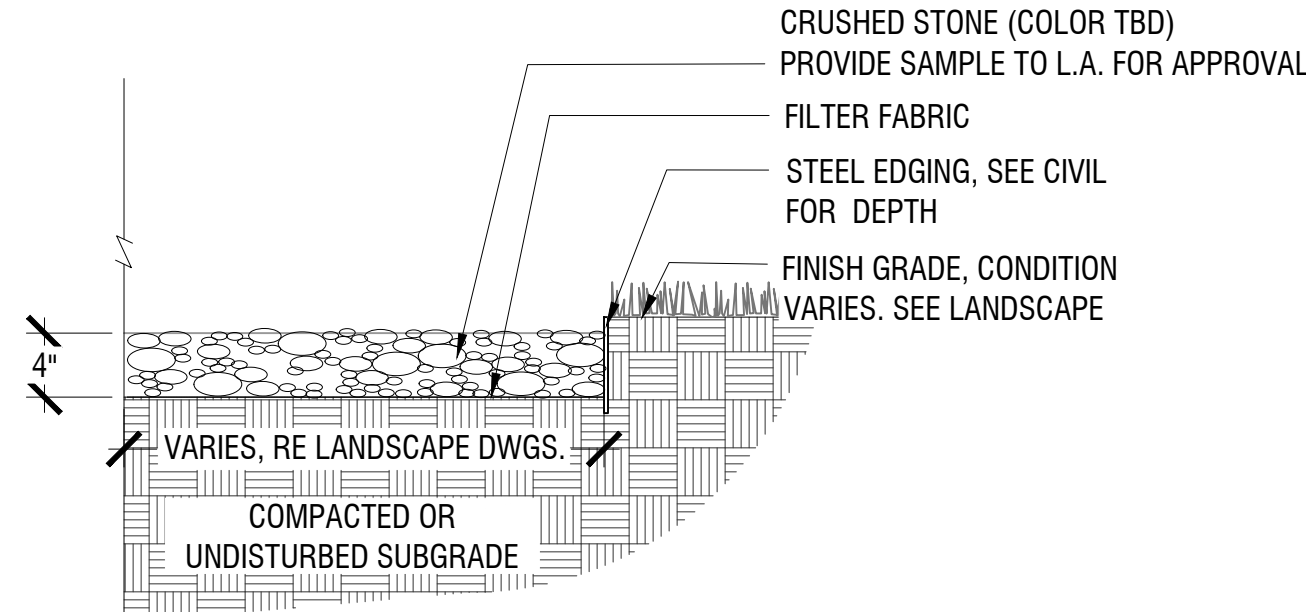
4 Expansion Joint
NTS
2.1



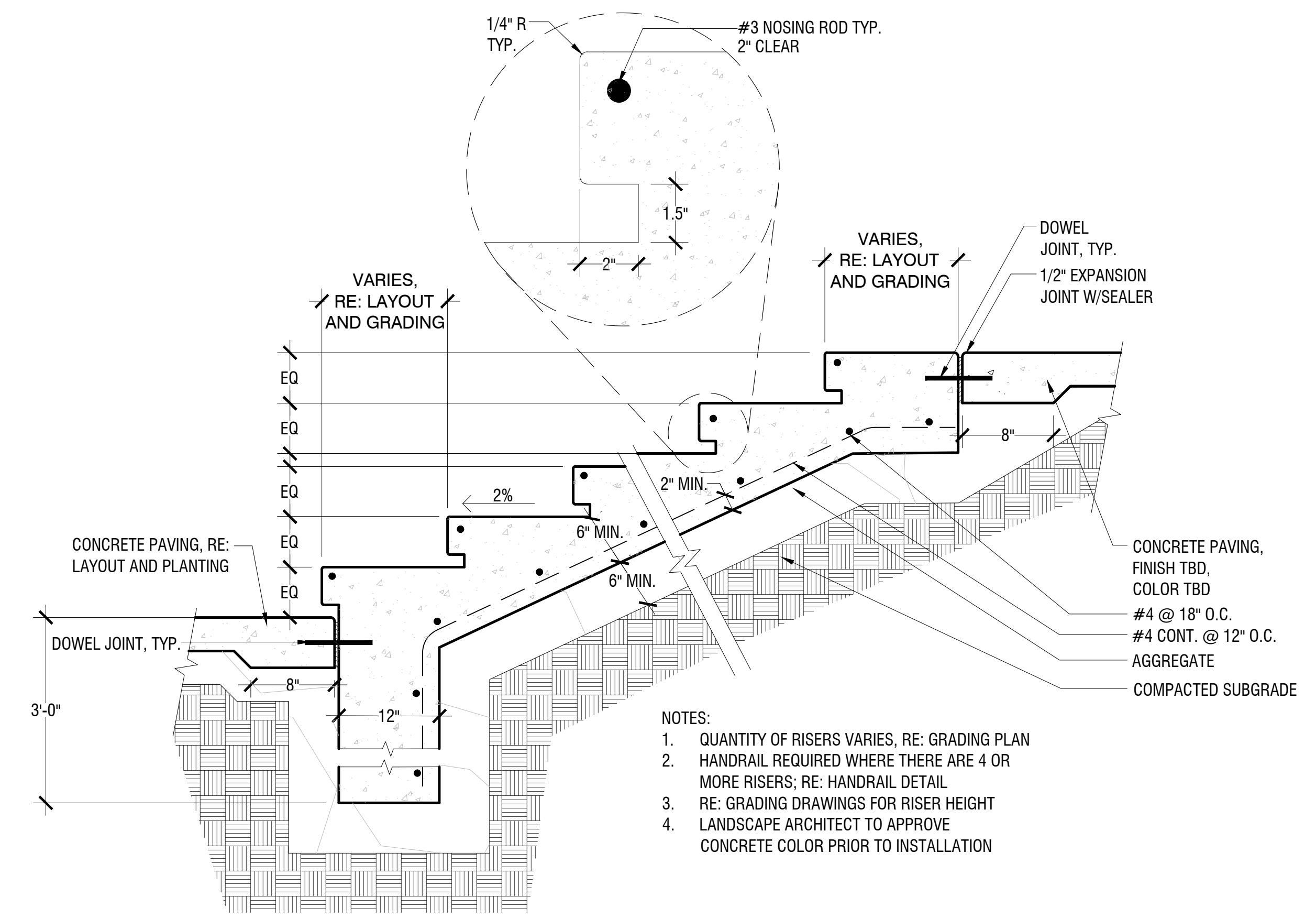
5 Control Joint
NTS
2.2



6 Stone Dust
1":1'-0"
1.4



7 Gravel Drip Edge
1/4":1'-0"
1.5

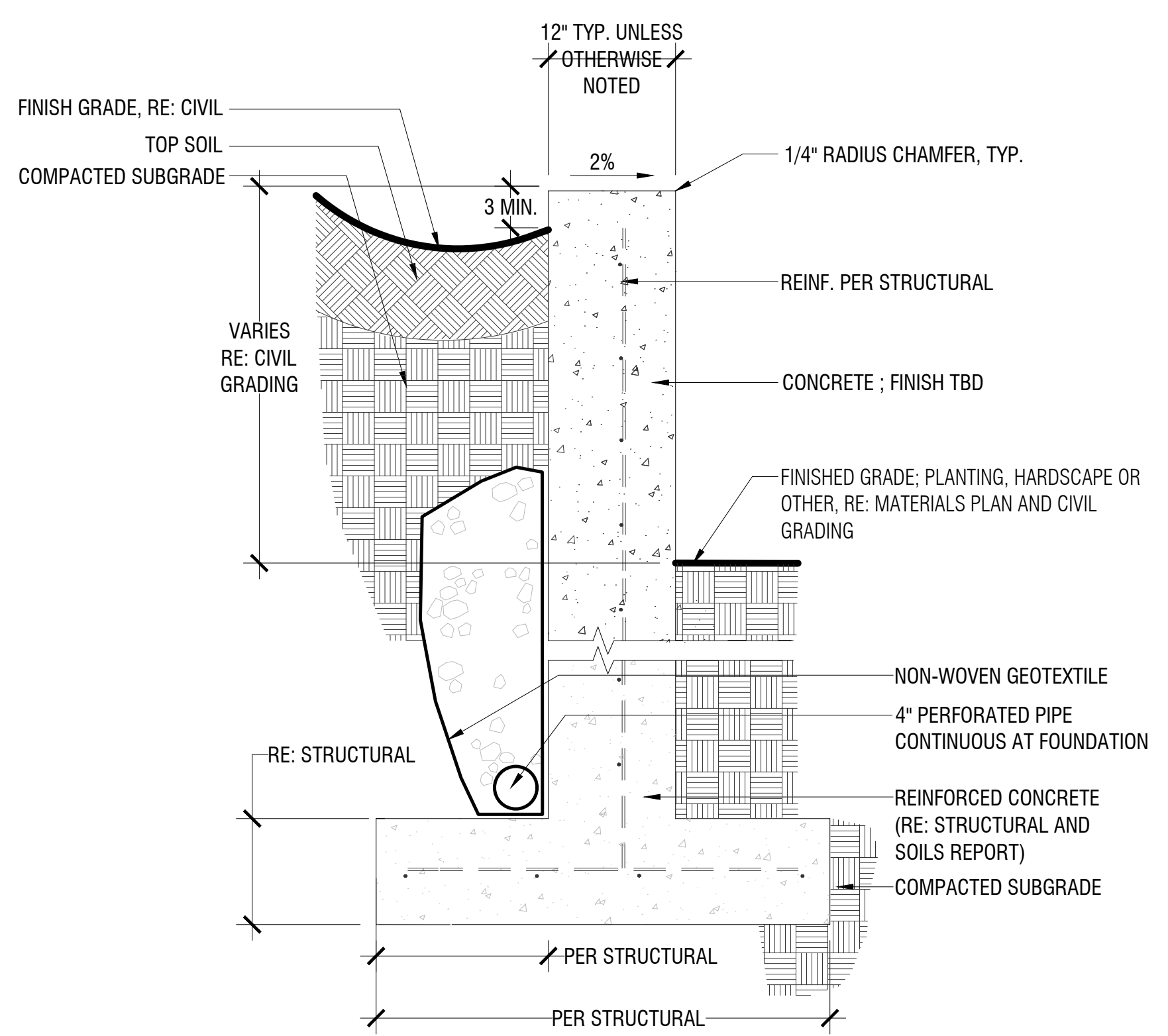


8 Concrete Steps
1":1'-0"
3.1

SITE KEYNOTES:

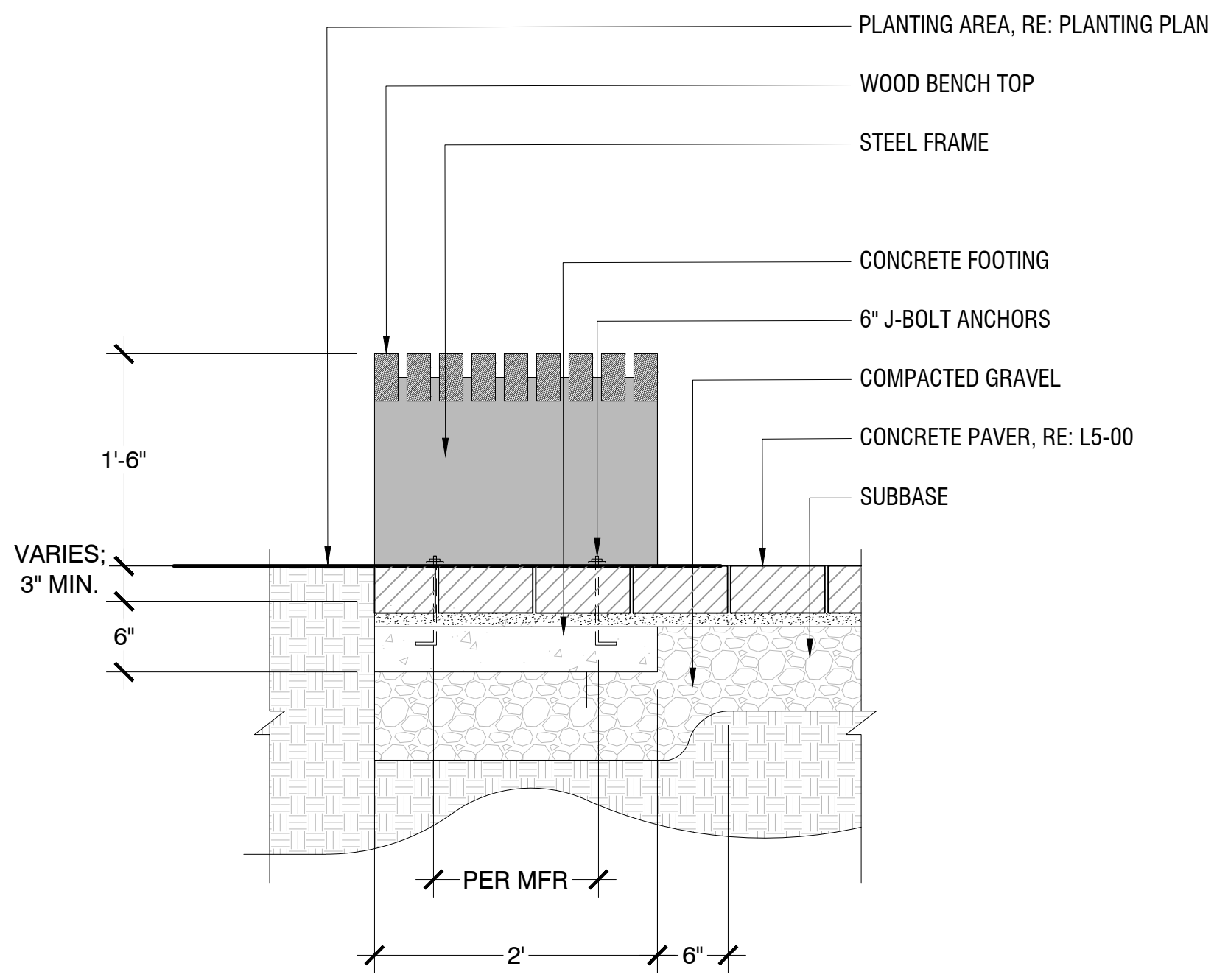
1.0 PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0 RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1 BITUMINOUS PATH	1/L5-00	6.1 HAND RAILING	5/L5-01
1.2 EXPOSED AGGREGATE	2/L5-00	7.0 SITE LIGHTING	
1.3 CONCRETE PAVERS	3/L5-00	7.1 BOLLARD LIGHT BASE	2/L5-02
1.4 STONEDUST WALK	6/L5-00	7.2 POLE LIGHT BASE	1/L5-02
1.5 GRAVEL DRIP EDGE	7/L5-00	7.3 CATENARY LIGHT BASE	3/L5-02
2.0 JOINTING		8.0 DRAINAGE	
2.1 EXPANSION JOINT	4/L5-00	X.X NOT USED AT THIS TIME	X/XX-XX
2.2 CONTROL JOINT	5/L5-00	9.0 PLANTING AND LANDSCAPE	
3.0 STEPS		9.1 DECIDUOUS TREE PLANTING	1/L5-03
4.0 SITE WALLS/ EMBANKMENTS		9.2 CONIFEROUS TREE PLANTING	2/L5-03
4.1 WALL - CONCRETE	1/L5-01	9.3 SHRUB PLANTING	4/L5-03
5.0 SITE FURNITURE		9.4 PERENNIAL/GRASS PLANTING	3/L5-03
5.1 WOOD TOP BENCH	2/L5-01	9.5 LANDSCAPE EDGING	5/L5-03
5.2 WOOD PLATFORM DECK	3/L5-01	10.0 MISCELLANEOUS ELEMENTS	
5.3 BICYCLE RACK	4/L5-01	10.1 WATER FEATURE POP JET	4/L5-02

REVISIONS	DATE



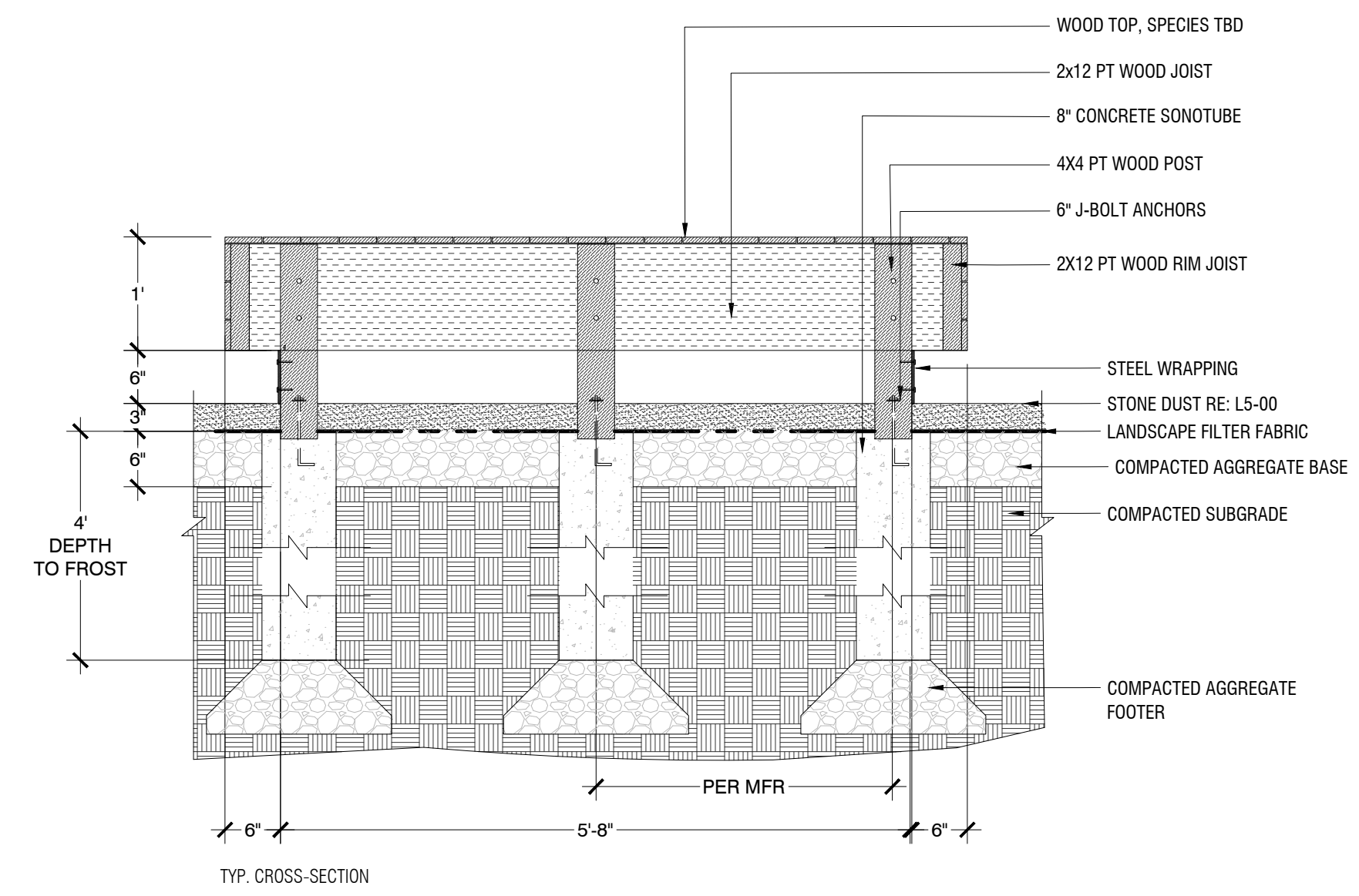
1 Wall - Concrete
1":1'-0"

4.1



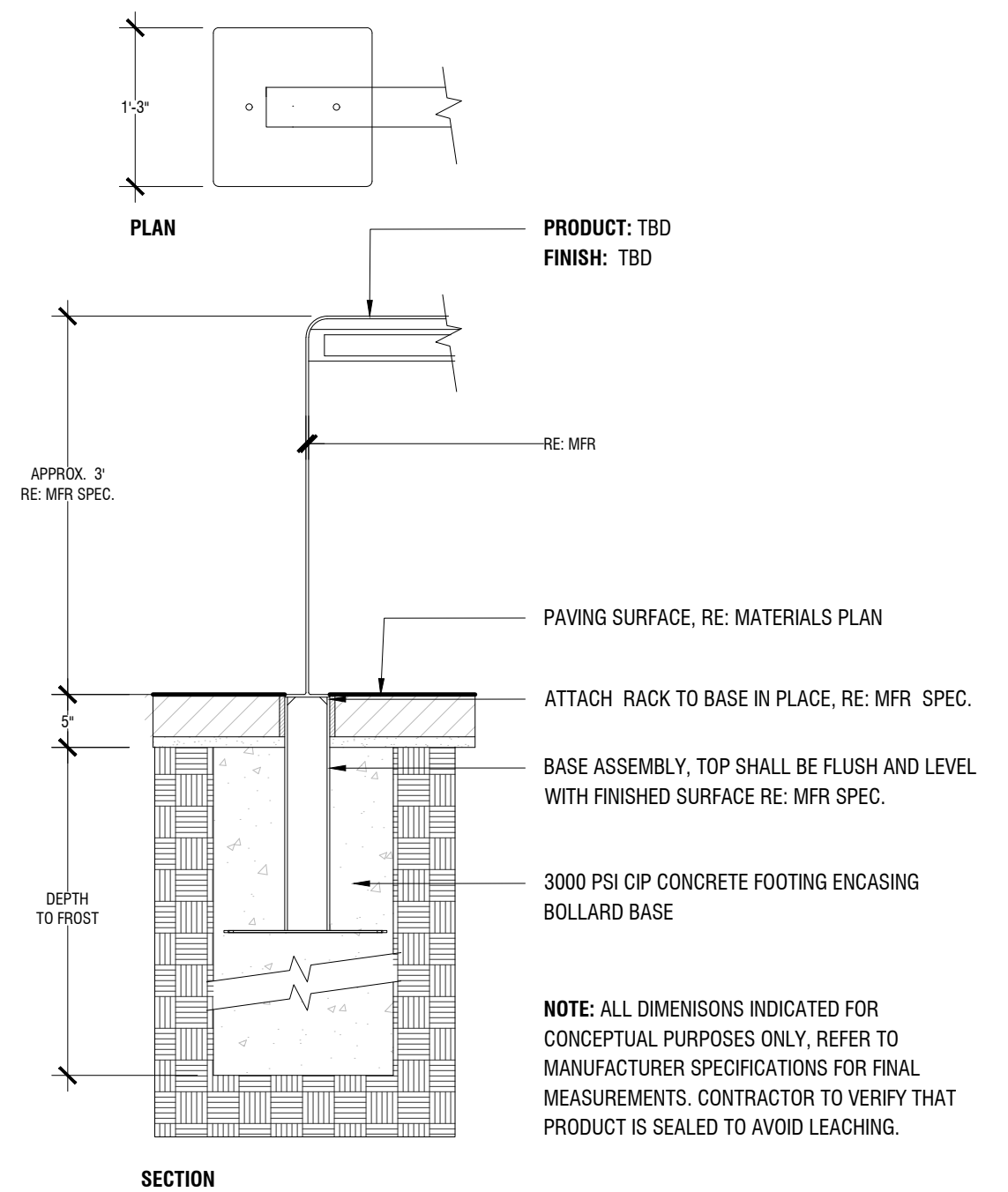
2 Wood Top Bench
1":1'-0"

5.1



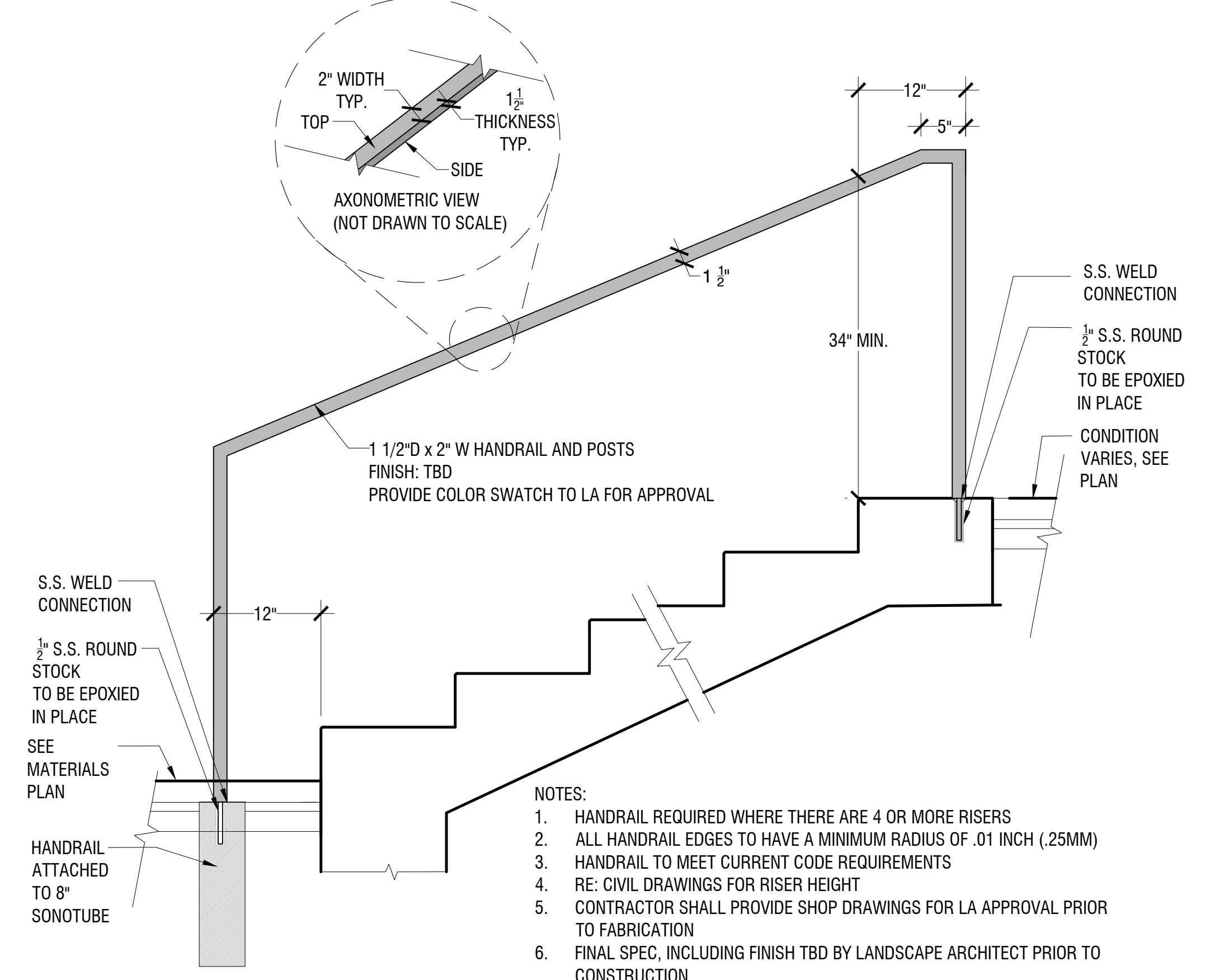
3 Wood Platform Deck
3/4":1'-0"

5.2



4 Bicycle Rack
3/4":1'-0"

5.3



5 Hand Railing
1/2":1'-0"

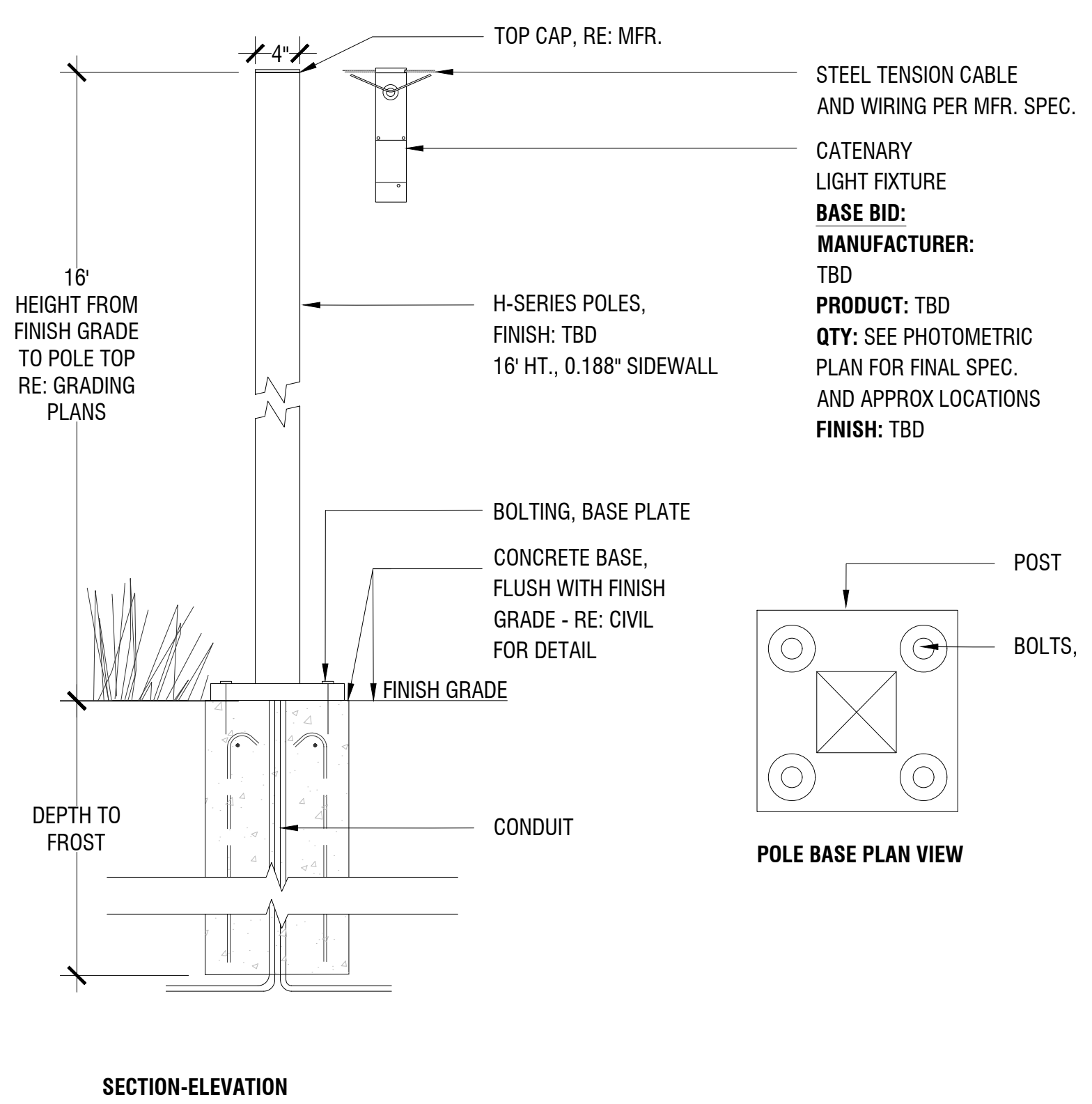
6.1

SITE KEYNOTES:

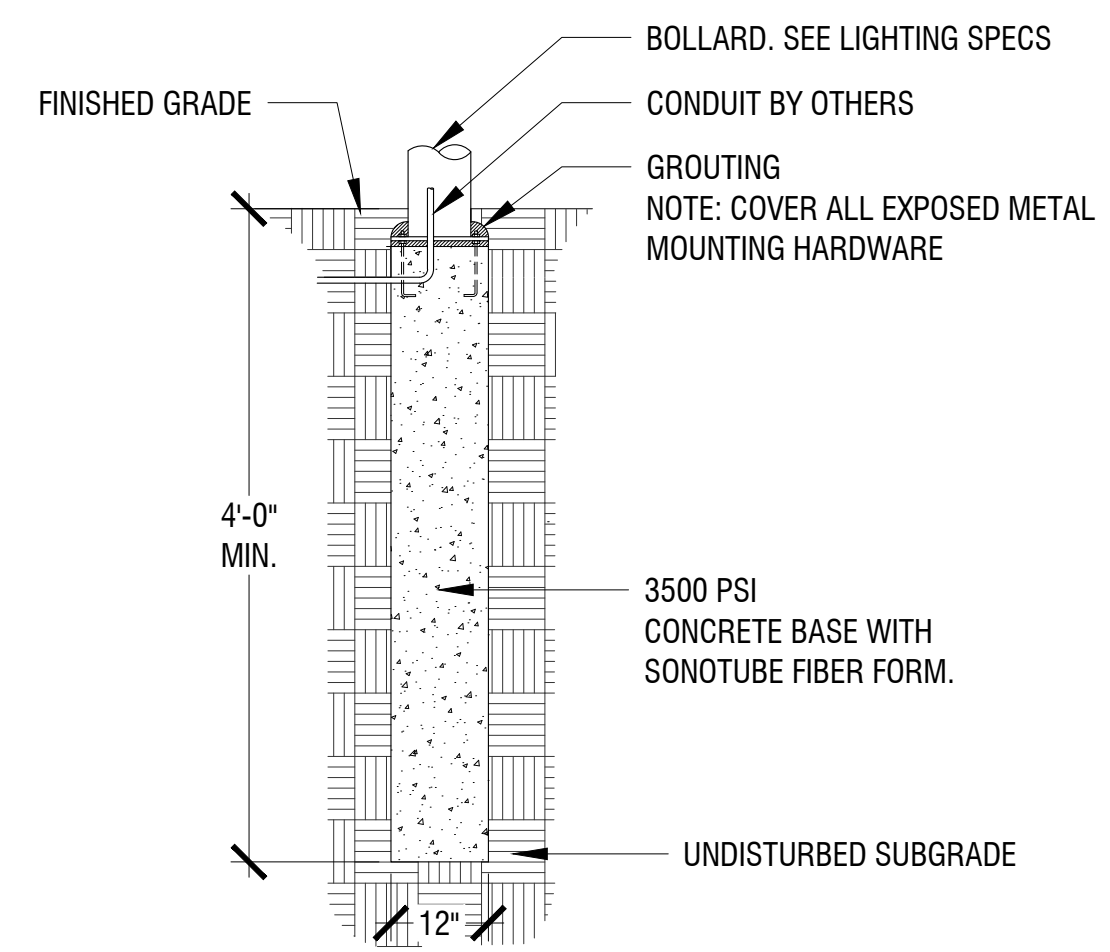
KEYNOTE	DETAIL / SHEET	KEYNOTE	DETAIL / SHEET
1.0 PAVEMENTS, RAMPS, CURBS		6.0 RAILINGS, BARRIERS, FENCING	
1.1 BITUMINOUS PATH	1/L5-00	6.1 HAND RAILING	5/L5-01
1.2 EXPOSED AGGREGATE	2/L5-00	7.0 SITE LIGHTING	
1.3 CONCRETE PAVERS	3/L5-00	7.1 BOLLARD LIGHT BASE	2/L5-02
1.4 STONEDUST WALK	6/L5-00	7.2 POLE LIGHT BASE	1/L5-02
1.5 GRAVEL DRIP EDGE	7/L5-00	7.3 CATENARY LIGHT BASE	3/L5-02
2.0 JOINTING		8.0 DRAINAGE	
2.1 EXPANSION JOINT	4/L5-00	XX NOT USED AT THIS TIME	X/XX-XX
2.2 CONTROL JOINT	5/L5-00	9.0 PLANTING AND LANDSCAPE	
3.0 STEPS		9.1 DECIDUOUS TREE PLANTING	1/L5-03
3.1 CONCRETE STEPS	8/L5-00	9.2 CONIFEROUS TREE PLANTING	2/L5-03
4.0 SITE WALLS/ EMBANKMENTS		9.3 SHRUB PLANTING	4/L5-03
4.1 WALL - CONCRETE	1/L5-01	9.4 PERENNIAL/GRASS PLANTING	3/L5-03
5.0 SITE FURNITURE		9.5 LANDSCAPE EDGING	5/L5-03
5.1 WOOD TOP BENCH	2/L5-01	10.0 MISCELLANEOUS ELEMENTS	
5.2 WOOD PLATFORM DECK	3/L5-01	10.1 WATER FEATURE POP JET	4/L5-02
5.3 BICYCLE RACK	4/L5-01		

- NOTES:
- HANDRAIL REQUIRED WHERE THERE ARE 4 OR MORE RISERS
 - ALL HANDRAIL EDGES TO HAVE A MINIMUM RADIUS OF .01 INCH (.25MM)
 - HANDRAIL TO MEET CURRENT CODE REQUIREMENTS
 - RE: CIVIL DRAWINGS FOR RISER HEIGHT
 - CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR LA APPROVAL PRIOR TO FABRICATION
 - FINAL SPEC, INCLUDING FINISH TBD BY LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION

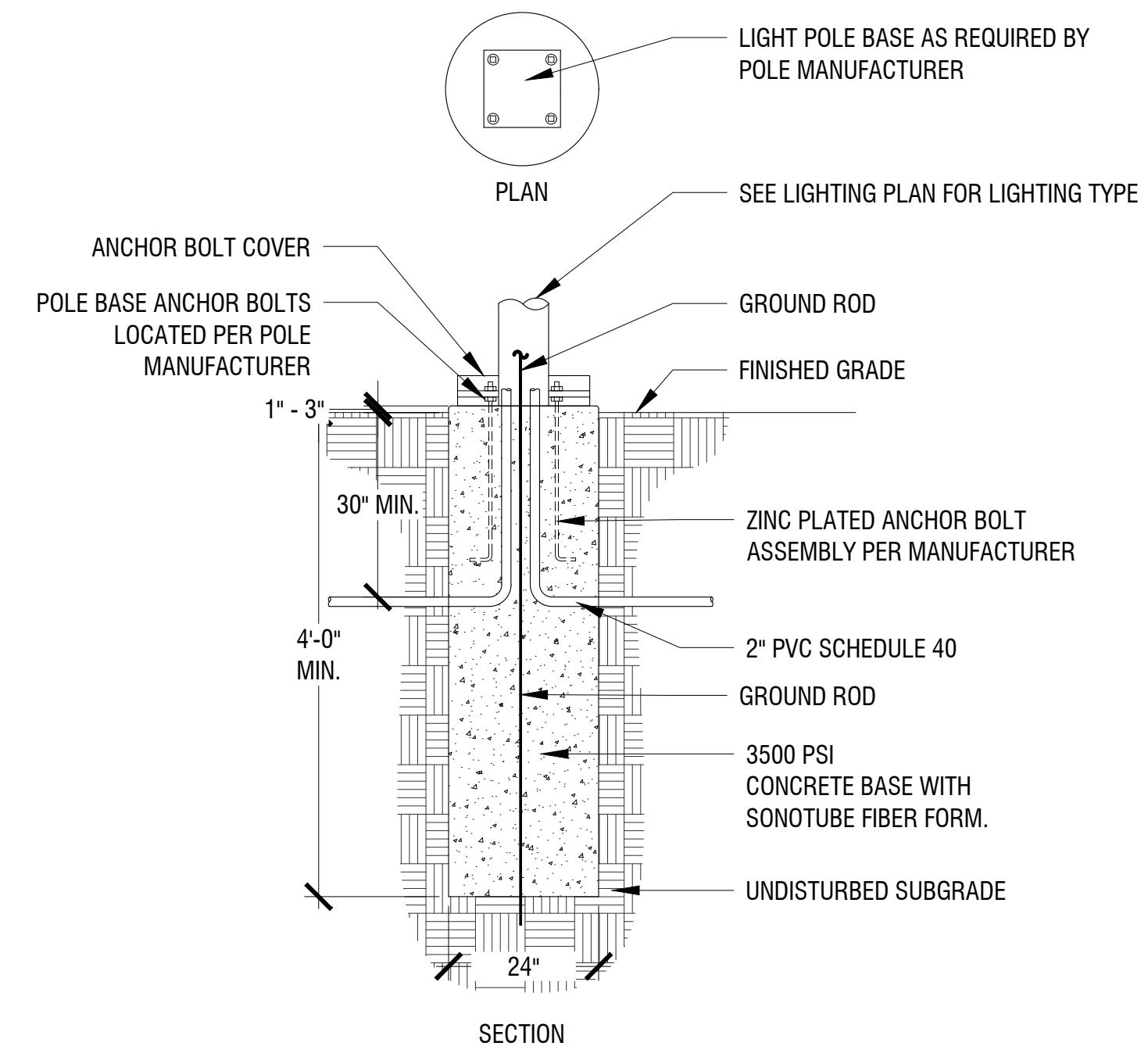
REVISIONS	DATE



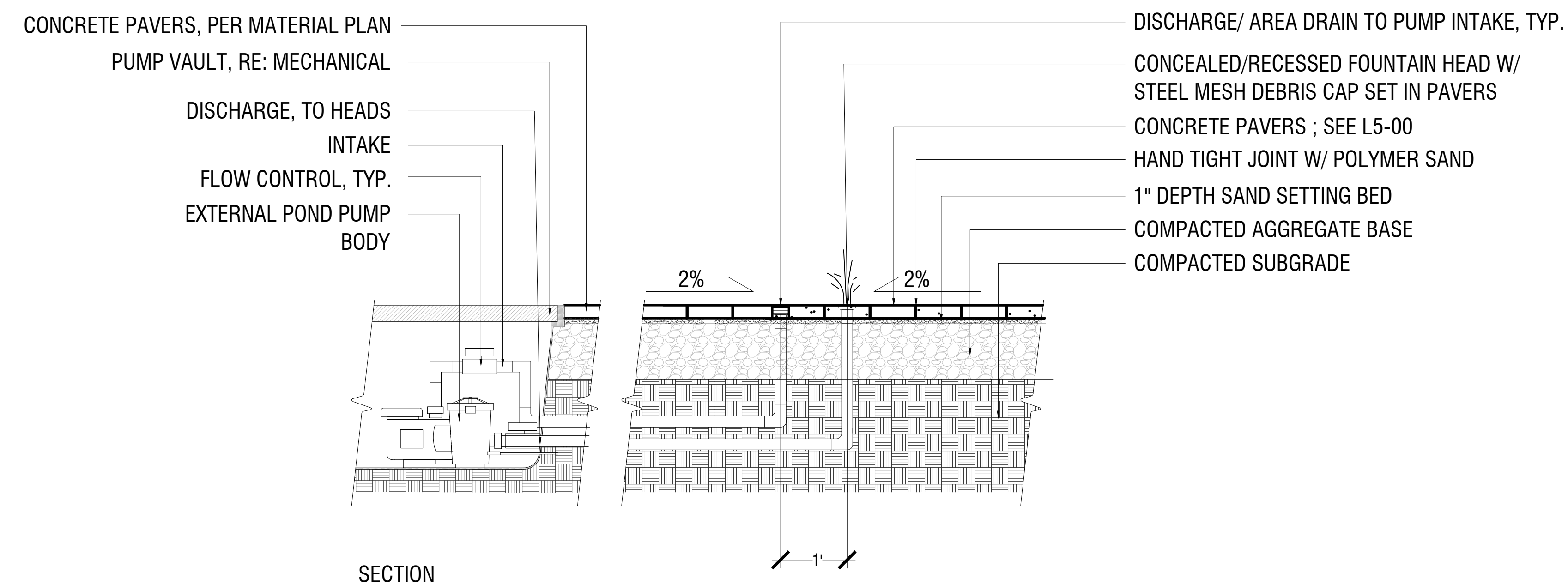
3 Catenary Light Base
1":1'-0"



2 Bollard Light Base
1/2":1'-0"



1 Pole Light Base
1/2":1'-0"



NOTE:
1. LOCATIONS AND QUANTITIES PER LAYOUT PLAN ; SEE L 1-00
2. MECHANICAL VAULT LOCATION TBD
3. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF SPECIFICATION AND ASSEMBLY FOR LANDSCAPE ARCHITECT REVIEW

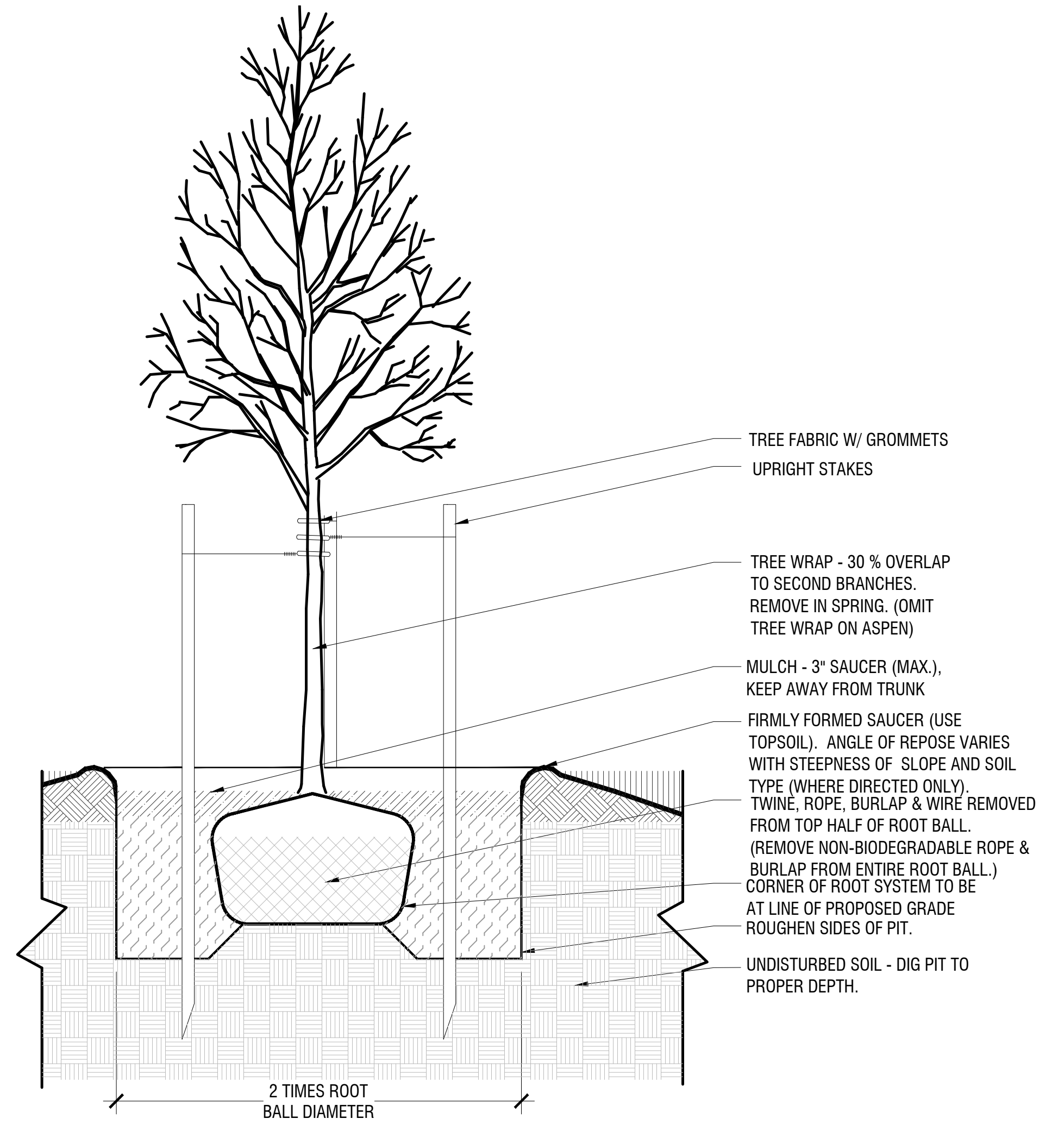
4 Water Feature Pop Jets
1":1'-0"

SITE KEYNOTES:

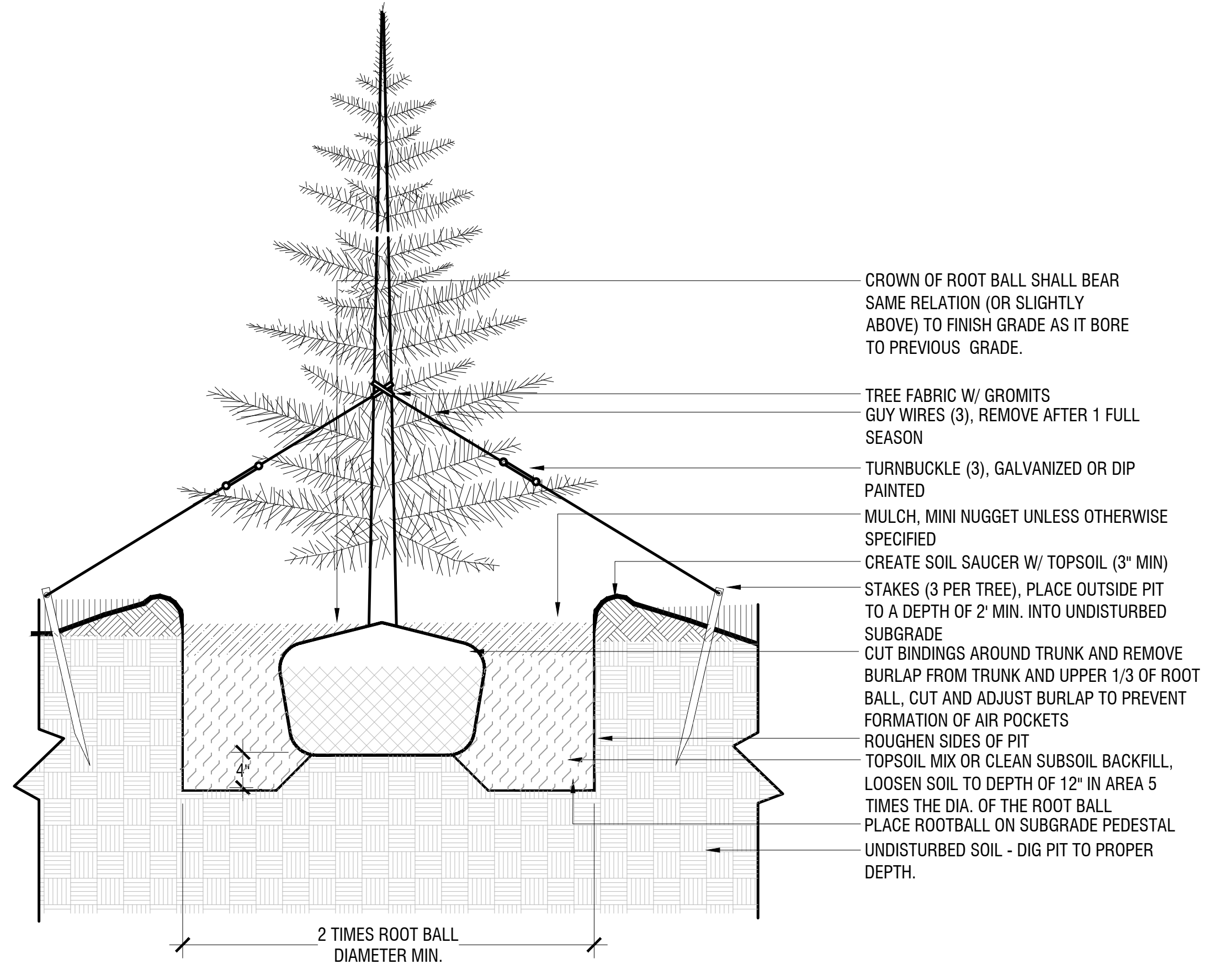
1.0 PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0 RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1 BITUMINOUS PATH	1/L5-00	6.1 HAND RAILING	5/L5-01
1.2 EXPOSED AGGREGATE	2/L5-00	7.0 SITE LIGHTING	
1.3 CONCRETE PAVERS	3/L5-00	7.1 BOLLARD LIGHT BASE	2/L5-02
1.4 STONEDUST WALK	6/L5-00	7.2 POLE LIGHT BASE	1/L5-02
1.5 GRAVEL DRIP EDGE	7/L5-00	7.3 CATENARY LIGHT BASE	3/L5-02
2.0 JOINTING		8.0 DRAINAGE	
2.1 EXPANSION JOINT	4/L5-00	XX NOT USED AT THIS TIME	X/XX-XX
2.2 CONTROL JOINT	5/L5-00	9.0 PLANTING AND LANDSCAPE	
3.0 STEPS		9.1 DECIDUOUS TREE PLANTING	1/L5-03
3.1 CONCRETE STEPS	8/L5-00	9.2 CONIFEROUS TREE PLANTING	2/L5-03
4.0 SITE WALLS/ EMBANKMENTS		9.3 SHRUB PLANTING	4/L5-03
4.1 WALL - CONCRETE	1/L5-01	9.4 PERENNIAL/GRASS PLANTING	3/L5-03
5.0 SITE FURNITURE		9.5 LANDSCAPE EDGING	5/L5-03
5.1 WOOD TOP BENCH	2/L5-01	10.0 MISCELLANEOUS ELEMENTS	
5.2 WOOD PLATFORM DECK	3/L5-01	10.1 WATER FEATURE POP JET	4/L5-02
5.3 BICYCLE RACK	4/L5-01		

10.1

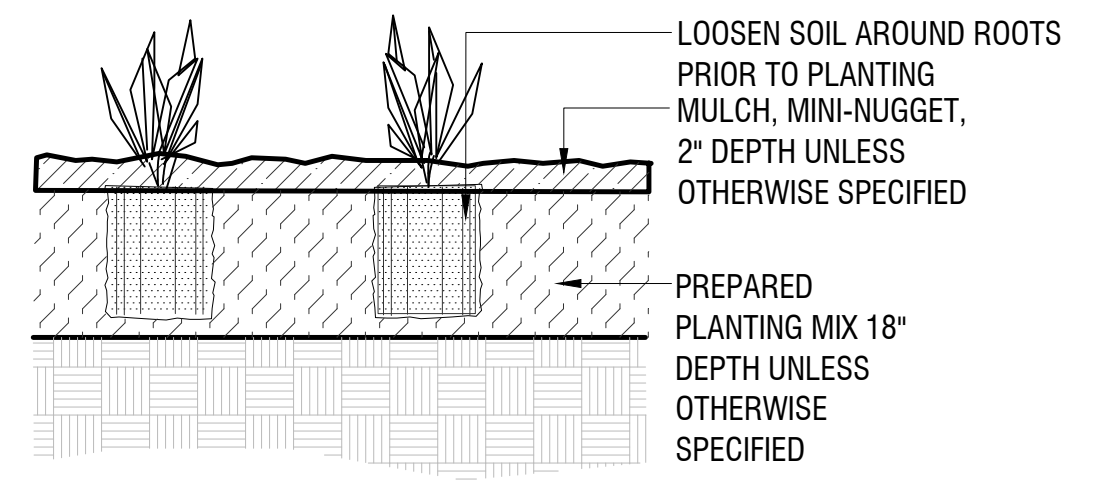
REVISIONS	DATE



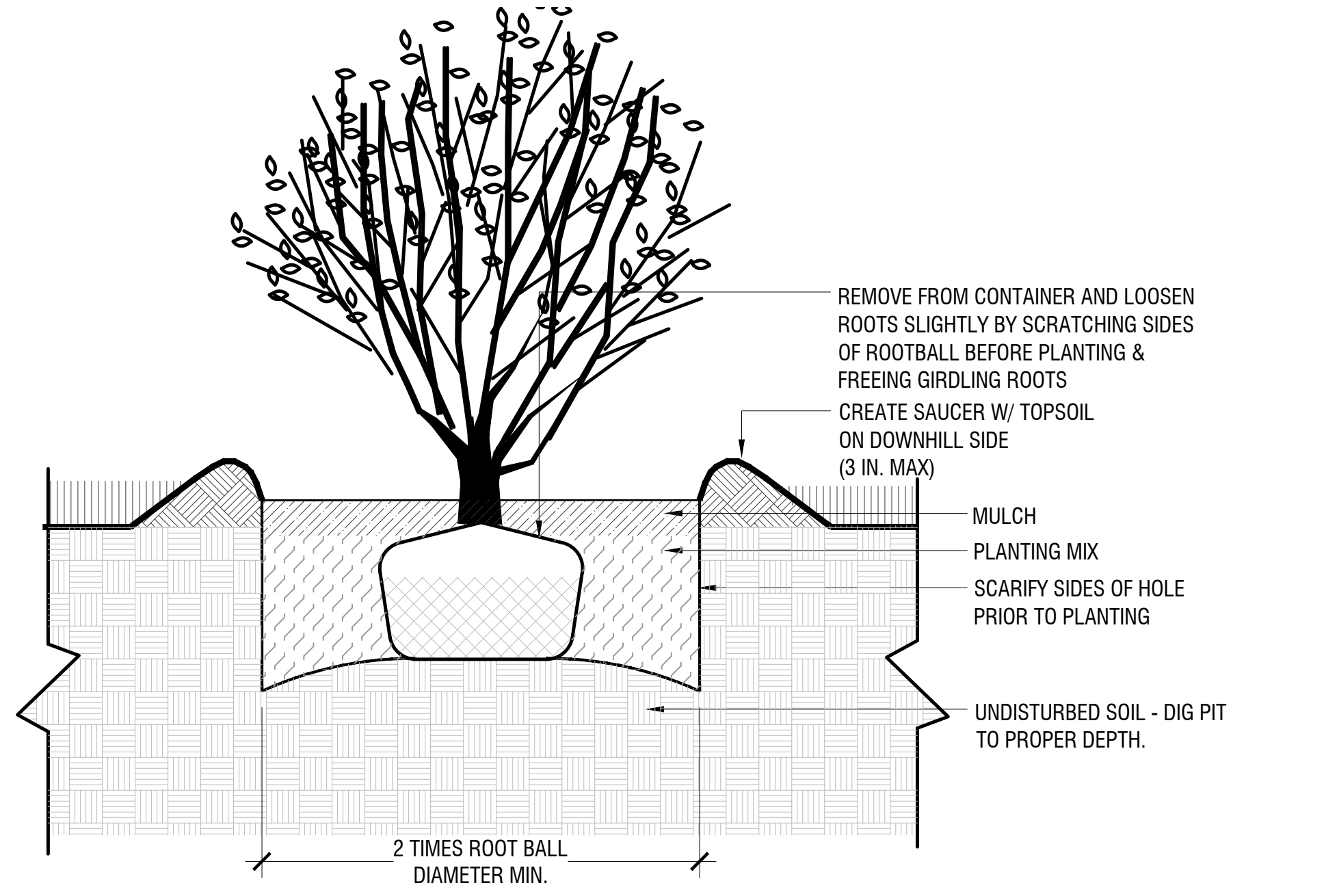
1 Deciduous Tree Planting
1":1'-0" 9.1



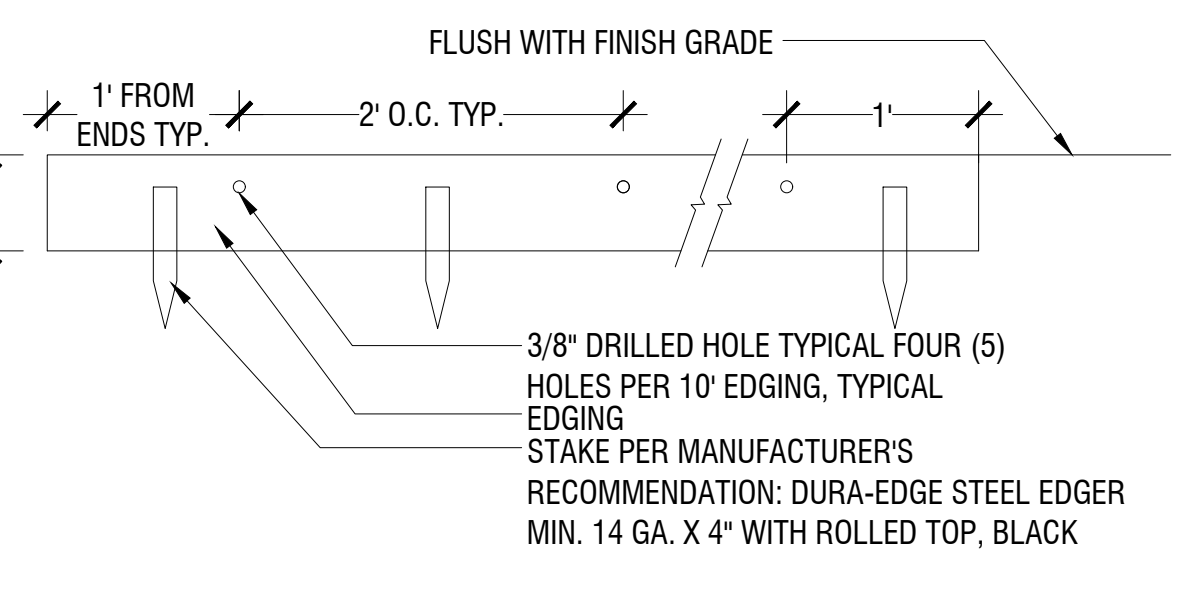
2 Conifer Tree Planting
1":1'-0" 9.2



3 Perennial / Ornamental Grass Planting
1":1'-0" 9.4



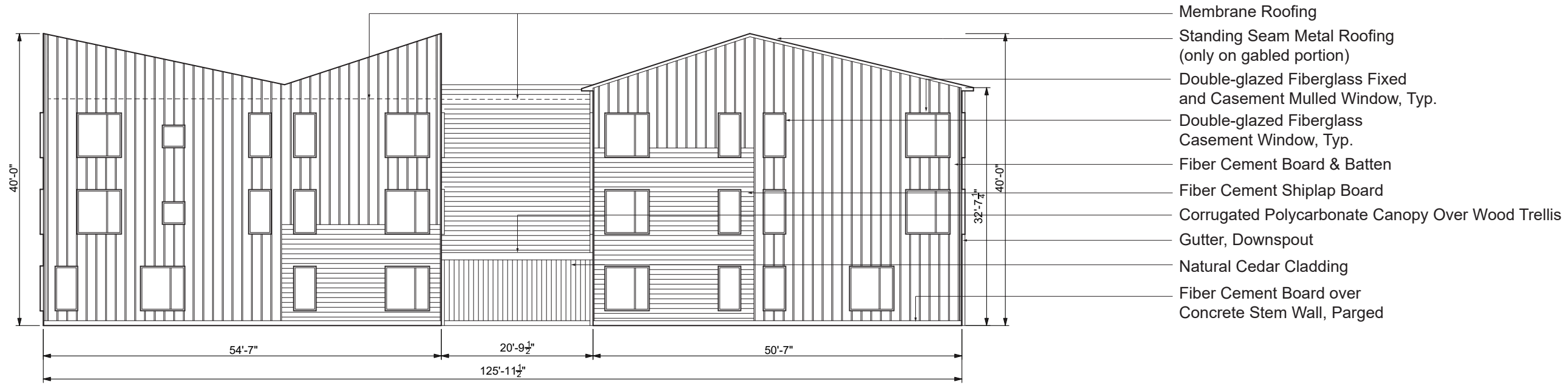
4 Shrub Planting
1":1'-0" 9.3



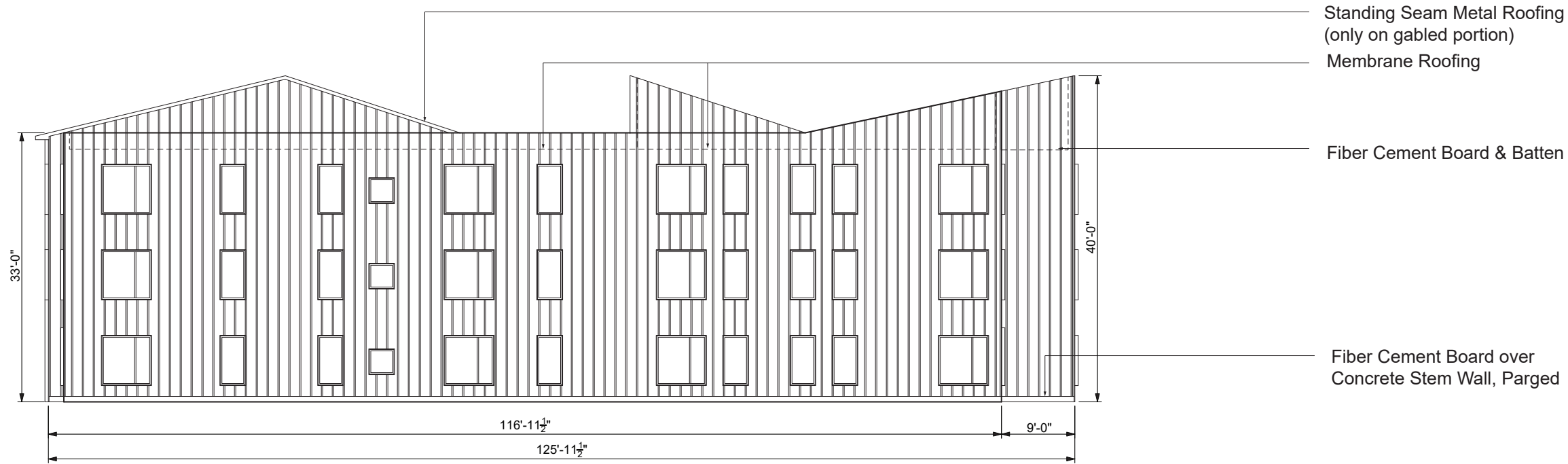
5 Steel Edging
1":1'-0" 9.5

SITE KEYNOTES:

1.0	PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0	RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1	BITUMINOUS PATH	1/L5-00	6.1	HAND RAILING	5/L5-01
1.2	EXPOSED AGGREGATE	2/L5-00	7.0 SITE LIGHTING		
1.3	CONCRETE PAVERS	3/L5-00	7.1	BOLLARD LIGHT BASE	2/L5-02
1.4	STONEDUST WALK	6/L5-00	7.2	POLE LIGHT BASE	1/L5-02
1.5	GRAVEL DRIP EDGE	7/L5-00	7.3	CATENARY LIGHT BASE	3/L5-02
2.0 JOINTING			8.0 DRAINAGE		
2.1	EXPANSION JOINT	4/L5-00	X.X	NOT USED AT THIS TIME	X/XX-XX
2.2	CONTROL JOINT	5/L5-00	9.0 PLANTING AND LANDSCAPE		
3.0 STEPS			9.1	DECIDUOUS TREE PLANTING	1/L5-03
3.1	CONCRETE STEPS	8/L5-00	9.2	CONIFEROUS TREE PLANTING	2/L5-03
4.0 SITE WALLS/ EMBANKMENTS			9.3	SHRUB PLANTING	4/L5-03
4.1	WALL - CONCRETE	1/L5-01	9.4	PERENNIAL/GRASS PLANTING	3/L5-03
5.0 SITE FURNITURE			9.5	LANDSCAPE EDGING	5/L5-03
5.1	WOOD TOP BENCH	2/L5-01	10.0 MISCELLANEOUS ELEMENTS		
5.2	WOOD PLATFORM DECK	3/L5-01	10.1	WATER FEATURE POP JET	4/L5-02
5.3	BICYCLE RACK	4/L5-01			



FRONT SIDE



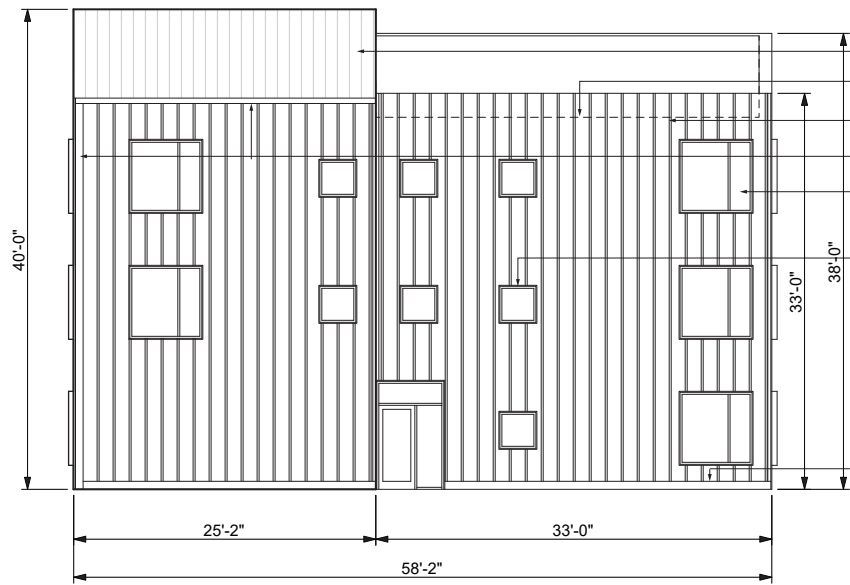
BACK SIDE

- Membrane Roofing
- Standing Seam Metal Roofing (only on gabled portion)
- Double-glazed Fiberglass Fixed and Casement Muller Window, Typ.
- Double-glazed Fiberglass Casement Window, Typ.
- Fiber Cement Board & Batten
- Fiber Cement Shiplap Board
- Corrugated Polycarbonate Canopy Over Wood Trellis
- Gutter, Downspout
- Natural Cedar Cladding
- Fiber Cement Board over Concrete Stem Wall, Parged

- Standing Seam Metal Roofing (only on gabled portion)
- Membrane Roofing
- Fiber Cement Board & Batten
- Fiber Cement Board over Concrete Stem Wall, Parged

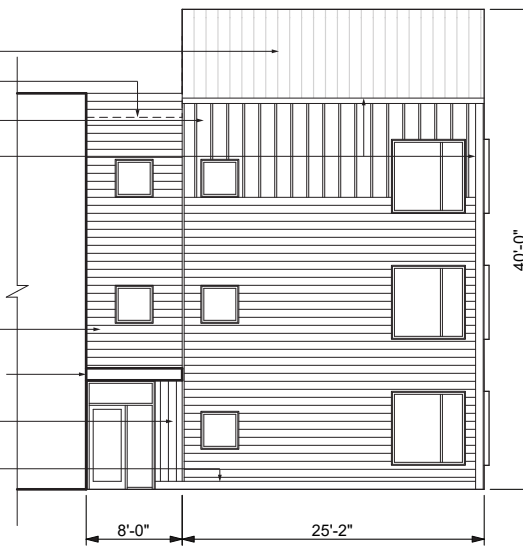
DISCLAIMER: These plans are conceptual only. They have not been subject to a comprehensive code and regulatory review, nor have they been tested against any as-built surveys. Discoveries in such an analysis may result in fundamental changes to the original concept.



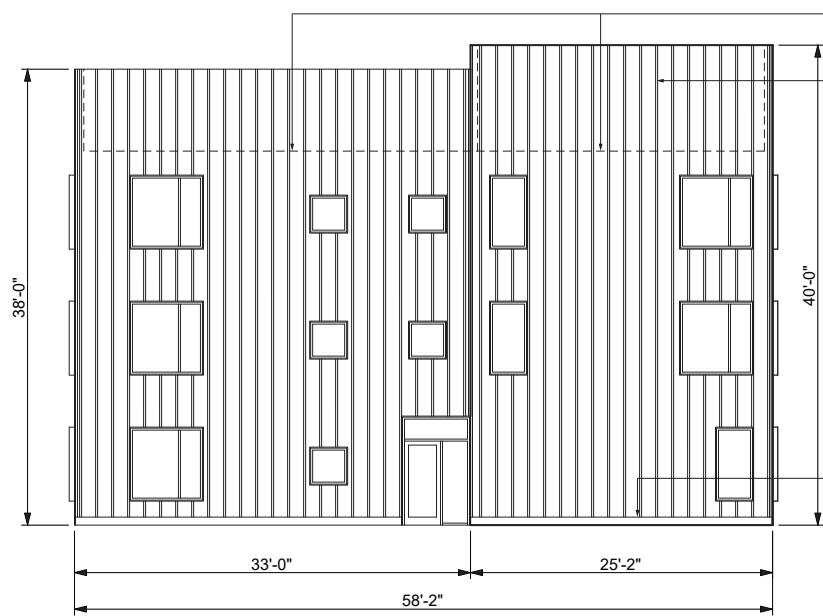


RIGHT SIDE

- Standing Seam Metal Roofing
- Membrane Roofing
- Fiber Cement Board & Batten
- Gutter, Downspout
- Double-glazed Fiberglass Fixed and Casement Muller Window, Typ.
- Double-glazed Fiberglass Casement Window, Typ.
- Fiber Cement Shiplap Board
- Corrugated Polycarbonate Canopy Over Wood Trellis
- Natural Cedar Cladding
- Fiber Cement Board over Concrete Stem Wall, Parged

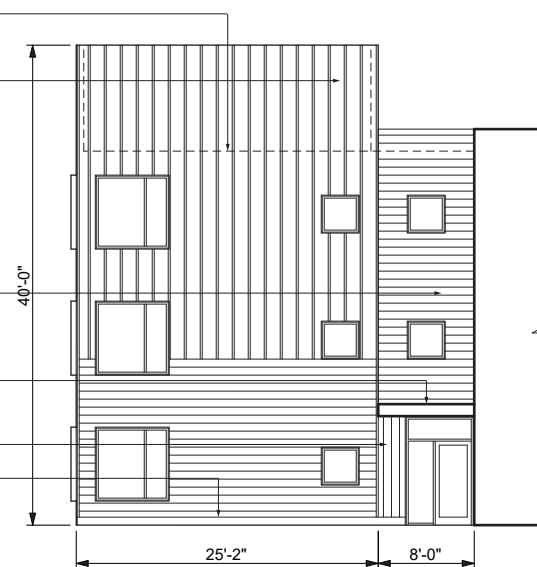


COURTYARD RIGHT SIDE



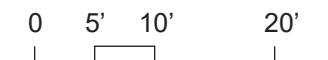
LEFT SIDE

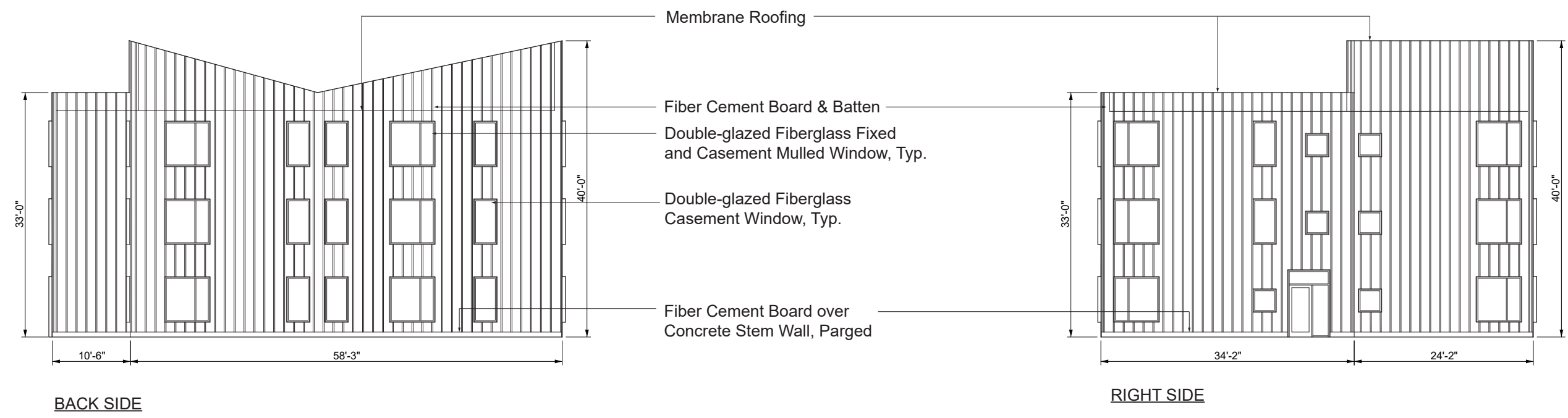
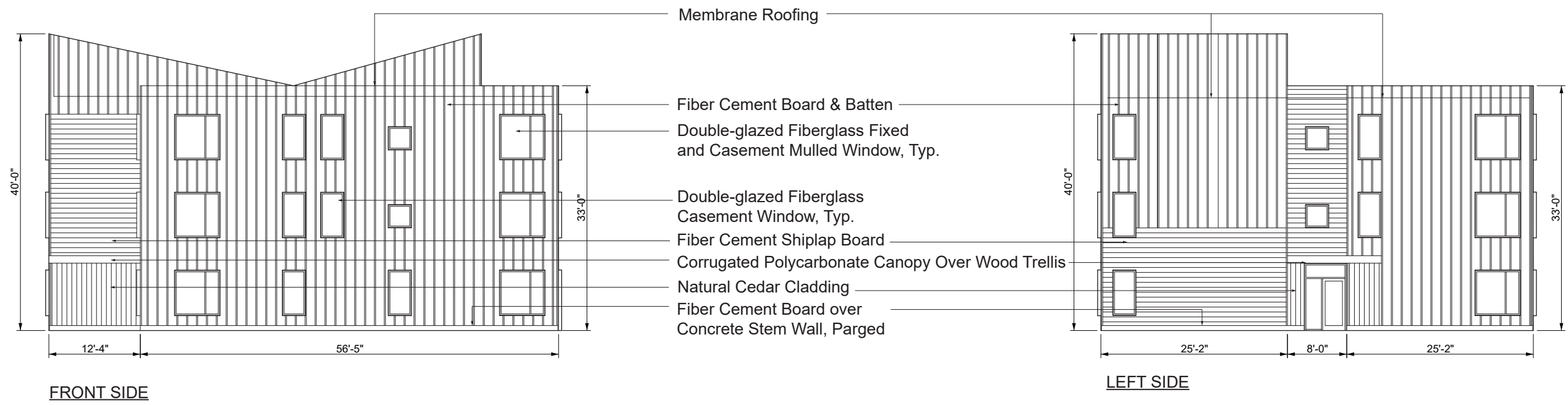
- Membrane Roofing
- Fiber Cement Board & Batten
- Fiber Cement Shiplap Board
- Corrugated Polycarbonate Canopy Over Wood Trellis
- Natural Cedar Cladding
- Fiber Cement Board over Concrete Stem Wall, Parged



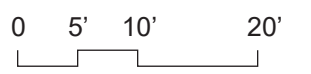
COURTYARD LEFT SIDE

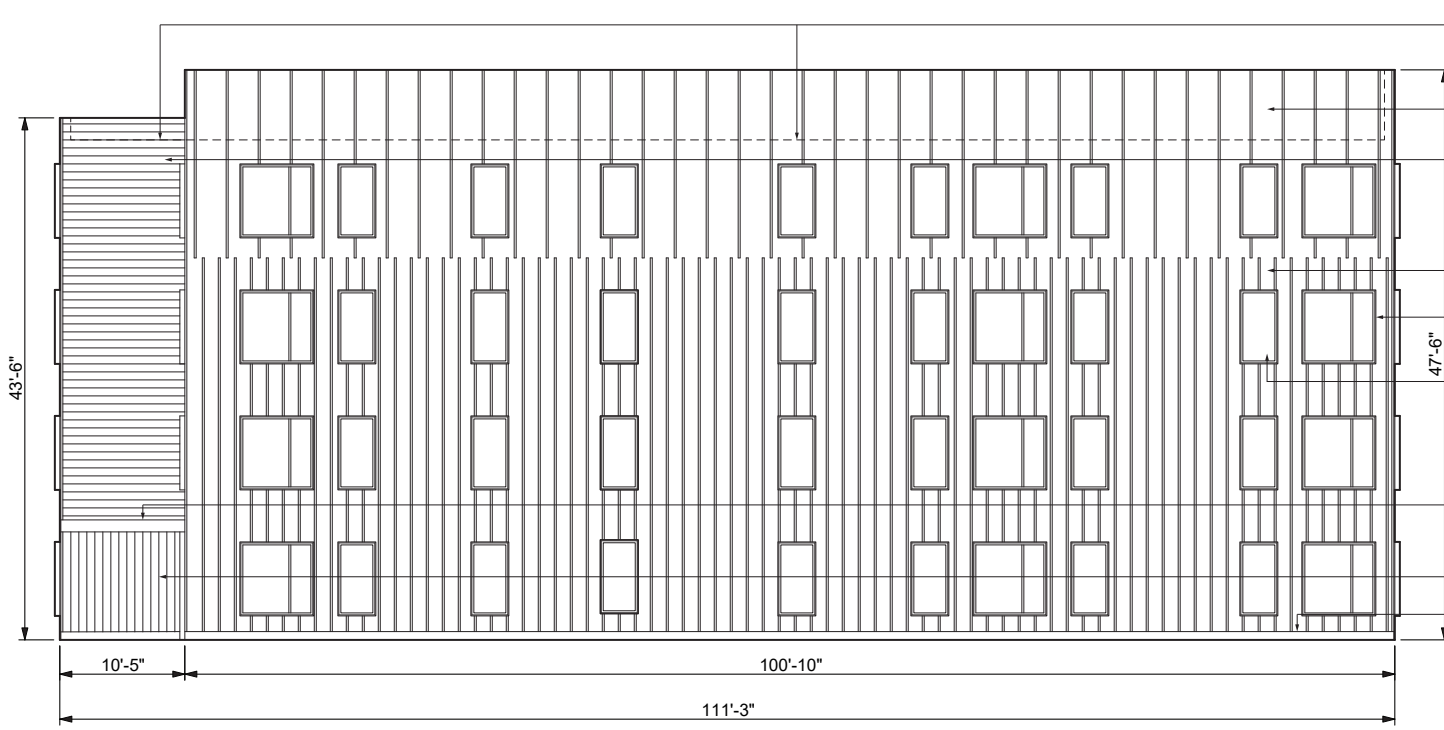
DISCLAIMER: These plans are conceptual only. They have not been subject to a comprehensive code and regulatory review, nor have they been tested against any as-built surveys. Discoveries in such an analysis may result in fundamental changes to the original concept.



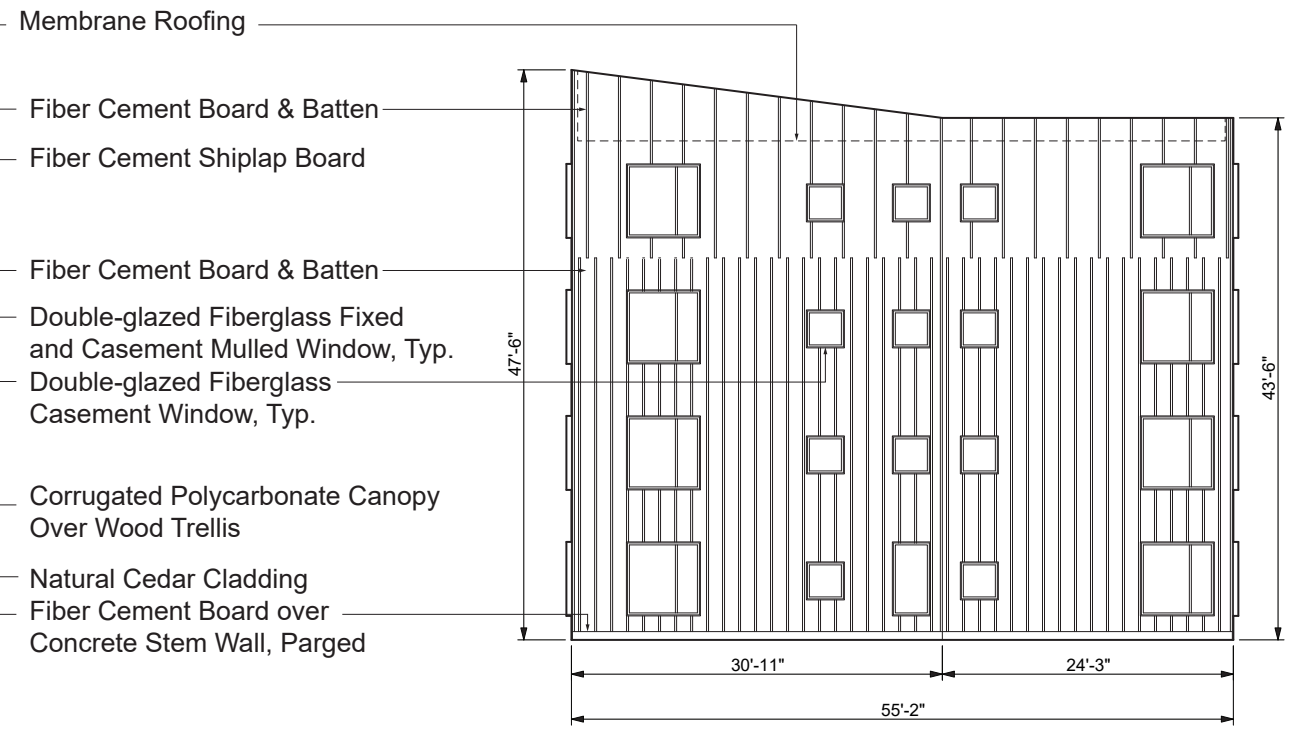


DISCLAIMER: These plans are conceptual only. They have not been subject to a comprehensive code and regulatory review, nor have they been tested against any as-built surveys. Discoveries in such an analysis may result in fundamental changes to the original concept.

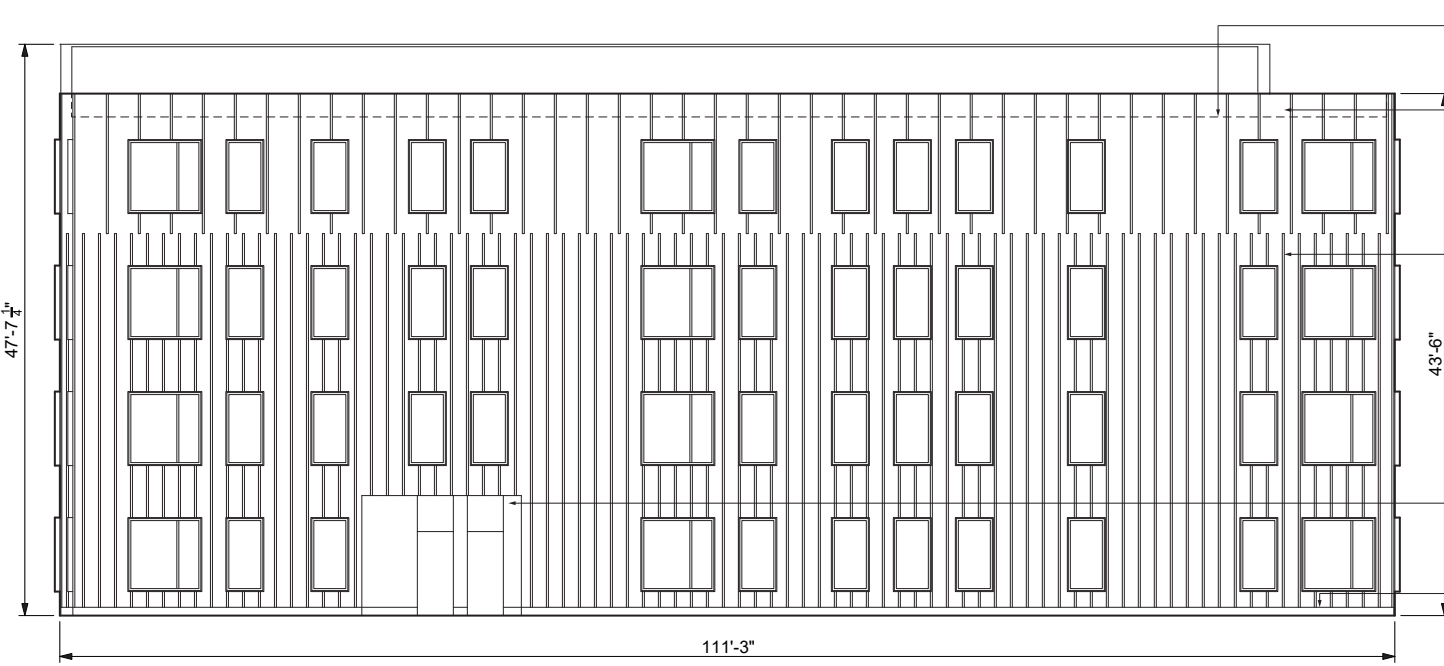




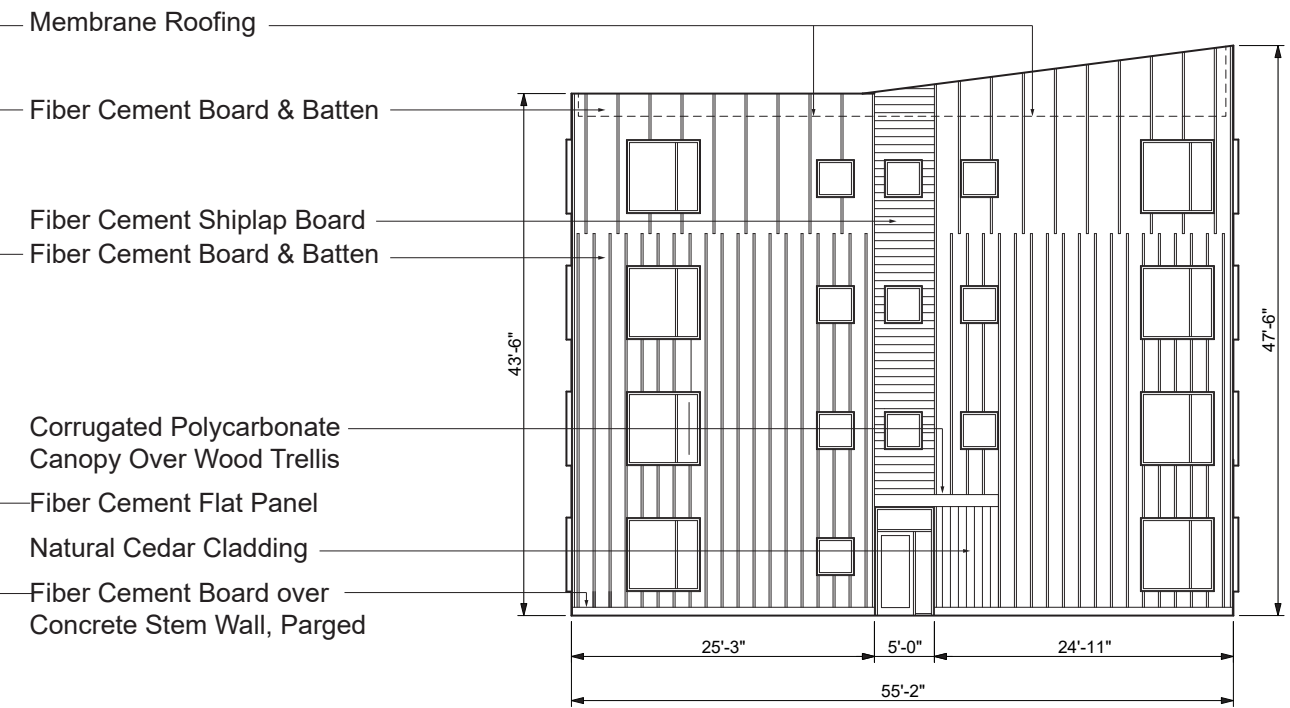
FRONT SIDE



RIGHT SIDE



BACK SIDE

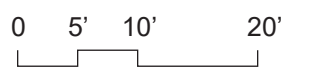


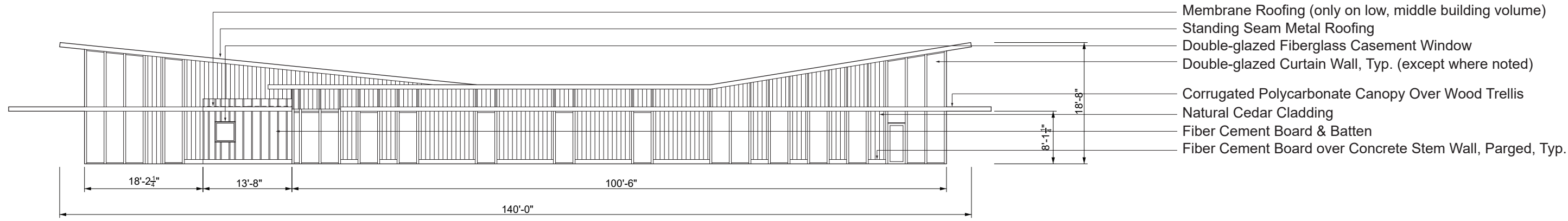
LEFT SIDE

- Membrane Roofing
- Fiber Cement Board & Batten
- Fiber Cement Shiplap Board
- Fiber Cement Board & Batten
- Double-glazed Fiberglass Fixed and Casement Muller Window, Typ.
- Double-glazed Fiberglass Casement Window, Typ.
- Corrugated Polycarbonate Canopy Over Wood Trellis
- Natural Cedar Cladding
- Fiber Cement Board over Concrete Stem Wall, Parged

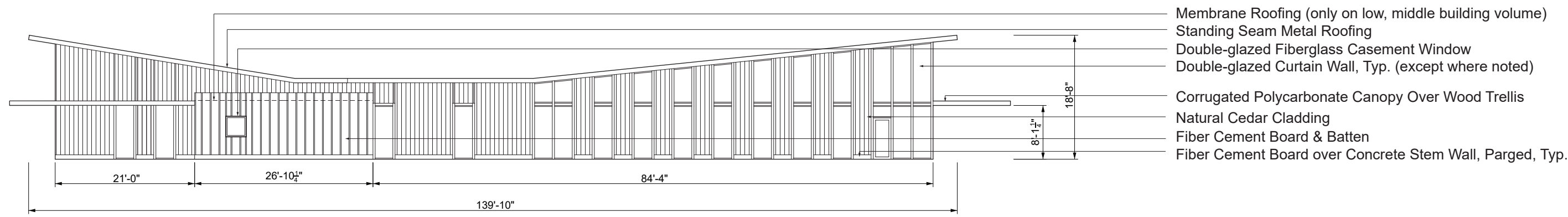
- Membrane Roofing
- Fiber Cement Board & Batten
- Fiber Cement Shiplap Board
- Fiber Cement Board & Batten
- Corrugated Polycarbonate Canopy Over Wood Trellis
- Fiber Cement Flat Panel
- Natural Cedar Cladding
- Fiber Cement Board over Concrete Stem Wall, Parged

DISCLAIMER: These plans are conceptual only. They have not been subject to a comprehensive code and regulatory review, nor have they been tested against any as-built surveys. Discoveries in such an analysis may result in fundamental changes to the original concept.

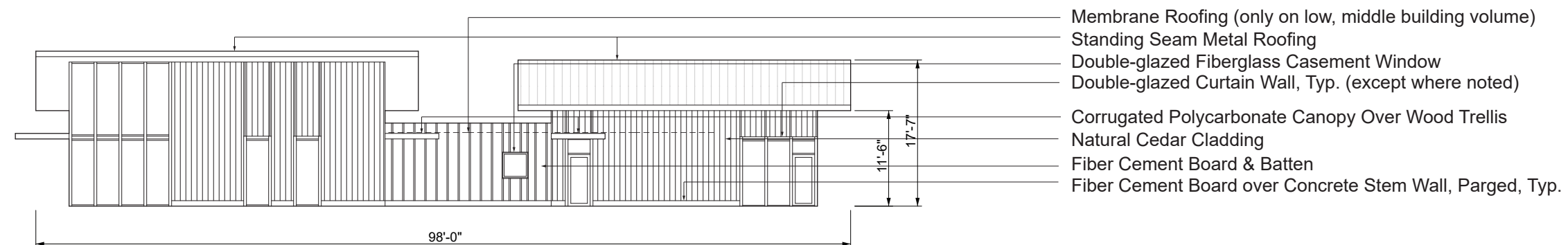




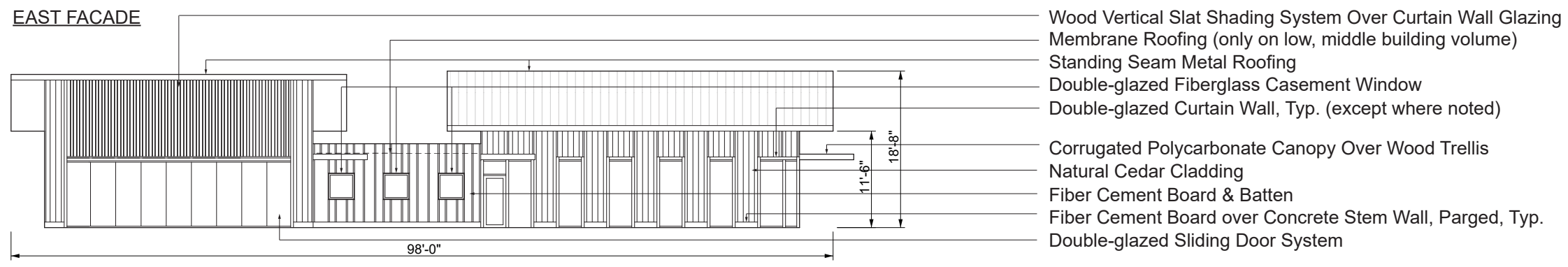
SOUTH FACADE



NORTH FACADE

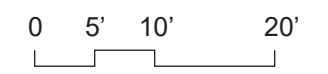


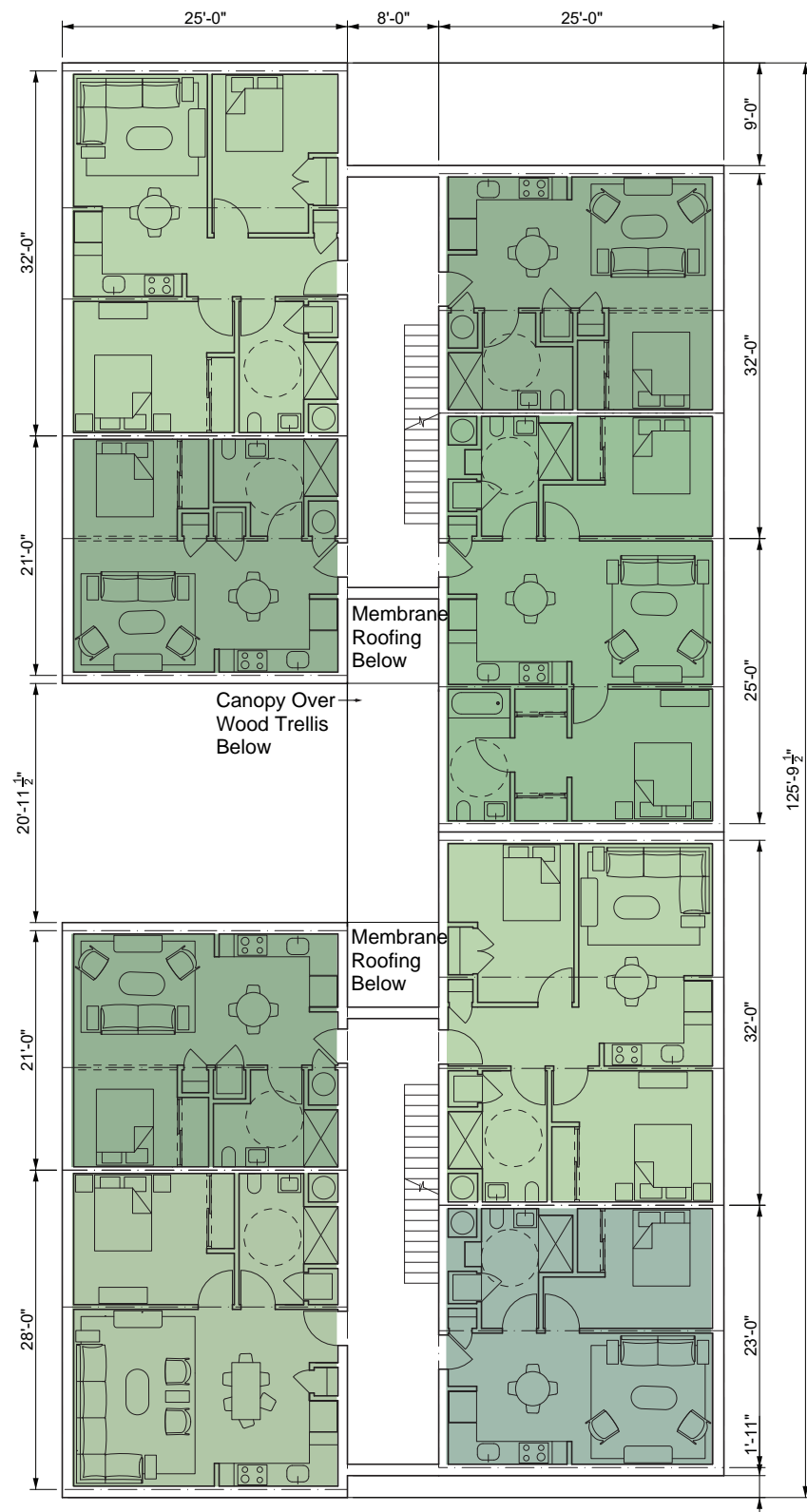
EAST FACADE



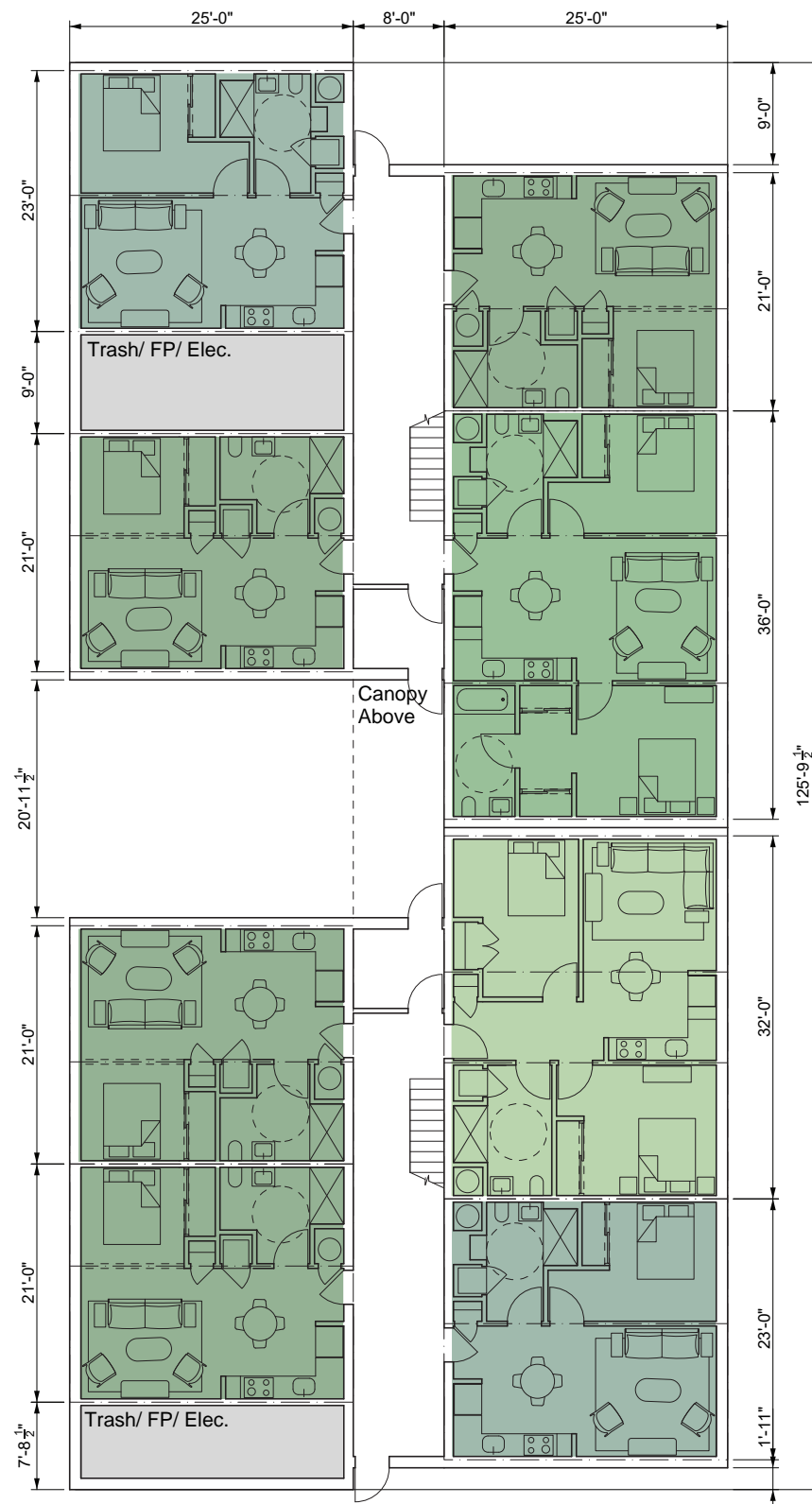
WEST FACADE

DISCLAIMER: These plans are conceptual only. They have not been subject to a comprehensive code and regulatory review, nor have they been tested against any as-built surveys. Discoveries in such an analysis may result in fundamental changes to the original concept.

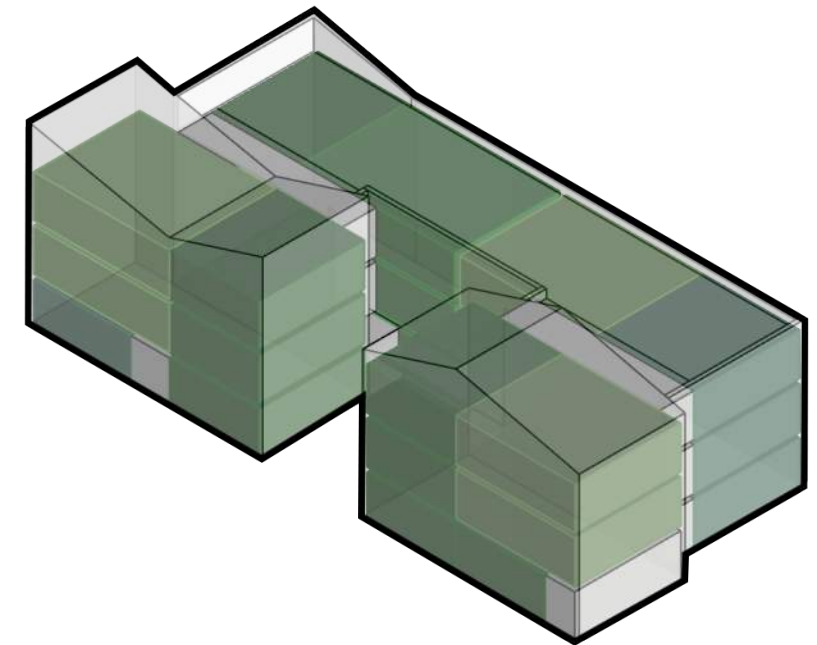




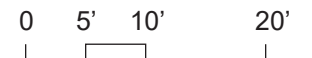
TYPICAL FLOOR
6,126 GSF

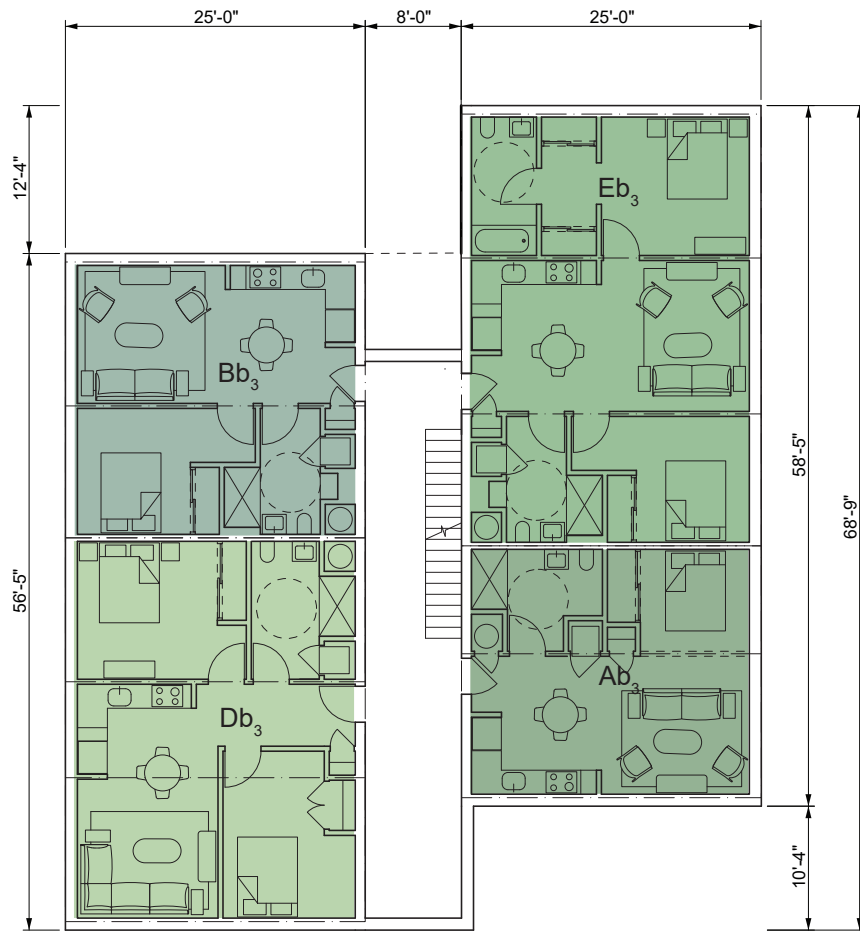


GROUND FLOOR
6,244 GSF

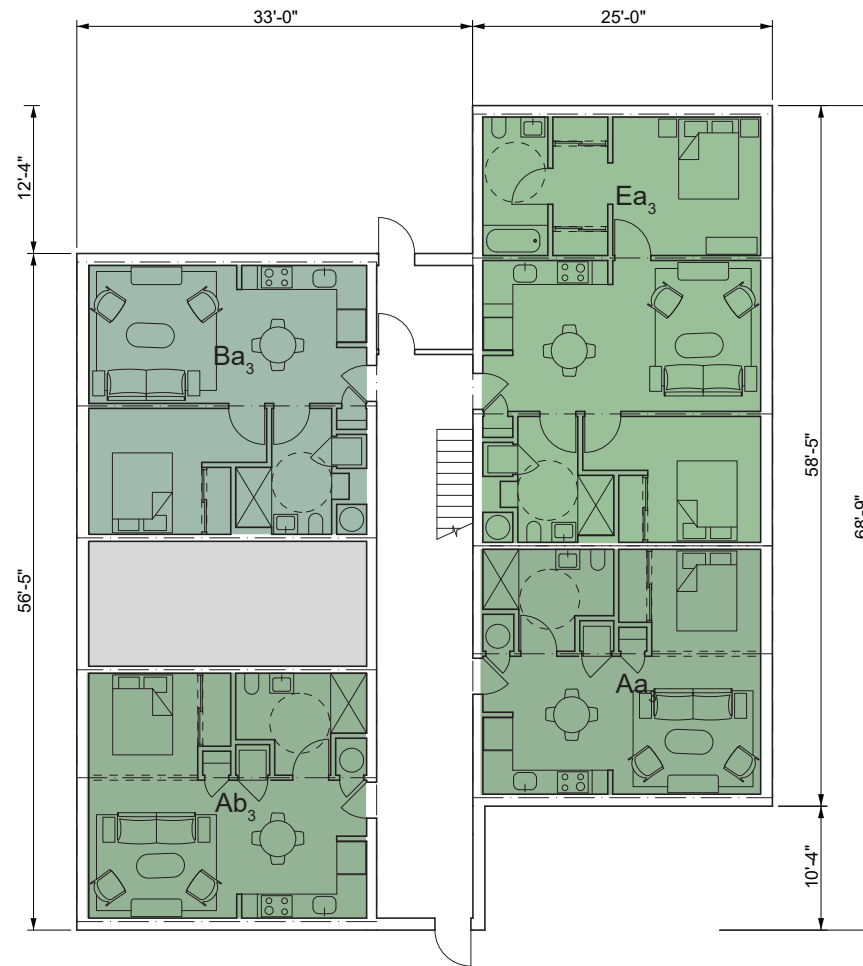


DISCLAIMER: These plans are conceptual only. They have not been subject to a comprehensive code and regulatory review, nor have they been tested against any as-built surveys. Discoveries in such an analysis may result in fundamental changes to the original concept.

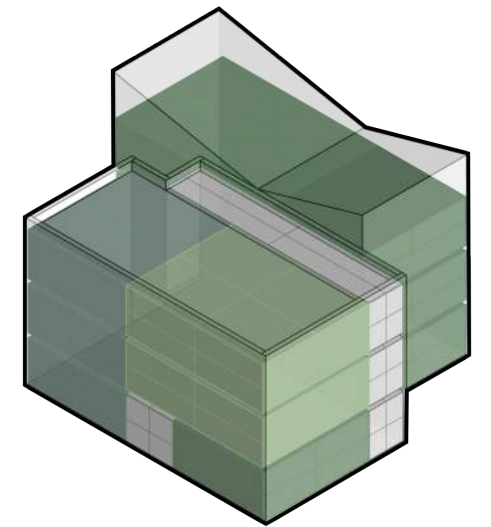




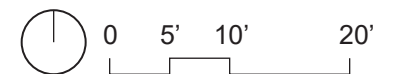
TYPICAL FLOOR
3,278 GSF



GROUND FLOOR
3,334 GSF



DISCLAIMER: These plans are conceptual only. They have not been subject to a comprehensive code and regulatory review, nor have they been tested against any as-built surveys. Discoveries in such an analysis may result in fundamental changes to the original concept.



Architecture
& Planning

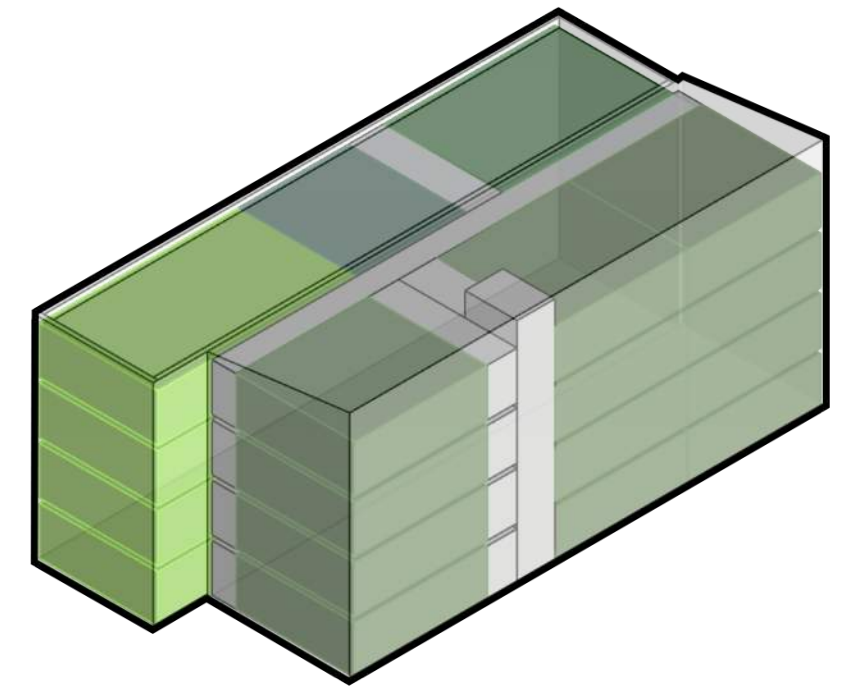
utile



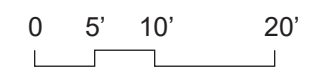
TYPICAL FLOOR
5,705 GSF

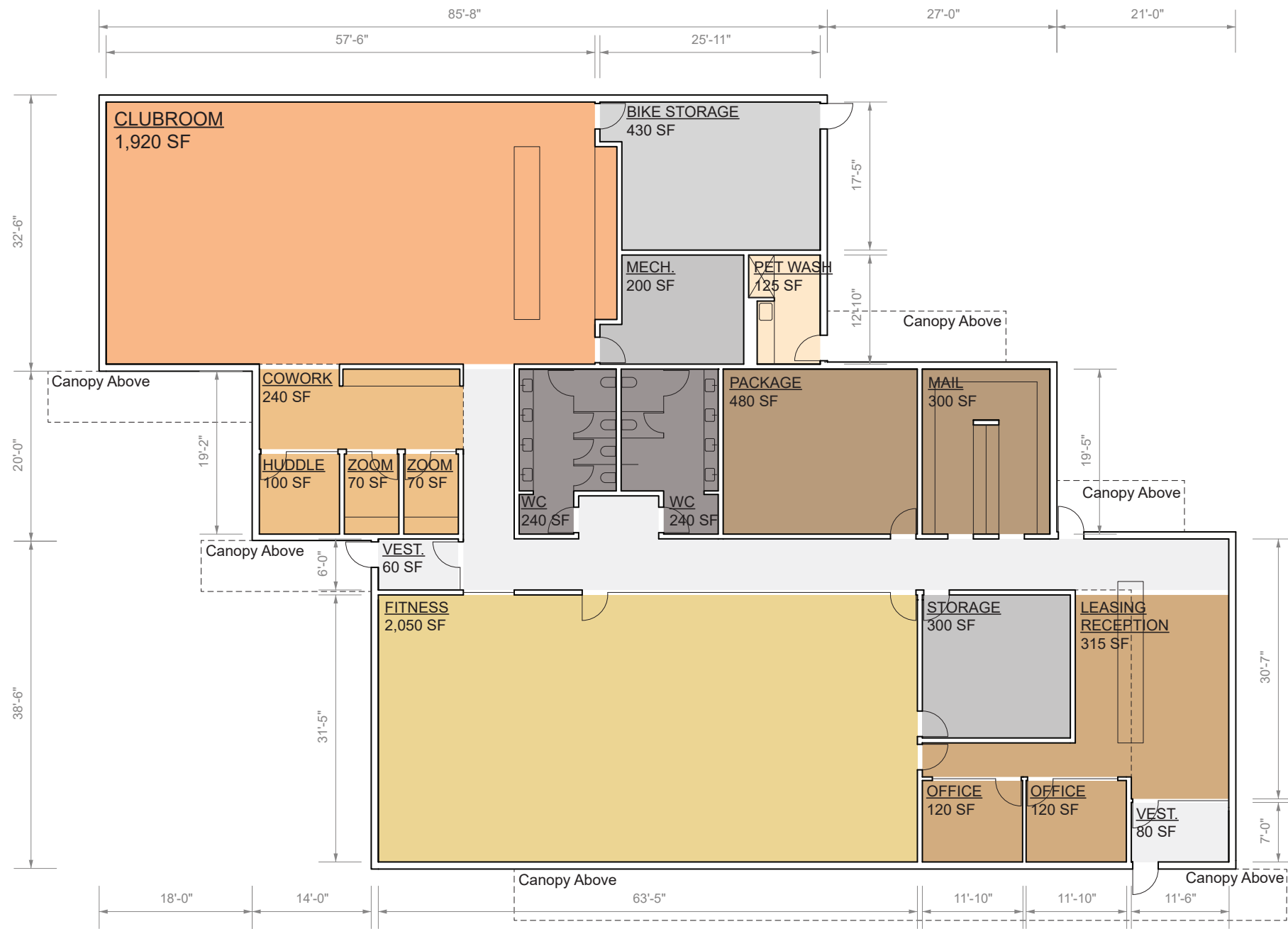


GROUND FLOOR
5,729 GSF

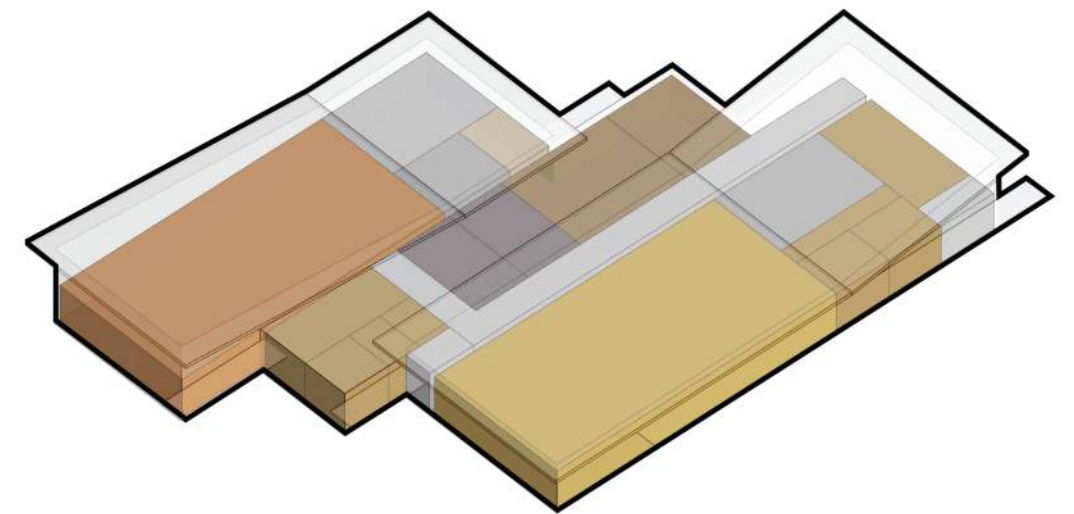


DISCLAIMER: These plans are conceptual only. They have not been subject to a comprehensive code and regulatory review, nor have they been tested against any as-built surveys. Discoveries in such an analysis may result in fundamental changes to the original concept.

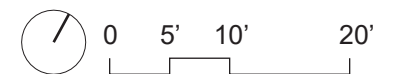




GROUND FLOOR PLAN
8,350 GSF



DISCLAIMER: These plans are conceptual only. They have not been subject to a comprehensive code and regulatory review, nor have they been tested against any as-built surveys. Discoveries in such an analysis may result in fundamental changes to the original concept.



Architecture
& Planning

utile