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 **April 5, 2022**

AGENDA

I. APPROVAL OF MINUTES

A. Approval of minutes from the March 1, 2022 Site Plan Review Technical Advisory Committee Meeting.

II. OLD BUSINESS

A. REQUEST TO POSTPONE The application of **Banfield Realty, LLC, (Owner)**, for property located at **375 Banfield Road** requesting Site Plan review approval to demolish two existing commercial buildings and an existing shed and construct a 75,000 s.f. industrial warehouse building with 75 parking spaces as well as associated paving, stormwater management, lighting, utilities and landscaping. Said property is shown on Assessor Map 266 Lot 7 and lies within the Industrial (I) District. (LU-20-259) **REQUEST TO POSTPONE**

B. The request of **The Sagamore Group, LLC, (Owner)** for properties located at **1169 Sagamore Avenue and 1171 Sagamore Avenue** requesting Site Plan Review approval for the demolition of 3 existing principal structures (3 single family units) and 3 existing accessory structures to be replaced with 6 single family structures and 2 2 family structures to total 10 living units and 22 parking spaces where 15 is required. Said properties are shown on Assessor Map 224 Lot 14 and Assessor Map 224 Lot 15 and lie within the Mixed Residential Office (MRO) District. (LU-21-167)

C. The request of **Elizabeth B. Larsen Trust of 2012 (Owner),** for property located at **668 Middle Street** requesting Site Plan Review approval for the construction of two two-unit structures and improvement to the existing structures to create a total of eight units on three lots with associated utilities, connections and site improvements. Said property is shown on Assessor Map 147 Lot 18 and lies within the Historic and General Residence A (GRA) Districts. (LU-21-23)

D. Request of **Mastoran Restaurants Inc. (Owner) and Granite State Convenience (Applicant),** for property located at **2255 Lafayette Road** requesting Site Plan review and Conditional Use Approval for use 19.40 under Section 10.440 to allow a drive-thru facility as an accessory use to a permitted principal use in the Gateway Corridor Zone. Said property is shown on Assessor Map 272 Lot 3 and lies within the Gateway Corridor (G1) District. (LU-22-13)

E. Request of **ADL 325 Little Harbor Road Trust (Owner),** for property located at **325 Little Harbor Rd** requesting Wetland Conditional Use Permit under Section 10.1017 of the Zoning Ordinance to replace the existing single family structure, carriage house, shed, barn, and paddock; construct a garage, pool, pool cabana playground; and renovate the existing barn and shed with all associated electric, gas, water, and sewer updates as required on private property and within the public right of way. Said property is shown on Assessor Map 205 Lot 2 and is located within the Rural (R) and Single Residence A (SRA) Districts. (LU-22-23)

III. NEW BUSINESS

A. Request of **HCA Realty Inc. (Owner),** and **Portsmouth Regional Hospital (Applicant),** for property located at **0 Borthwick Avenue** requesting Site Plan Review Approval for the construction of a satellite parking lot consisting of 520 spaces and associated sit improvements to support the existing hospital facilities currently serviced by 783 parking spaces. Said property is shown on Assessor Map 234 Lot7-4A and is located in the Office Research (OR) District. (LU-22-47)

B. The application of **2422 Lafayette Road Associates, LLC (Owner),** and **Waterstone Properties Group Inc. (Applicant),** for property located at **2454 Lafayette Road** requesting Amended Site Plan Review Approval for the alteration of the commercial pad and sidewalk, rerouting the existing sewer line, relocation of bicycle racks, and the expansion of Unit 9 from an existing footprint of 1,833 s.f. to 3,650 s.f +/- and to then divide the space into two units equaling 1,155 s.f. +/- and 2,400 s.f. +/-. Said property is shown on Assessor Map 273 Lot 3 and lies within the Gateway Corridor (G1) District. (LU-22-46)

IV. OTHER BUSINESS

V. ADJOURNMENT

https://us06web.zoom.us/webinar/register/WN_EsAUUTr0RV6Ce8FQlLtswA

SITE PLAN REVIEW TECHNICAL ADVISORY COMMITTEE
PORTSMOUTH, NEW HAMPSHIRE

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

2:00 PM **March 1, 2022**

MINUTES

MEMBERS PRESENT:

Peter Stith, Chairperson, Principle Planner; David Desfosses, Construction Technician Supervisor; Patrick Howe, Deputy Fire Chief; Nicholas Cracknell, Principal Planner; Shanti Wolph, Chief Building Inspector; Peter Britz, Environmental Planner; Zachary Cronin, Assistant City Engineer; Beverly M. Zendt, Planning Director; Eric Eby, Parking and Transportation Engineer

MEMBERS ABSENT: Darrin Sargent, Police Captain;

ADDITIONAL STAFF PRESENT: Stefanie Casella, Planner 1

I. APPROVAL OF MINUTES

A. Approval of minutes from the January 4, 2021 and the February 1, 2022 Site Plan Review Technical Advisory Committee Meetings.

Mr. Howe moved the minutes from the January 4, 2021, Site Plan Review Technical Advisory Committee Meeting, seconded by Mr. Britz. The motion passed unanimously.

Ms. Zendt moved the minutes from the February 1, 2022, Site Plan Review Technical Advisory Committee Meeting, seconded by Mr. Cronin.

Mr. Britz abstained from voting because he was not present for the February meeting.

The motion passed unanimously.

II. OLD BUSINESS

A. REQUEST TO POSTPONE The application of **Banfield Realty, LLC, (Owner)**, for property located at **375 Banfield Road** requesting Site Plan review approval to demolish two existing commercial buildings and an existing shed and construct a 75,000 s.f. industrial warehouse building with 75 parking spaces as well as associated paving, stormwater management, lighting, utilities and landscaping. Said property is shown on Assessor Map 266 Lot 7 and lies within the Industrial (I) District. (LU-20-259)

REQUEST TO POSTPONE

DISCUSSION AND DECISION OF THE BOARD

Mr. Stith noted that this would be postponed to the April 5, 2022, Technical Advisory Meeting.

B. REQUEST TO POSTPONE The request of **The Sagamore Group, LLC, (Owner)** for properties located at **1169 Sagamore Avenue and 1171 Sagamore Avenue** requesting Site Plan Review approval for the demolition of 3 existing principal structures (3 single family units) and 3 existing accessory structures to be replaced with 6 single family structures and 2 2 family structures to total 10 living units and 22 parking spaces where 15 is required. Said properties are shown on Assessor Map 224 Lot 14 and Assessor Map 224 Lot 15 and lie within the Mixed Residential Office (MRO) District. (LU-21-167)
REQUEST TO POSTPONE

DISCUSSION AND DECISION OF THE BOARD

Mr. Stith noted that this would be postponed to the April 5, 2022, Technical Advisory Meeting.

C. The request of **Elizabeth B. Larsen Trust of 2012 (Owner),** for property located at **668 Middle Street** requesting Site Plan Review approval for the construction of two two-unit structures and improvement to the existing structures to create a total of eight units on three lots with associated utilities, connections and site improvements. Said property is shown on Assessor Map 147 Lot 18 and lies within the Historic and General Residence A (GRA) Districts. (LU-21-23)

SPEAKING TO THE APPLICATION

Joe Coranati and Mike Garappey spoke to the application. Mr. Coranati commented that they had received the comments from Staff and they did not have too many questions. The feedback was pretty specific feedback, and they did not have any issues with completing the tasks.

TAC Comments:

1. Mill and Overlay on Chevrolet Ave needs to be 1.5" thick to match thickness of existing pavement

2. MSDOS structure to enter existing pipe via insert a tee, not DMH

3. Crown in driveway should dissipate as it approaches Chevrolet Ave so that all water reaches rain garden. Remove curb and put sidewalk if required on the uphill side so the stormwater can actually get into the stormwater pond.

4. TBM is still in wrong datum.

    a. Mr. Coranati responded that they switched it all to the vertical 88. Mr. Desfosses confirmed that was correct. They need to be converted on the plan too. Mr. Coranati confirmed that would be updated.

5. Please change Coordinate system to State Plane NAD83.

6. The proposed ROW easement is larger than necessary and should not include the rain garden. 5' off edge of pavement is sufficient. Please make sure no part of the rain garden is in the easement.

7. Rework of the existing invert inside SMH 2395 will be required to allow the new pipe to enter at the proposed elevation required to cross the existing drain. Installer to work with Portsmouth DPW to make connections to their satisfaction.

8. The sewer profile should include the private portion.

9. Keep the City portion of the sewer main under the roadway.

10. 2" water lines don't use gate valves. Please relocate main shutoff on 2" line to the driveway apron. 2" waterlines don't use thrust blocks as the pipe bends, there are usually no fittings. It must be clear that the common 2" water line is owned in common between both lots.

11. If CTS pipe is being proposed for water services, tracing wires need to be installed to DPW standards.

12. There is landscaping proposed along Chevrolet Ave that would block sight distance. Please remove from the plan.

13. The hydrant detail shown is not correct for a blow off hydrant.

14. An agreement with Portsmouth water will be required for water system flushing

15. An easement in the private ROW area will be required for valve access and leak detection.

16. Acquiring the portion of the easement in the portion off site is required for approval.

17. The carriage house structure must be a condo in the remaining mother parcel in order to allow it to have a separate water service.

    a. Mr. Coranati responded that it would be a condo. The carriage house would be one condo and the front building would be a second condo. They are labeled on the plan as A and B. Mr. Cronin questioned if they were apartments or condos. Mr. Garrapey responded that the front building would be 3 apartments. That whole building would be one condo unit. The carriage house would be a single-family residence and another condo unit. They will be land condominiums. Mr. Wholph clarified that there would be two separate owners for buildings A and B who would then rent their units in the buildings. It is subdivided for condos that have multiple units in them. Mr. Desfosses clarified that the individual units could not be sold as condos. That should be in the condo documents. Mr. Garrapey confirmed that was correct. One entity will own the building and rent the units. Mr. Cronin clarified that the back building only had one dwelling. Mr. Garappey confirmed that was correct.

18. Please provide architectural plans and all associated data as identified on application checklist.
    a. Mr. Garappey commented that they could provide that as part of the submittal package. They can resubmit and upload them.
    b. Ms. Zendt commented that they just want to make sure there is enough lot area for the units. Mr. Stith confirmed there was enough lot area post subdivision for the existing units. Mr. Coranati added that they went to the ZBA as well.

19. Please Identify where the proposed snow storage will be located.

20. Please correct address on the Drainage Analysis Sediment and Erosion Control Plan.

21. Please update checklist throughout process to properly identify where information is in application and planset.

Mr. Coranati confirmed they could make the changes to the plans based on these comments.

Mr. Cracknell commented that he did not have any additional comments but would need to look at the elevations again from previous submissions. Mr. Coranati responded that they could send it again, but the elevations had not changed. Mr. Cracknell noted that the elevations need to be included in the plan set going forward. Mr. Coranati confirmed they could be included.

Ms. Zendt questioned what the status of the subdivision was. Mr. Garappey responded that it was recommended by TAC that they wait for site plan, so they go together.

Mr. Desfosses requested information on the off-site deed that was part of the plan. Mr. Garappey responded that all of the easement documents were being drafted by legal. They can submit them as part of the application if that is needed. They are agreeable to grant the easements. The off-site one is also underway. They are working with the abutter on the shared driveway easement. Ms. Zendt questioned if the Committee wanted to see this again prior to going to the Planning Board. Mr. Desfosses noted that the easements should be on the subdivision plan. Mr. Garappey confirmed that would be updated. This plan will clean the whole area up. They are anticipating the off-site abutter will be agreeable to granting the Chevrolet Ave. easement as well. They will provide the documents. The two adjacent lots on Chevrolet Ave. are currently vacant. They subdivided part of Chevrolet Ave. travel way that encroaches onto both lots. Everyone is agreeable to granting the easements.

Mr. Cronin questioned if the existing sewer in the off-site easement would be removed or abandoned when the new sewer went in. Mr. Coranati responded that they would be installing a new service to the carriage house which will come off the main sewer extension. Mr. Desfosses questioned if they were replacing the sewer way in the back because of the grades. Mr. Coranati responded that it was a good time to replace it because they were moving pavement. Mr. Desfosses commented that it may be failing. Mr. Coranati responded that they were not sure of the condition. They did test pits to find the sewer service to the manhole but not how rides to the house. Mr. Cronin noted that the plan says the sewer would be abandoned in one place in the plan and removed in another place. It should be consistent.

Mr. Desfosses commented that they should see the plan set with all the changes before it goes to the Planning Board. Mr. Garappey confirmed they could submit their plan and come back to TAC or have them do an administrative review. Mr. Britz noted that they should come back here. Mr. Garappey commented that the easements they include may just be drafts because they won't be finalized until after they get approval. They will submit everything before the next TAC deadline.

Mr. Desfosses questioned if there would be basements for these units or not. Mr. Garappey responded that they have had some discussions with the builder about foundation drains. Mr. Wolph noted that may be an option to design a waterproof foundation that would remove the water from the foundation itself. That would be acceptable, but they need to show how that would happen. Mr. Desfosses agreed that they would need to see the detail for that.

PUBLIC HEARING

The Chair asked if anyone else was present from the public wishing to speak to, for, or against the application. Seeing no one else rise, the Chair closed the public hearing.

DISCUSSION AND DECISION OF THE BOARD

Mr. Desfosses commented that they need to make sure the proposal is complete before it goes to Planning Board. Ms. Zendt noted that off site easements can be tricky. It has been best practice to get them to know it's a viable project, but she noted she would defer to the Committee on what they want to do. Mr. Britz commented that it would be good to have at least a draft. The foundations could affect the drainage and water. Mr. Garappey commented that he would prefer to have complete TAC sign off before going to the Planning Board, so they would rather come back. They do have prescriptive rights to access the manhole, so they don't necessarily need the off-site easement. Mr. Desfosses noted that they were expanding it, so he was not sure he agreed. Mr. Garappey noted that the abutters were willing to work with them and the City to clean this up.

Mr. Britz moved to continue this application to the April 5, 2022 TAC Meeting, seconded by Mr. Desfosses. The motion passed unanimously.

III. NEW BUSINESS

A. Request of **Mastoran Restaurants Inc. (Owner) and Granite State Convenience (Applicant),** for property located at **2255 Lafayette Road** requesting Site Plan review and Conditional Use Approval for use 19.40 under Section 10.440 to allow a drive-thru facility as an accessory use to a permitted principal use in the Gateway Corridor Zone. Said property is shown on Assessor Map 272 Lot 3 and lies within the Gateway Corridor (G1) District.

SPEAKING TO THE APPLICATION

Chris Mulligan, Nicole Doucette and Brett Pernaw spoke to the application. Mr. Mulligan commented that they have gotten a few variances in the past month and Ms. Doucette would address the TAC comments.

Ms. Doucette noted that overall, they were fine with the majority of the comments.

TAC Comments:

1. The OCS HDPE flow control tee outlet structure should have at least 3 SS straps holding it. Also, there should be no or virtually no sump in that assembly as the concrete structure itself has sufficient sump and it could keep animals from drowning. The OCS detail shows a 24" opening in the concrete top for a 32" manhole cover. The opining should be 30" for entry like a standard manhole, not 24". You should specify the distance required from the open top of the tee to the

underside of the manhole top to ensure enough flow can enter the tee in peak flow conditions.

2. The two bollards in front of the Handicapped unloading area don't look like they are spaced out enough to safely pass.

3. Please show the multi-use path with shading so we can see it clearly, confirm it is in the 15' DOT widening easement, and confirm that there are no physical obstructions in the way. Please confirm it will be graded at no more than 1.6% cross pitch and that it extends from property line to property line.

    a. Ms. Doucette commented that DOT said it was 12 feet. Mr. Desfosses confirmed it was 12 feet.

4. Televise and provide video of existing sewer to DPW for review/approve for adequacy for reuse.
    a. Ms. Doucette confirmed they would set that up. Mr. Desfosses noted that they needed to see that before it goes to the Planning Board. If they have to replace the sewer line, then they will need to see those plans.

5. Water shut off to be inside of a gate valve box if the shut off is located in the paved area.

6. Existing water line will need to be abandoned at the main prior to demolition if it is not being reused. Existing service is 1.25" copper. CTS water service will need tracing wire installed, contact Water Dept. for information.

7. Stormwater maintenance plan will be required.

    a. Ms. Doucette responded that it should be at the end of the storm water report but will double check.

8. Multi use path cross section detailing needs to be provided for approval. 2.5" thick asphalt on 8" of crushed gravel base.
    a. Ms. Doucette questioned if they were required to install that path. Mr. Desfosses confirmed that they were.

9. What are the plans for the "future EV charging station"?
    a. Ms. Doucette responded that the "future EV charging station" was on the plan, so that if it is added in the future they would not need to come back. This one is a little further along in the process than other sites. They are already talking to Tesla. One question Tesla had was if they could increase the number of spaces. They are coordinating with the electric company and Tesla on the future charging equipment area. They may put it out closer to the dumpster, so it will be further away from the buffer.

That will be dependent on feedback from Eversource about the transformer locations.

10. A Conditional Use Permit will be needed for the drive-through.

11. A Wetland Conditional Use Permit will be needed for the impacts to the buffer area.

    a. Ms. Doucette responded that both CUPs have been submitted in the packet. They went to the ZBA and got variances. They did receive a variance for having more than one driveway, but it was unclear if they also need a waiver. It is listed on the plans, but was not include it in this packet.

12. Please provide variance info on the plan set.

Mr. Britz questioned if they were going to add another charging area. Ms. Doucette responded that they were just adding one parking space. The future EV charging station equipment area would be moved near the dumpster out of the buffer and one more space would be added for charging.

Mr. Pernaw commented that Tesla and Chargepoint are both involved, and they were waiting for state funding. Mr. Britz questioned if they were working with Eversource. Ms. Doucette confirmed that they were to determine how many transformers were needed. It will most likely be two.

Mr. Howe commented that he did not see the fire suppression line on the plan. Mr. Pernaw responded that the fire suppression at the gas area would be a dry component. The building is not sprinkled. Mr. Howe commented that sprinklers were required if the building was over 5,000 square feet.

Mr. Wolph questioned what would be on the second story level. Mr. Pernaw responded that the deck would have mechanical equipment on it. Mr. Wolph responded that they would need to consider that during inspection if cars were driving under the mechanical equipment. Mr. Pernaw clarified that the equipment was on the actual roof. The rest of the canopy over the gas area was just for rain cover.

Mr. Eby questioned if there was a handicap space in the future charging area. Ms. Doucette responded that some states have been requiring at least one charging station be ADA accessible Therefore, they are including an ADA space. The charging station panel is ADA accessible. Mr. Eby commented that they should not have a crosswalk that leads into a parking space. Ms. Doucette responded that they could remove that.

Mr. Cracknell commented that they should create a connector between the multi-use path and the front of the building. They could put it down the left-hand side of the proposed exit driveway then create a crosswalk across the drive to the sidewalk on Lafayette Rd.

PUBLIC HEARING

The Chair asked if anyone else was present from the public wishing to speak to, for, or against the application. Seeing no one else rise, the Chair closed the public hearing.

DISCUSSION AND DECISION OF THE BOARD

Mr. Howe moved to continue this application to the April 5, 2022 TAC Meeting, seconded by Mr. Wolph. The motion passed unanimously.

B. Request of **ADL 325 Little Harbor Road Trust (Owner),** for property located at **325 Little Harbor Rd** requesting Wetland Conditional Use Permit under Section 10.1017 of the Zoning Ordinance to replace the existing single family structure, carriage house, shed, barn, and paddock; construct a garage, pool, pool cabana playground; and renovate the existing barn and shed with all associated electric, gas, water, and sewer updates as required on private property and within the public right of way. Said property is shown on Assessor Map 205 Lot 2 and is located within the Rural (R) and Single Residence A (SRA) Districts.

SPEAKING TO THE APPLICATION

Corey Colwell and Hannah Giovannucci from TF Moran, Bernie Lee, owner Anthony DiLorenzo and Jim Youngblood from Youngblood Builders spoke to the application. Ms. Giovannucci commented that they currently have a CUP from the Planning Board for a DADU. They are hoping to present the wetland CUP at the March 9, 2022, Conservation Commission Meeting and the March 17, 2022, Planning Board Meeting. They are here at the request of the Planning Department because of the complexity of the plan and the potential to impact a number of public ways. They are proposing water going through a half mile of driveway and half mile of Sagamore Ave. It will be a 4-inch C900 PVC pipe underground. They are coordinating gas with Unitil and electric is being coordinated with Eversource and Comcast. They are proposing a gravity sewer going from the island and then a pump force main to Sagamore Ave.

TAC Comments:

1. 1½" Diameter force main is the minimum the City will recommend.
    a. Ms. Giovannucci commented that they were proposing a 1.25" because of the suggestion of the designer. Anything bigger could retain water. Mr. Desfosses noted that the tools they use to clean the pipes are for 1.5". Ms. Giovannucci questioned if they could do a 1.25" to the right of way. Then join it to a 1.5". Mr. Desfosses commented that he has been told they cannot clean smaller than 1.5". The details of why were beyond his expertise to answer so they would need to discuss offline.

2. Permission for sewer connection is conditional on sufficient flow that the contents of the main do not turn septic and cause off site issues for the COP. If the service becomes problematic, a septic system on site will need to be constructed.
    a. Ms. Giovannucci agreed.

3. There can be no meter pits on the water main. The main must go directly into the principle structure for metering.
    a. Ms. Giovannucci confirmed they would do that. They are considering going into the garage. Mr. Desfosses commented that as long as it was a full-time heated pool, then that would work.

4. If chlorine injection is required, it will be inside the principle structure after the backflow device.
    a. Ms. Giovannucci responded that the purpose of that was to flush out the line when construction was complete.
5. Reclamation and replacement of the new binder on Little Harbour Road will be complete to DPW standards. Permanent repairs in Sagamore Ave will need to be approved by the DPW and will include milling and repaving the disturbed areas.
    a. Ms. Giovannucci agreed.

6. The existing water service needs to be abandoned at the main
    a. Ms. Giovannucci commented that they think there is another line that goes to 321. The hope is to keep that service and then stub and abandon from there.

7. The current layout of the force main crosses the permeable pavement parking area. Instead, continue up Little Harbour Road until approximately the stop sign. Install new manhole at this location and then flow gravity into the city sewer with a wye connection.
    a. Ms. Giovannucci confirmed they would do that.

8. A clean out manhole will be required for the sewer every 1000’ of force main so it can be cleaned with a 500’ hose assembly. The manhole must be able to flush the main in both directions.
    a. Ms. Giovannucci confirmed that would be updated.
9. An 8” gravity line may be oversized and cause clogging issues. Consider moving the pump chamber closer to the last sewer connection point. Consider using 6” pipe with greater slope.
    a. Ms. Giovannucci responded that the reason they did an 8 inch was because they could do it a little bit shallower. Mr. Desfosses commented that the concern was there would not be enough flow and it will clog. Mr. Colwell responded that this was not an ordinary house. They will have plenty of water in the line.

10. Abandon existing water in place unless required by other permits or authority
    a. Ms. Giovannucci confirmed that they would.

11. The applicant will need a license from the City for the private mains and primary voltage electricity in Little Harbour Road and Sagamore Avenues.
    a. Ms. Giovannucci confirmed that they would do that.

12. Leak detection and metering easement will be required.
    a. Ms. Giovannucci agreed.

13. 2.5" water lines are not allowed. Use standard sizes.
    a. Mr. Desfosses commented that if the line breaks, then they will not find a replacement part. They should use a standard size. Mr. Lee confirmed they would move to a 3" line.

Mr. DiLorenzo questioned if they only had tools to clean a 1.5" pipe. Mr. Desfosses responded that was the standard. Ms. Giovannucci confirmed they would discuss it further.

Ms. Giovannucci questioned if they should put the clean out in right of way or in the private driveway. Mr. Desfosses responded that they were going to need a license for it.

Mr. Lee commented that they were planning to run a 4-inch water pipe up into the house. Mr. Desfosses questioned if they needed that much water. Mr. Colwell responded that they had extensive irrigation. Mr. Youngblood added that the irrigation consultant originally came back with a 6-inch line recommendation. Then revised it to a 4-inch line. Ms. Giovannucci commented that they would have one meter. Mr. Desfosses responded that they should have a separate irrigation meter. Mr. Colwell confirmed that they would have a 4-inch line going to the garage and then a separate meter for irrigation.

Mr. Howe commented that there has been some resistance to a fire suppression system, but they need to make sure they meet fire prevention to code on the premises. Mr. DiLorenzo noted that the project was approved in 2017. They are asking for another approval because the license expired. The project was delayed because the builder passed away. They are proposing the same house it was just moved 18 feet. Mr. Colwell confirmed it was a similar house in a similar location. Mr. DiLorenzo commented that the only major change was the utilities. The fire department and police department have been to the house a few times. The site is an island surrounded by water. The house is designed to look original and is consistent with Portsmouth. It would be an added expense and design issue if they were forced to add sprinklers. They were not part of the house in 2017. This should not be required because the structure is on the island. They came to TAC for the utilities. This has been through the approval process in 2017. Mr. Howe commented that he could only speak to the application now. The concern is that there's no water out there that is reachable for the trucks. The code is clear about what is required. They cannot not approve inappropriate fire access or lack of water supply by code if there is no fire suppression system. If it is an existing building, then they can't do anything about it.

Mr. Colwell sent email from their attorney saying that NH can't request fire sprinklers. Mr. Howe responded that was semi accurate. They cannot pass an ordinance requiring sprinklers. However, they can enforce state and local code that have other requirements. If the site can meet the access and water supply requirements, then they don't need to put in a suppression system. If

they can't, then a suppression system is needed. Mr. Colwell questioned if putting in an access road that was 20 feet wide and adding a hydrant would satisfy the requirements. Mr. Howe responded that the road needs to be 20 feet wide and have a turnaround. There are grading, weight, and drainage requirements. The remote second fire hydrant is not realistic. They can accept less than if there is a suppression system. Mr. Colwell commented that they could fit a 20-foot-wide drive with turnaround and fire hydrant on the site. Mr. Howe commented that he would need to check the code. The turnaround would need to be on the island. This would not solve any concerns about the fact that it's a private road. The City would not maintain the road. They could potentially be delayed getting out there.

Mr. DiLorenzo commented that the fire department had been there several times and have turned around. There are no other houses around this one. Mr. Howe commented that the fire department still must respond and do a search and rescue because they don't know who's there. The code says it's required unless they can satisfy it in other ways. If they put together a plan with code references, then Mr. Howe would review and discuss it. If there is no fire suppression system, then they will need to make some significant changes to the site. Mr. Colwell commented that it didn't seem so significant. Mr. Howe noted that the fire flow requirements for a house that size was thousands of gallons. They most likely cannot provide that on site. The required flow for a sprinkler is 25 gallons. Ms. Giovannucci questioned if there was a dry sprinkler alternative. Mr. Howe responded that a dry system would not work for a building this size. They are designed for a small room. Mr. Wolph commented that the 13D sprinkler system is discreet. They are not like the commercial ones.

Mr. Lee commented that they could upgrade the water line to 8 inches, put multiple hydrants on the property, and create a turnaround. Mr. Lee questioned if there would still be a concern about it being a private road even if they meet all of the code requirements. Mr. Lee questioned if it was outlined in the code that the road could not be private. Mr. Howe responded that the code required more than one access shall be provided. If there is access for a single road, then it could be impaired. Mr. Colwell responded that the development they just approved last fall on Peverly Hill Rd. had 56 homes and one access point. Mr. Howe responded that those houses were sprinkled. That's the key difference. The sprinkler holds the fire in check until they get there. Mr. Howe did not think putting multiple hydrants in was the solution. The water demand is more than what they can be supply.

PUBLIC HEARING

Lisa Oaks of 315 Little Harbor Rd. questioned if anyone had looked into the historic value of the buildings, specifically the convent and carriage house.

Mr. Colwell responded that they did look at that. The oldest structure on the site is the caretaker house. It was built in the early 1800s or late 1700s. The plan is to restore it. The one-story appendages will be taken off. The barn will be restored. The only structure that is being removed is the house, which was completely gutted and renovated 22 years ago. The carriage house came later and didn't have historical value. The one with real historical significance was the caretaker house.

Ms. Zendt added that there were not a lot of mechanisms to prevent something like that unless the City has adopted certain regulations to monitor that. A lot of historic properties in private hands are subject to the discretion of the property owner.

Mr. Britz added that there was a demolition delay ordinance. The City has a process for it.

Ms. Oaks questioned if the bridge would be reenforced or redone to support the construction vehicles and fire trucks.

Ms. Giovannucci responded that they were using steel plates to reenforce it. They will consider redoing it if needed.

Ms. Oaks questioned who would be paying to replace the pavement Little Harbor Rd. after the new sewer line was installed.

Mr. Colwell responded that they would.

Mr. Howe questioned if the bridge was being rebuilt to HS20 standards. Mr. Lee responded that it would reenforced to HS20 standards. It will handle 75,000 pounds or a 10-wheel vehicle now. They will ensure it can handle an HS20 load. Mr. Howe questioned if it was a temporary reinforcement. Mr. Lee responded that it was a temporary repair to upgrade the bridge. Ms. Giovannucci clarified that it would be a permanent reinforcement. Mr. Youngblood added that they found the engineer from the early 2000s who was inspecting the bridge every 5 years. The long-term plan will probably be to replace the bridge, but for now they are doing a reinforcement.

The Chair asked if anyone else was present from the public wishing to speak to, for, or against the application. Seeing no one else rise, the Chair closed the public hearing.

DISCUSSION AND DECISION OF THE BOARD

Mr. Desfosses moved to continue this application to the April 5, 2022, TAC Meeting, seconded by Mr. Cronin. The motion passed unanimously.

IV. ADJOURNMENT

Mr. Desfosses moved to adjourn the meeting at 3:35 p.m., seconded by Mr. Britz. The motion passed unanimously.

Respectfully submitted,

Becky Frey
Secretary for the Technical Advisory Committee

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
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March 22, 2022

Peter Stith, Principal Planner
Planning Department
1 Junkins Avenue, Suite 3rd Floor
Portsmouth, NH 03801

RE: Response Letter 5 – Altus Engineering & Technical Advisory Committee
1169 and 1171 Sagamore Ave, Portsmouth, NH
Tax Map 224, Lots 14 & 15
JBE Project No. 21047

Dear Mr. Stith,

We are in receipt of comments from Eric Weinrieb, P.E., Altus Engineering dated February 24, 2022, and from the Portsmouth Technical Advisory Committee, dated February 28, 2022. Review comments are listed below with our responses in bold. Additionally, the architect Mick Khavari met with Principal Planner Nick Cracknell on March 16th, 2022. The two discussed a strategy of relocating what was previously building mass at the rear of the units to the front of the units in order to allow for both increased yards at the rear, and a set-back garage condition at the fronts. Revised building footprints and architectural plans for all 10 units are included with this resubmission.

GRADING AND DRAINAGE PLAN:

5. *The Designer is proposing to mitigate the impacts from the roofs by discharging into crushed stone infiltration beds. Altus believes that this is an acceptable design approach. However, the Designer has not provided roof plans indicating where the runoff will discharge. It will be critical that the crushed stone infiltration basins are constructed according to the plans and that the roof areas each discharge to the appropriate area. Deviations during construction could have substantial impact on the rate and volume of runoff that discharges from the site. Issue partially addressed. Stone drip edges have been eliminated and replaced with underground stone infiltration beds. See additional comments below.*
   RESPONSE: See responses to comments below.

ii. *The outlet pipe for catch basin 1 in Sagamore Avenue will have less than 2- feet of cover. The Designer needs to confirm that NHDOT finds that acceptable. Issue partially addressed. Cover over pipe increased to 2.3-feet. NHDOT will still need to confirm that this is acceptable.*
   RESPONSE: This has been submitted to NHDOT for review.

iii. *The Designer is now proposing an underground concrete galley stormwater storage/infiltration system. Based on the two test pits provided, the approach seems viable. However, the ledge profile is variable. The Designer needs to provide assurance that there will be at least 2-feet of natural soil below the crushed stone base or that ledge will be removed and replaced with granular material. Open issue.*

RESPONSE: Our previous response to this comment per the 1/20/2022 response letter was to add Note #9 to the Shea Concrete Products Galley detail on Sheet D6 specifying that ledge shall be removed to an elevation at least 2 feet below the bottom of the stone base and replaced with granular material. When this became a repeat comment, we reached out via email and in response Altus informed us on 3/15/22 that it is acceptable to require a percentage of the surface area to not require ledge removal within 2' of the bottom of the crushed stone base (i.e. have 2' of natural soil below the system).

Based on this response, we believe we satisfy the intent of this comment with the design as-is. There are two test pits in or nearby the footprint of the Galley chamber: B1 and B2, where we have been basing our design to this point exclusively on B2 (and are continuing to do so) as it provides the more limiting results.

Test pit B1 was performed at an elevation of 34.1 and indicates a depth to ledge of 84", while test pit B2 was performed at an elevation of 34.9 and indicates a depth to ledge of 65". Therefore, the elevation at which ledge is encountered slopes roughly from 29.48 to 27.1 along the line between the two test pits. The highest existing ground contour in the footprint of the system is at elevation 35, so assuming that the ledge profile at that location is governed by test pit B2, ledge is at an elevation of 29.58 at this point.

The bottom of the stone base is 3' below the chambers at an elevation of 30.9 as it was determined that this is the depth of stone necessary to optimize storage and infiltration. Two feet below the bottom of the stone base is elevation 28.9. The elevation of ledge approximately varies from 27.1 to 29.58 throughout the system and the existing slope of the ground is more or less consistent diagonally across the proposed system footprint. Blasting of ledge in order to achieve at least 2' of natural soil below the stone base is only necessary underneath approximately 43% of the system. Underneath the remaining 57% ± of the system, there is 2' of natural soil between the proposed stone base elevation and the elevation of ledge. See profile depicting this on Sheet D6.

v. *The Designer needs to check the drainage run from Yard Drain 4 to Catch Basin 2 (on-site) for conflicts. Open issue. Water, sewer, and drainage lines all run close to each other. The Designer should provide sewer and storm drain profiles to confirm that there are no conflicts.*

RESPONSE: Crossing between drainage run from Yard Drain 4 to CB 2 & sewer service to Unit 4: Invert of 8" HDPE drain pipe = 36.37, top of sewer pipe = 33.95 assuming 5' of cover over a sewer lateral per detail. (2.42' separation provided)

Crossing of drainage run from Yard Drain 4 to CB 2 & water service to Unit 4: Invert of 8" HDPE drain pipe = 36.26, top of water service = 33.9 with 5' min. cover. (2.36' separation provided)
Crossing of 8" HDPE drainage run from Yard Drain 4 to CB 2 & 12" HDPE drainage run from Galley chamber to DMH 2: Invert of 8" HDPE = 36.15 (thus bottom of outside diameter = 36.10), Invert of 12" HDPE = 34.76 so top of 12" HDPE with 14.45" outside diameter and 12.15" inside diameter = 35.87

So, there is approximately 3" vertical separation between the two drain pipes where they cross.

vi. *The Design now provides for a culvert discharging from the State right-of way onto private property. The proposed development will need to provide the State with an easement to maintain the culvert. Open issue. Approval from NHDOT is required.*
RESPONSE: This has been submitted to NHDOT for review.

vii. *A stone infiltration bed is proposed between Buildings 3 and 4. The Designer needs to provide test pits demonstrating that subsurface conditions support the proposed design. There is a ledge outcrop adjacent to the bed. Open issue. There is a ledge outcrop within 1-foot of the infiltration practice. The Designer has not demonstrated that infiltration will occur. It is unclear as to what happens to the runoff as it encounters ledge*
RESPONSE: The proposed infiltration practice has been moved closer to Unit 4 and further from the ledge outcrop.

This infiltration practice was designed based off Test Pit X7, where ledge was found 65" below ground at elevation 34.0, so the top of ledge is at elevation 28.58. The bottom of the system is proposed at elevation 31.8, providing 3.22' of natural soil beneath the system. Note #9 on the house roof infiltration detail on Sheet D6 indicates additionally that ledge shall be removed to at least 2' below the bottom of the infiltration practice, if it is found at any point to have less than 2' separation, but based on our available test pit data it should be feasible to have at least 2' of natural soil below the system.

viii. *A stone infiltration bed is proposed behind Buildings 1 and 2 which is adjacent to the wetland. The bottom of the practice is below the grade of the wetland. The Designer needs to provide test pits demonstrating that subsurface conditions support the proposed design. Open issue. The Designer needs to amend the design to eliminate the potential for the runoff from entering the adjacent perimeter drains.*
RESPONSE: The Units are no longer proposed to have basements, therefore there will not be perimeter drains.

x. *The sidewalk construction detail indicates that the surface will pitch towards the street. The proposed grading indicates that the sidewalk will drain away from the street. The Design needs to confirm which is correct. Plans now indicate that the runoff will pitch away from the street. The City should weigh in as to whether or not they want the runoff to be treated in the catch basins or not. Issue partially addressed.*
RESPONSE: We will discuss with the city at the TAC meeting.

xi. *At grade stone infiltration beds are proposed under the decks for Buildings 1 through 4. The Designer needs to provide test pits demonstrating that subsurface conditions support the proposed design. There is a ledge outcrop at Building 3 where this practice is proposed. Open issue. Infiltration is still proposed over a ledge outcrop.*
RESPONSE: The infiltration practices underneath the decks have been removed from the design.

OFFSITE IMPROVEMENTS PLAN:

9. *A raised sidewalk is proposed along the westerly side of Sagamore Avenue from the site driveway to "Sea Star Drive." Installing curbing alters the drainage pattern along the roadway. The Designer is proposing to install a tip down to allow untreated runoff to discharge across the sidewalk into the small, isolated wetland at the northeast corner of the site. Altus believes that the tip down will have concentrated runoff that could create an icing issue during the winter months and erosion at the down slope edge of the sidewalk. Altus recommends that a catch basin with a deep sump be installed to pretreat the runoff and to minimize issues at the tip down. Issue partially addressed. The Design needs to be reviewed and approved by NHDOT District 6.*
RESPONSE: This has been submitted to NHDOT for review

UTILITY PLAN:

i. *The Designer has the water, drainage and sewer pipes all crossing approximately 15-feet west of SMH #1. The Designer should consider alternate layouts to reduce the potential for conflicts. Open issue.*
RESPONSE: The sewer service for Unit #1 and the underground electric line have been moved to reduce conflicts.

LANDSCAPE PLAN:

12. *Section 6.6.1 requires that side slopes for all landscaped areas shall not exceed 3 to 1 slope. The landscape buffer behind Building units 5 and 6 exceed that requirement. See note 7 above for additional concerns in this area. Issue partially addressed. The slope behind Buildings 1 through 4 appear to be graded with a 2 to 1 slope.*
RESPONSE: The slope behind Units 1 through 4 has been changed to a 3:1 slope.

DETAIL SHEET:

15. *The Shea Concrete products "galley 8 x 14" detail needs further clarification:*
    b. *Specification for the clay liner needs to be provided. Open issue. The Designer changed the material to a PVC liner. Crushed stone will be placed on the liner with the concrete galleys above. It is not clear if the liner can support the weight of the galleys without puncturing the liner.*
    RESPONSE: This issue was resolved with the January 20, 2022 response letter as we have switched the liner specification to 36 mil polypropylene and provided puncture resistance calculations. We have further confirmed with Altus via email on 3/6/22 that they are satisfied with this approach.

17. *The Designer needs to provide a material specification for the bioretention system pea stone and coarse gravel. The Detail should indicate if any over excavation is required if ledge is encountered. Issue not addressed. Specification for pea stone needs to be provided.*

RESPONSE: This issue was resolved with the January 20, 2022 response letter as we provided a sieve specification for the pea stone. We have further confirmed with Altus via email on 3/6/22 that they are satisfied with the sieve specification that was provided.

EXISTING AND PROPOSED WATERSHED PLANS:

21. *The Designer should model the off-site flow discharging to the property. There appears to be a significant flow from the condominium development to the south as well as flow from the northerly abutting property. All areas contributing runoff to the site should be included in the modelling. Issue partially addressed. The runoff from the southerly property has been added to the model. It appears that the Designer is overestimating the area. Based on our observations, the underground conduits from the street to the Sea Star Condominium development creates a dam limiting the flow to the depression.*

RESPONSE: We have received additional topographic survey and concur that this berm cuts off the subcatchment that drains directly toward the isolated wetland. There is another wooded ponding area toward which the remainder of the subcatchment that was modelled actually drains. Overflow from the wetland is split between this ponding area and the Sea Star Cove detention pond, though the overflow toward the detention pond occurs at a lower elevation.

DRAINAGE ANALYSIS:

24. *The Drainage computations indicate that generally there will be a decrease in the rate of runoff discharging to the four points of analysis. However, there will be a significant increase in the volume of runoff discharging to analysis point 1, the isolated wetland in the northeast corner of the site. The Designer did not model the isolated wetland as a pond. It is presumed that without an outlet, the increase in volume will elevate the water ponded in the wetland. The wetland extends beyond the property line. Thus, it is also presumed that there will be additional ponding on the abutting property. Section 7.4.2.9 states that "the applicant shall demonstrate that on- and off-site downstream channel or system capacity is sufficient to carry the stormwater run-off volume and flow without adverse effects, such as flooding and erosion of stream banks and shoreland areas." Based on the computations, it is Altus' opinion that the increase in volume attributed to the development will increase flooding on the abutting property to the north. Issue not satisfactorily addressed. Altus agrees with the Designer that using the accepted rates of infiltration based on the soil types as a general rule is a valid practice. However, when the underlying soils are ledge, it is not reasonable to use a 0.3 inches per hour infiltration rate. Altus did not confirm that using this rate over ledge is acceptable. We stated that if the soils are suitable, then the published infiltration rate could be applied. It is our opinion that the stormwater management practice proposed between units 3 and 4 does not support infiltration. We discussed this in the field with Mr. Garrepy. He concurred and agreed to relocate the infiltration basin. We also agreed that the practice under Unit 3 deck is not feasible. We remain concerned with the practices behind Units 1 and 2 being on a steep slope and above non-native materials is not viable as presented. Altus notes that the model does not provide for storage above elevation 31.01 for the*

isolated wetland. The model indicates that the storage exceeds the maximum. Thus, the model needs to be revised and include an outlet device with flow discharging to the west. In all cases, there is an increase in volume onto the abutting property to the north which means that the impoundment on the abutting property will increase. Without a defined outlet, this means that there will be an increase in flooding to the abutting property which is not acceptable.

RESPONSE: We have relocated the subsurface stone infiltration practice between units 3 & 4 closer to Unit 4 and pulled it toward the road to be closer to the ledge outcrop. See response to comment vii.

As for the stone infiltration practice behind units 1 & 2, Test Pit X4 indicates that ledge is 75" below existing grade at 31.8, thus at an elevation of 25.55. With the bottom of the proposed system at 27.5, there is approximately 2' of natural soil between the bottom of the system and ledge. Furthermore, per Note #9 on the house roof infiltration detail, ledge shall be removed to at least 2' below the bottom of the infiltration practice if this is not already achieved. The fill that is brought in to replace the soil in this area should have a better infiltration capacity than the native soil.

The infiltration areas that were below the decks have been removed, as peak flows and volumes directed toward all analysis points can now be reduced without it given other changes that were made to the buildings and respective roof watersheds. The topographic survey to the north of the subject parcel has been updated and there is more ponding area around the isolated wetland than previously understood, and additionally, there is a wooded ponding area that receives runoff directly from the road in the existing condition. In any case, peak flows and volumes directed toward the neighbor's detention pond and toward the wooded ponding area will be reduced, therefore there should not be an increase in flooding on abutting properties.

32. *Subsurface evaluations should be provided in each of the rain gardens and within the galley stormwater storage area to identify any construction issues and to confirm the exfiltration rate in the raingardens where infiltration is being considered. Open issue.*

RESPONSE: Test pits were performed in each of the bioretention locations and it was determined that infiltration would not be viable due to the observed ledge elevations. Therefore, the bioretention systems will be lined and underdrained. Two test pits were also performed in the vicinity of the Galley chambers that are designed for infiltration and we are using the more restrictive of the two for design. Per our response to comment 8-iii, the ledge profile varies such that within the footprint of the majority of the Galley system, ledge is at least 2' below the bottom naturally, and ledge will be removed where this is not the case.

33. *The Design premise is to allow for infiltration of roof water in the backfill material adjacent to the building foundation. Thus, foundation perimeter drains should not be installed as the drains will collect the runoff that is intended to recharge the groundwater table. Open issue. The Designer has removed the infiltration drip edges and now is proposing perimeter drains adjacent to the infiltration practices at units 1 through 4. The Designer needs to depict where the foundation drains will discharge for all of the buildings or state that perimeter drains are not allowed.*
RESPONSE: The Units are no longer proposed to have basements, therefore there will not be perimeter drains.

i. *The limits of subcatchment 1 and the time of concentration should be confirmed by the Designer. Issue partially addressed. The Designer has amended the computations to include off-site flow from the northerly abutting property. It is our opinion that the subcatchment area depicted on the plan overestimates the contributing area. There is a utility conduit berm that redirects runoff away from the isolated wetland.*
RESPONSE: We have received updated survey and revised the existing conditions accordingly. We concur that there is a berm that redirects runoff away from the isolated wetland. There is a larger pond behind the site that collects the runoff from Sagamore Ave.

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL:

35. *This document should be included in the condominium documents and should be recorded at the Registry of Deeds to ensure that the association and all owners are aware of the requirements to maintain the site. Open issue. Designer has indicated that the O & M manual will be recorded. The City needs to assure that this will be a condition of the approval.*
RESPONSE: No Response necessary.

i. *The Designer has now added at grade (under deck) and subsurface stone infiltration practices. The manual needs to clearly state if the practice cannot be remediated as noted in the document that they shall be replaced, and the City of Portsmouth shall be notified that the system has failed. Open issue.*
RESPONSE: This issue was resolved with the January 20, 2022 response letter as added a note to this effect to Sections 6.2.D and 6.2.E of the Operations and Maintenance Manual (now only 6.2.D as stone under decks has been eliminated.) The Operations & Maintenance Manual is included with this response.

TECHNICAL ADVISORY COMMITTEE COMMENTS:

1. *The applicant needs to grade the south east corner of the site (the area behind units 7-10) through a shallow swale and into Rain garden 2P otherwise this area will flood once the future sidewalk gets constructed.*
RESPONSE: This swale would carry runoff from the back of the roofs of both the proposed development and Westwind Townhomes. While the design is such that peak flows and volume directed toward this analysis point (the shoulder of Sagamore Ave) will be reduced in the proposed condition, Rain Garden 2P is not sized for this additional runoff. Furthermore, this would enter the drainage system going toward the isolated wetland in the back of the site, which does not occur in the existing condition. Our design intent is to mimic the existing drainage patterns on

site and doing this would redirect offsite runoff to a location where it is not going in the existing condition. There is no way to handle the additional volume as infiltration is not feasible in this section of the site. Adding this runoff would inundate the drainage system on the north abutting property.

The runoff should be allowed to retain its current flow patterns to AP2 in order to best distribute flows and volumes in the proposed condition and mimic existing drainage patterns. Per Comment #17 of the 2/15/22 response letter, we are showing a 10'x10' drainage easement to benefit the City of Portsmouth, the purpose of which is to allow for a future drainage structure. Either this can be utilized or a swale can be introduced alongside the future sidewalk, if feasible given the right of way width.

2. *This project is not approvable in its current design. The site will shed additional volume onto properties of others that will overwhelm the capacity of the little wetland and flood the area, shedding water toward Seastar. The site is generally over-engineered and the plan requires all infiltration areas to work at peak capacity throughout their lifetimes. In general, relying on infiltration to work consistently on every storm without expecting system overload due to hydraulic mounding is not good practice. With the introduction of the liner under system A, system B is required to infiltrate almost all the flows. System B is too close to units 4 and 5 not to expect that the foundation drains for units 4 and 5 will not be impacted by the infiltration area. In addition, ground water flows encountered by foundation drains and System A underdrains are not accounted for at all in the drainage calculations. We expect there will be significant base flow picked up by these foundation drains. Using Ksat values based on planning level soil mapping on a small site that has been heavily altered and has very shallow ledge is not good practice in our opinion. Please provide a viable solution for onsite stormwater treatment or obtain the necessary permits and easements for offsite stormwater discharge.*
RESPONSE: The stormwater system is now designed such that peak volumes of runoff are reduced toward adjacent properties. Any overflow from the isolated wetland to the north of the subject site would first be directed toward the abutter's detention pond as it does in the existing condition and then in extreme overflow events, beyond even the 50-Year 24-Hour storm, it would crest toward another wooded ponding area behind the site. The isolated wetland floods more frequently in the existing condition than the proposed condition, as modelled. We are utilizing design methodologies that are accepted by the Alteration of Terrain Bureau, and this project meets their requirements even though an AOT permit is not required due to the area of disturbance. A professional soil scientist classified the soil types on site and the lowest Ksat value in the published range for each soil type was utilized for the design, so a design infiltration rate of 0.3 in/hr was utilized for most of the stormwater systems on site. This is a conservative approach, and in general, actual infiltration rates are higher than those that are published (particularly after a factor of safety of two is applied). Beneath the concrete Galley system B and the house roof infiltration systems, the seasonal high water table stands above ledge, with test pits B1 & B2 being used for concrete Galley system B, test pit X7 being used for the infiltration system between units 3&4, and test pits X4 & X6 being used for the infiltration system behind units 1&2.

The design intent does not rely on infiltration of all runoff during every storm, so the systems will not be required to work at peak capacity at all times. Concrete Galley chamber system "B" has a carefully designed overflow, and as modelled, this will only be activated during storms greater than the 10-Year, 24-Hour storm event, as the modelling shows that it will completely infiltrate runoff directed toward it from the 2-Year 24-Hour and 10-Year 24 Hour storms. Some of the runoff from the 25-Year and 50-Year storms will pass through the overflow, but to reiterate, the ultimate peak rates and volumes of runoff toward all analysis points will be decreased during all analyzed storm events. We recognize that infiltration may not be as feasible during larger storms as it is during smaller storms, so the stormwater system was designed accordingly.

The units are no longer proposed to have basements and therefore there will not be foundation drains. Galley system A and both of the bioretention systems are proposed to be lined, so underdrains will not be picking up groundwater flows.

In summary, the stormwater system was carefully engineered to reduce rates and volumes of runoff and to promote groundwater recharge while not relying on it as a design feature, particularly for larger storms during which it may not be feasible.

3. *The subcatchment that extends north of the property is not depicted properly, its northern boundary should be the man made earth berm that covers the underground utilities that exist between the pole and the Verizon building on the adjacent lot.*
   RESPONSE: Additional topography was surveyed and the watersheds were revised accordingly. We concur that this earth berm divides the watershed draining toward the isolated wetland from the one draining toward the newly surveyed larger wooded pond to the north.

4. *It is not good practice to hydraulically load the soil directly adjacent to a foundation wall. A few of the systems have bottoms inside of the spring water table and will not be able to work at full capacity at those times*
   RESPONSE: The units are no longer proposed to have basements and under-deck stone infiltration has been removed from the design.

5. *The sidewalk on Sagamore is still labeled as 5' wide on the site plans. It needs to be at least 5.5' wide (concrete width) in order to meet current standards. Please change all plans for consistency.*
   RESPONSE: The label on Sheet C2 has been corrected for consistency with the label on Sheet C4 and on the details.

6. *The catch basins required for the sidewalk along Sagamore should drain to the east side of the road so that they do not overwhelm the little wetland on site if no culvert is constructed*
   RESPONSE: If the catch basins were to drain toward the east side of the road, it will overwhelm the wetland on that property unless appropriate detention were to be installed, as it is introducing runoff that is not reaching that side of the street in the existing condition. The two proposed road catch basins are directed toward the isolated wetland to which existing flows are currently running off, and as modelled, peak flows and volumes will now be reduced toward all analysis points in the proposed condition.

7. *The driveway of 1167 Sagamore is too steep in the sidewalk area to meet ADA code. The area needs to be re-graded.*
   RESPONSE: New spotgrades have been added and the 33 contour rerouted to meet this design intent. Also, a leadered callout has been added to Sheet C4 stating to regrade the driveway curb cuts appropriately.

8. *The proposed flushing hydrant needs to be located nearest to unit 1, adjacent to the 4" valve to flush the main properly*
   RESPONSE: The proposed flushing hydrant has been moved to the front of Unit 1.

9. *The sewer pipe from SMH 2088 to SMH 1 needs to be SDR 21 as stated previously. This will eliminate the need to relocate the water unless it is in direct conflict.*
   RESPONSE: Sheet P1 has been revised to specify SDR-21 for this pipe run.

10. *Primary voltage conduit needs to be incased in concrete near the fire hydrant*
    RESPONSE: Sheet C4 has been revised to depict a 10' length of primary underground conduit being encased in concrete, centered around the fire hydrant.

11. *Relocate pole 136/69 1 additional foot back to ensure room for future sidewalk.*
    RESPONSE: Pole 136/69 has been moved a foot back (toward the property) on Sheets C4 and C5 of the plan set.

12. *Pavement repairs in Sagamore to meet State of NH standards, it is their road, not ours.*
    RESPONSE: The pavement repair detail is per State standards, also see Note #6 on the pavement repair detail on Sheet D1.

13. *As stated previously, hydrants do not have drain holes any longer. Please remove them off the detail. Development will need to secure an agreement with DPW for yearly flushing and maintenance.*
    RESPONSE: Drain holes have been removed from the fire hydrant detail. Portsmouth Water will be granted an easement per Note #40 on Sheet C4.

14. *If CTS pipe is being used for services, tracing wire needs to be shown on the details and installed per DPW standards. An easement will be required on the parcel for valve access and leak detection.*
RESPONSE: See revised water service connection detail indicating that tracing wire is to be installed per DPW standards if CTS piping is used for water services. See also new Note #40 on Sheet C5 which states that an easement shall be granted.

15. *On-site sewer manhole covers will not be coming from the City of Portsmouth, they will need to be purchased*
RESPONSE: See new Note #10 on the sewer manhole detail on Sheet D3.

16. *Conduit drops off pole 136/69 shall be on the back side of the pole so that they do not hinder the future sidewalk*
RESPONSE: This has been noted on the leadered callout to the proposed relocated pole on Sheet C5.

17. *Do not plant new plants (especially trees) within 8' of a utility.*
RESPONSE: The landscaping plan has been adjusted so that no new trees are proposed within 8' of a utility.

18. *A sidewalk agreement will be required by NHDOT.*
RESPONSE: A sidewalk agreement is in the process of being drafted.

19. *Irrigation meter and backflow will need to be inside of one of the structures*
RESPONSE: The proposed irrigation meter is shown adjacent to Unit 9 and is noted on Sheet C5 to be inside the structure and have a backflow enclosure.

20. *Please explain the solid waste plan for the site.*
RESPONSE: Per Note #22 on Sheet C2, the owner of each unit shall store trash in their garage and trash will be picked up by a private hauler.

21. *Please provide a green building statement*
RESPONSE: A green building statement is provided with this resubmission.

22. *Architectural plans have not been provided. Please provide exterior elevations, gross floor areas, and dimensions for all buildings*
RESPONSE: Architectural plans are included with this resubmission.

23. *Please have plans stamped by the wetland scientist*
RESPONSE: Sheet C1 is stamped by the wetland scientist.

24. *Please provide the width of the proposed curb cut on Sagamore Ave*
RESPONSE: The width of the proposed curb cut has been dimensioned on revised Sheet C2.

25. *Please identify if irrigation system will be installed.*
RESPONSE: An irrigation system will be installed.

26. *Please identify if proposed plantings are adequate for snow storage to be located on top of them.*
    RESPONSE: The landscaping plan and site plan have been modified so that snow storage is not proposed on top of shrubs.

27. *Please indicate which units are to have basements*
    RESPONSE: No units are to have basements.

28. *Please update checklist throughout process to properly identify where information is in application and plan set*
    RESPONSE: Updated submission checklist is included with this resubmission package.

Included with this response letter are the following:

1. One (1) Full Size Revised Plan Set.
2. One (1) Half Size Revised Plan Set.
3. One (1) Half Size Architectural Plan Set.
4. One (1) Revised Drainage Analysis.
5. One (1) Revised Stormwater Operations & Maintenance Manual.
6. Green Building Statement.
7. Updated City of Portsmouth Submission Checklist.

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.

Paige Libbey, P.E.
Project Manager

cc: Michael Garrepy (via email)
Mick Khavari (via email)
Tim Phoenix, Hoefle, Phoenix, Gormley & Roberts (via email)
Eric Weinrieb, P.E., Altus Engineering (via email and hand delivered)

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: The Sagamore Group, LLC Date Submitted: 08/23/22

Application # (in City's online permitting): LU-21-167

Site Address: 1169 & 1171 Sagamore Ave. Map: 224 Lot: 14&15

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☒	Complete application form submitted via the City's web-based permitting program (2.5.2.1**(2.5.2.3A)**		N/A
☒	All application documents, plans, supporting documentation and other materials uploaded to the application form in viewpoint in digital Portable Document Format (PDF). One hard copy of all plans and materials shall be submitted to the Planning Department by the published deadline. **(2.5.2.8)**		N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Statement that lists and describes "green" building components and systems. **(2.5.3.1B)**	Included	
☒	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)**	C1 & C2	N/A
☒	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	C1	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
X	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1E)**	Application	N/A
X	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)**	C1 & C2	N/A
X	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Cover Sheet	N/A
X	List of reference plans. **(2.5.3.1H)**	C1 & C2	N/A
X	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	Cover Sheet	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
X	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
X	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
X	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. **(2.5.4.1C)**	C1 Note #15	N/A
X	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
X	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. **(2.5.4.1E)**	C1	N/A
X	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	Cover Sheet	N/A
X	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	All Sheets	N/A
X	Individual plan sheet title that clearly describes the information that is displayed. **(2.5.4.2C)**	Required on all plan sheets	N/A
X	Source and date of data displayed on the plan. **(2.5.4.2D)**	C1	N/A

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	**1. Existing Conditions: (2.5.4.3A)** • Surveyed plan of site showing existing natural and built features; • Existing building footprints and gross floor area; • Existing parking areas and number of parking spaces provided; • Zoning district boundaries; • Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre; • Existing impervious and disturbed areas; • Limits and type of existing vegetation; • Wetland delineation, wetland function and value assessment (including vernal pools); • SFHA, 100-year flood elevation line and BFE data, as required.	C1	
☒	**2. Buildings and Structures: (2.5.4.3B)** • Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation; • Elevations: Height, massing, placement, materials, lighting, façade treatments; • Total Floor Area; • Number of Usable Floors; • Gross floor area by floor and use.	Architectural Plans	
☒	**3. Access and Circulation: (2.5.4.3C)** • Location/width of access ways within site; • Location of curbing, right of ways, edge of pavement and sidewalks; • Location, type, size and design of traffic signing (pavement markings); • Names/layout of existing abutting streets; • Driveway curb cuts for abutting prop. and public roads; • If subdivision; Names of all roads, right of way lines and easements noted; • AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	C2 T1-T4	
☒	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	C2	
☒	**5. Water Infrastructure: (2.5.4.3E)** • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii).	C1 & C5	
☒	**6. Sewer Infrastructure: (2.5.4.3F)** • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period.	C1, C5, P1	

☒	**7. Utilities: (2.5.4.3G)** • The size, type and location of all above & below ground utilities; • Size type and location of generator pads, transformers and other fixtures.	C1 & C5	
☒	**8. Solid Waste Facilities: (2.5.4.3H)**		
	• The size, type and location of solid waste facilities.	C2 Note #22	
☒	**9. Storm water Management: (2.5.4.3I)** • The location, elevation and layout of all storm-water drainage. • The location of onsite snow storage areas and/or proposed off-site snow removal provisions. • Location and containment measures for any salt storage facilities • Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.	C3 C2 C2 Note #35	
☒	**10. Outdoor Lighting: (2.5.4.3J)** • Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.	L2	
☒	**11. Indicate where dark sky friendly lighting measures have been implemented. (10.1)**	L2	
☒	**12. Landscaping: (2.5.4.3K)** • Identify all undisturbed area, existing vegetation and that which is to be retained; • Location of any irrigation system and water source.	L2 C5	
☒	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	C1 & C3	
☒	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	C2	
☒	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	C1 & C2	
☐	**16. Character/Civic District (All following information shall be included): (2.5.4.3P)** • Applicable Building Height (10.5A21.20 & 10.5A43.30); • Applicable Special Requirements (10.5A21.30); • Proposed building form/type (10.5A43); • Proposed community space (10.5A46).	N/A	
☐	**17. Special Flood Hazard Areas (2.5.4.3Q)** • The proposed development is consistent with the need to minimize flood damage; • All public utilities and facilities are located and construction to minimize or eliminate flood damage; • Adequate drainage is provided so as to reduce exposure to flood hazards.	N/A	

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Traffic Impact Study or Trip Generation Report, as required. **(3.2.1-2)**	Previously Submitted	
☒	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	C3	
☒	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)**	Not in Either	
☒	Stormwater Management and Erosion Control Plan. **(7.4)**	Included	
☒	Inspection and Maintenance Plan **(7.6.5)**	Included	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	All local approvals, permits, easements and licenses required, including but not limited to: • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. **(2.5.3.2A)**	Easements shown on C1 & C2	
☒	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: • Calculations relating to stormwater runoff; • Information on composition and quantity of water demand and wastewater generated; • Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; • Estimates of traffic generation and counts pre- and post-construction; • Estimates of noise generation; • A Stormwater Management and Erosion Control Plan; • Endangered species and archaeological / historical studies; • Wetland and water body (coastal and inland) delineations; • Environmental impact studies. **(2.5.3.2B)**	Enclosed	
☐	A document from each of the required private utility service providers indicating approval of the proposed site plan and indicating an ability to provide all required private utilities to the site. **(2.5.3.2D)**	Pending	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**	C2 Note #5	
☒	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)**	C2 Note #19	N/A
☐	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. **(2.5.4.2F)**	N/A	
☒	Plan sheets submitted for recording shall include the following notes: a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "All improvements shown on this Site Plan shall be constructed and maintained in accordance with the Plan by the property owner and all future property owners. No changes shall be made to this Site Plan without the express approval of the Portsmouth Planning Director." **(2.13.3)**	C2 Notes #20 & #21	N/A

Applicant's Signature: [signature] (as agent) **Date:** 3/22/22

dotloop signature verification: [illegible]

Letter of Authorization

We, John & Colleen Hebert, 54 Pioneer Road, Rye, NH 03870, owners of property located in Portsmouth, NH, known as Tax Map 224, Lot 15, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously-mentioned property. The parcel is located on 1169 Sagamore Avenue 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.

John J Hebert — dotloop verified 05/04/21 2:47 PM EDT 5E1O-MUAR-1SWP-P2NG

Witness | John Hebert | Date

Colleen Hebert — dotloop verified 05/04/21 2:49 PM EDT QIBG-ZMLM-FUFK-BAEX

Witness | Colleen Hebert | Date

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

"Sagamore Avenue Condominiums"
1169 & 1171 Sagamore Ave.
Portsmouth, NH 03801
Tax Map 224, Lots 14 & 15

Prepared for:

The Sagamore Group, LLC
P.O. Box 430
Hampton, NH 03842

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
August 23, 2021
Revised October 6, 2021
Revised December 13, 2021
Revised January 20, 2022
Revised March 22, 2022
JBE Project No. 21047

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. The Condominium Association, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The Association shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form.

B. General Inspection and Maintenance Requirements

1. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

    a. Roadway and driveways
    b. Vegetation and landscaping
    c. Bioretention systems
    d. Subsurface Stone Infiltration Areas
    e. Drain Manholes
    f. Culverts
    g. Rip-Rap Outlet Protection Aprons
    h. Shea Concrete Galley Chambers
    i. Catch Basins / Yard Drains

2. Maintenance of permanent measures shall follow the following schedule:

    a. Normal winter roadway maintenance including plowing and snow removal. Road sweeping at the end of every winter, preferably at the start of the spring rain season.

    b. **Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately. **Annual inspection** of site's vegetation and landscaping. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in kind, if they are found to be dead or dying.

    c. Bioretention Systems:

        - Visually inspect monthly and repair erosion. Use small stones to stabilize erosion along drainage paths.
        - Check the pH once a year if grass is not surviving. Apply an alkaline product, such as limestone, if needed.
        - Re-seed any bare areas by hand as needed.
        - Immediately after the completion of cell construction, water grass for 14 consecutive days unless there is sufficient natural rainfall.

- Once a month (more frequently in the summer), residents are encouraged to visually inspect vegetation for disease or pest problems and treat as required.
- During times of extended drought, look for physical features of stress. Water in the early morning as needed.
- Weed regularly, if needed.
- After rainstorms, inspect the cell and make sure that drainage paths are clear and that ponding water dissipates over 4-6 hours. (Water may pond for longer times during the winter and early spring.)
- Twice annually, inspect the outlet control structures (grated risers) to ensure that they are not clogged and correct any clogging found as needed.
- KEEP IN MIND, THE BIORETENTION CELL IS NOT A POND. IT SHOULD NOT PROVIDE A BREEDING GROUND FOR MOSQUITOES. MOSQUITOES NEED AT LEAST FOUR (4) DAYS OF STANDING WATER TO DEVELOP AS LARVA.

d. Subsurface Stone Infiltration Beds:

The following recommendations will help assure that the stone areas are maintained to preserve their effectiveness. These are located behind Units 1&2, and between Units 3&4

In the spring and fall, visually inspect the area around these underground systems and repair any erosion. Use small stones to stabilize erosion along drainage paths. Twice a year open the cleanout and check for signs of debris, sediment build-up, or standing water. If more than 12" of sediment is observed, plug the outlet and flush the system thoroughly. Pump water into system until at least 1" of standing water covers the system bottom. Capture sediment-laden water for proper disposal according to local state, and EPA regulation. **If the practice cannot be remediated as noted, it shall be replaced, and the City of Portsmouth shall be notified that the system has failed.**

e. **Annual inspection** of drain manholes to determine if they need to be cleaned. Manholes should be cleaned of any material upon inspection. Manholes can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed.

f. **Inspection** of culvert inlets and outlets at least **once per month** during the rainy season (March to November). Any debris is to be removed and disposed of properly.

g. Rock riprap should be **inspected annually** in order to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock should be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation should not be allowed to become established in riprap areas, and/or any debris removed from the void spaces between the rocks. If the riprap is adjacent to a

stream or other waterbody, the water should be kept clear of obstructions, debris, and sediment deposits.

h. Shea Concrete Galley Chambers: Once annually, open the inspection ports and visually inspect the condition of the stone base. If more than 12" of sediment is observed, plug the outlet and flush the system thoroughly. Pump water into system until at least 1" of standing water covers the system bottom. Repeat at both inspection ports and pump out back-flush water. Capture sediment-laden water for proper disposal according to local state, and EPA regulation. Additionally, vacuum all adjacent manhole structures.

i. **Annual inspection** of catch basins and yard drains to determine if they need to be cleaned. Catch basins and yard drains are to be cleaned if the depth of deposits is greater than one-half the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin. If a catch basin or yard drain significantly exceeds the one-half depth standard during the inspection, then it should be cleaned more frequently. If woody debris or trash accumulates in the catch basin or yard drain, then it should be cleaned on a weekly basis. The catch basin or yard drain can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed. Grease hoods are to be wiped clean and the rags disposed of properly. Debris obscuring the grate inlet should also be removed.

See attached sample forms as a guideline.

Any inquiries in regards to the design, function, and/or maintenance of any one of the above-mentioned facilities or tasks shall be directed to the project engineer:

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885

T#: (603) 772-4746
F#: (603) 772-0227

Commitment to maintenance requirements

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

_____

Signature

_____

Print Name

_____

Title

_____

Date

Annual Operations and Maintenance Report

The Condominium Association, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The Association shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form.

Construction Activity	Date of Inspection	Who Inspected	Findings of Inspector
Roadway and Driveways			
Vegetation and Landscaping			
Bioretention #1			
Bioretention #2			
Subsurface Stone Infiltration Beds			

Drain Manhole #1			
Drain Manhole #2			
Drain Manhole #3			
Culvert Outlet and Rip-Rap Outlet Protection Apron			
Shea Concrete Galley Chambers (Center of site in "pocket park", designed for detention)			
Shea Concrete Galley Chambers (In northeast corner of site, designed for infiltration)			

Catch Basin #1			
Catch Basin #2			
Yard Drain #1			
Yard Drain #2			
Yard Drain #3			
Yard Drain #4			

Other (please note):			

Regular Inspection and Maintenance Guidance for Bioretention Systems / Tree Filters

Maintenance of bioretention systems and tree filters can typically be performed as part of standard landscaping. Regular inspection and maintenance is critical to the effective operation of bioretention systems and tree filters to insure they remain clear of leaves and debris and free draining. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending on a variety of factors including the occurrence of large storm events, overly wet or dry (I.E., drought), regional hydrologic conditions, and the upstream land use.

ACTIVITIES

The most common maintenance activity is the removal of leaves from the system and bypass structure. Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Mulch and/or vegetation coverage is integral to the performance of the system, including infiltration rate and nutrient uptake. Vegetation care is important to system productivity and health.

ACTIVITY	FREQUENCY
A record should be kept of the time to drain for the system completely after a storm event. The system should drain completely within 72 hours.	After every major storm in the first few months, then biannually.
Check to insure the filter surface remains well draining after storm event. **Remedy:** If filter bed is clogged, draining poorly, or standing water covers more than 15% of the surface 48 hours after a precipitation event, then remove top few inches of discolored material. Till or rake remaining material as needed.	
Check inlets and outlets for leaves and debris. **Remedy:** Rake in and around the system to clear it of debris. Also, clear the inlet and overflow if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
Check for animal burrows and short circuiting in the system . **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted.	
Check to insure the filter bed does not contain more than 2 inches accumulated material **Remedy:** Remove sediment as necessary. If 2 inches or more of filter bed has been removed, replace media with either mulch or a (50% sand, 20% woodchips, 20% compost, 10% soil) mixture.	
During extended periods without rainfall, inspect plants for signs of distress. **Remedy:** Plants should be watered until established (typical only for first few months) or as needed thereafter.	
Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets, outlets, sidewalls.	Annually
Check for robust vegetation coverage throughout the system. **Remedy:** If at least 50% vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
Check for dead or dying plants, and general long term plant health. **Remedy:** This vegetation should be cut and removed from the system. If woody vegetation is present, care should be taken to remove dead or decaying plant Material. Separation of Herbaceous vegetation rootstock should occur when overcrowding is observed.	As needed

1/15/2011, University of New Hampshire Stormwater Center

JONES&BEACH ENGINEERS INC.

CHECKLIST FOR INSPECTION OF BIORETENTION SYSTEM / TREE FILTERS

Location: Inspector:

Date: Time: Site Conditions:

Date Since Last Rain Event:

Inspection Items	Satisfactory (S) or Unsatisfactory (U)		Comments/Corrective Action
1. Initial Inspection After Planting and Mulching			
Plants are stable, roots not exposed	S	U	
Surface is at design level, typically 4" below overpass	S	U	
Overflow bypass / inlet (if available) is functional	S	U	
2. Debris Cleanup (2 times a year minimum, Spring & Fall)			
Litter, leaves, and dead vegetation removed from the system	S	U	
Prune perennial vegetation	S	U	
3. Standing Water (1 time a year, After large storm events)			
No evidence of standing water after 72 hours	S	U	
4. Short Circuiting & Erosion (1 time a year, After large storm events)			
No evidence of animal burrows or other holes	S	U	
No evidence of erosion	S	U	
5. Drought Conditions (As needed)			
Water plants as needed	S	U	
Dead or dying plants			
6. Overflow Bypass / Inlet Inspection (1 time a year, After large storm events)			
No evidence of blockage or accumulated leaves	S	U	
Good condition, no need for repair	S	U	
7. Vegetation Coverage (once a year)			
50% coverage established throughout system by first year	S	U	
Robust coverage by year 2 or later	S	U	
8. Mulch Depth (if applicable)(once every 2 years)			
Mulch at original design depth after tilling or replacement	S	U	
9. Vegetation Health (once every 3 years)			
Dead or decaying plants removed from the system	S	U	
10. Tree Pruning (once every 3 years)			
Prune dead, diseased, or crossing branches	S	U	
Corrective Action Needed			**Due Date**
1.			
2.			
3.			

1/15/2011, University of New Hampshire Stormwater Center

JONES&BEACH ENGINEERS INC.

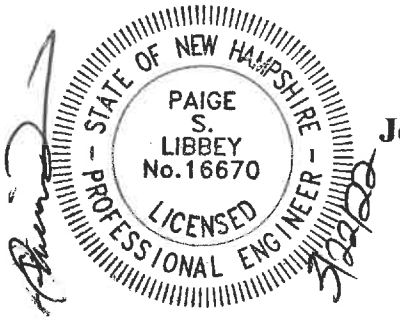
DRAINAGE ANALYSIS

SEDIMENT AND EROSION CONTROL PLAN

Sagamore Avenue Condominiums
1169 & 1171 Sagamore Ave.
Portsmouth, NH 03801
Tax Map 224, Lots 14 & 15

Prepared for:

The Sagamore Group, LLC
P.O. Box 430
Hampton, NH 03842



Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
August 23, 2021
Revised October 5, 2021
Revised December 28, 2021
Revised February 9, 2022
Revised March 22, 2022
JBE Project No. 21047

EXECUTIVE SUMMARY

The Sagamore Group, LLC proposes to construct ten (10) residential condominium units on a 1.83-acre parcel of land located at 1169 & 1171 Sagamore Avenue in Portsmouth, NH. In the existing condition, the two lots to be consolidated are home to single-family residences with multiple sheds and paved driveways, a pool, and a gravel driveway running through the lots.

A drainage analysis of the entire site was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. The analysis was conducted using data for the 2 Year – 24 Hour (3.70"), 10 Year – 24 Hour (5.61"), 25 Year – 24 Hour (7.12"), and 50 Year – 24 Hour (8.53") storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. This data was taken from the Extreme Precipitation Tables developed by the Northeast Regional Climate Center (NRCC), and the values have been increased by 15% due to the project being within the Coastal/Great Bay Region. A summary of the existing and proposed conditions peak rates of runoff in units of cubic feet per second (cfs) is as follows:

Analysis Point	2 Year		10 Year		25 Year		50 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	0.60	0.54	1.40	1.29	2.11	1.96	2.80	2.62
Analysis Point #2	0.86	0.72	1.53	1.25	2.06	1.68	2.56	2.07
Analysis Point #3	1.20	0.22	2.24	0.53	3.14	2.00	3.98	3.28
Analysis Point #4	0.24	0.21	0.50	0.40	0.73	0.56	0.94	0.70

A similar summary of the existing and proposed peak volumes in units of acre-feet is as follows:

Analysis Point	2 Year		10 Year		25 Year		50 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	0.063	0.058	0.140	0.129	0.208	0.193	0.275	0.257
Analysis Point #2	0.072	0.067	0.127	0.117	0.172	0.158	0.215	0.196
Analysis Point #3	0.086	0.017	0.228	0.143	0.402	0.287	0.573	0.430
Analysis Point #4	0.022	0.019	0.045	0.037	0.064	0.051	0.083	0.065

The subject parcels are located in the Mixed Residential / Office (MRO) Zoning District. The subject parcels currently consist of the aforementioned single-family residences with associated driveways, sheds, and a pool, all of which is proposed to be demolished. The topography and ledge outcrops on the site as well as a stretch of Sagamore Ave. that is considered in this analysis define six (6) subcatchments, which drain to four (4) analysis points. Subcatchments 2S-4S drain directly toward their respective analysis points while subcatchment 6S drains directly toward Analysis Point #1, subcatchment 1S drains directly toward an isolated wetland which overflows toward both Analysis Points 1&3, and subcatchment 5S drains toward a shallow depression straddling the two properties, modelled as a pond, before cresting over a "berm" and running off toward the northerly abutter's detention pond (Analysis Point 3). The neighboring "Westwind Townhomes of Portsmouth" site to the south stands topographically prominent to this parcel, so some runoff from this development reaches the southeast corner of the subject parcel although most of it drains directly into the Sagamore Avenue right of way. The runoff reaching this corner of the property (Analysis Point 2) then continues south

along Sagamore Avenue. The majority of the site drains to the north in the existing condition, reaching either the abutting "Sea Star Cove Condominium" detention pond (Analysis Point 3) or the adjacent isolated wetland (Analysis Point 1). Also included in Subcatchment 1S, which drains toward Analysis Point 1, is a stretch of Sagamore Ave with a low point at a horseshoe shaped driveway for an abutter to the subject property. Runoff from this stretch of the road sheet flows across the abutter's property in the proposed condition before ultimately reaching either the isolated wetland or a wooded depression defined as Analysis Point 1.

The proposed site development consists of the aforementioned ten (10) condominium units with associated paved roadway and individual driveways. The addition of the proposed impervious paved areas and buildings causes an increase in the curve number (C_n) and a decrease in the time of concentration (T_c), the net result being a potential increase in peak rates of runoff from the site. A stormwater management system was designed in order to mitigate this possibility. The proposed site development divides the site into eighteen (18) subcatchments, representing both the periphery of the site that will continue its existing flow pattern toward the aforementioned analysis points as well as the developed portions that will be routed into the site's stormwater management system for treatment and reduction of peak flows. The proposed stormwater management system for the front of the site consists of two (2) bioretention systems to filter runoff and a downstream concrete galley field that will detain runoff and release it slowly, allowing for peak flow rates to be reduced. The proposed stormwater management system for the rear of the site consists of two catch basins as well as several yard drains draining into a concrete galley field designed for infiltration, from which overflow will be routed to the concrete galley field in the center of the site that is designed for detention. Through the use of these practices, the peak rate and volume of runoff is reduced toward all analysis points during all analyzed storm events.

Otherwise, some roof runoff will be infiltrated through subsurface stone beds as. These systems, in combination with the concrete galley field designed for infiltration, will help to reduce volumes of runoff below the existing condition and promote groundwater recharge.

The use of Best Management Practices per the NHDES Stormwater Manual have been applied to the design of this drainage system and will be observed during all stages of construction. All land disturbed during construction will be stabilized within thirty days of groundbreaking and abutting property owners will suffer minimal adversity resultant of this development.

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1.0 RAINFALL CHARACTERISTICS

This drainage report includes an existing conditions analysis of the area involved in the proposed development, as well as a proposed condition, or post-construction analysis, of the same location. These analyses were accomplished using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. The curve numbers were developed using the SCS TR-55 Runoff Curve numbers for Urban Areas. A Type III SCS 24-hour rainfall distribution was utilized in analyzing the data for the 2 Year – 24 Hour (3.70"), 10 Year – 24 Hour (5.61"), 25 Year – 24 Hour (7.12"), and 50 Year – 24 Hour (8.53") storm events. This data was taken from the Extreme Precipitation Tables developed by the Northeast Regional Climate Center (NRCC), and the values have been increased by 15% due to the project being within the Coastal/Great Bay Region.

The peak rates of runoff will be reduced from the existing condition, thereby minimizing any potential for a negative impact on abutting properties or erosion of the wetland system. This is accomplished through treatment of stormwater runoff and attenuation of peak flows and volumes resulting from storm events.

2.0 EXISTING CONDITIONS ANALYSIS

The two existing single-family residential properties feature three houses, two sheds, a pool, two paved driveways and a gravel driveway running through the site in addition to a paved island in the center of the site. The site is otherwise covered by both woods and grass, with sporadic ledge outcrops. A small section of the southern part of the site is sloped toward the south, while the majority of it is sloped toward the north.

The area draining toward the north is split into three subcatchments; Subcatchments 1S, 3S, and 5S. Subcatchment 1S drains into an isolated wetland near the northeast corner of the site. Subcatchment 1S includes the entire on and off-site contributing watershed area toward the isolated wetland, which includes parts of abutting properties as well as a stretch of Sagamore Avenue. Subcatchment 3S drains into Analysis Point #3 (AP3) representing the abutting condominium property's private detention pond. Subcatchment 5S drains toward a shallow depression straddling the two existing subject parcels, represented as 1P, and once the depression fills it crests over a berm and drains across Subcatchment 3S toward Analysis Point #3.

Two additional subcatchments were defined for the area draining toward the south; Subcatchment 2S and Subcatchment 4S. Subcatchment 2S is directed toward Analysis Point #2 (AP2), representing the shoulder of Sagamore Avenue. Runoff in this direction combines with runoff from the edge of the abutting property and continues south. Subcatchment 4S, which is separated from 3S by a ledge outcrop, a building roof, and otherwise a subtle inflection in the surface topography, is located in the southwestern corner of the property and this small area drains directly into the Sea Star Cove Condiminium property, represented by Analysis Point #4 (AP4).

There are two berms on the isolated wetland in the northeast corner of the subject site. A lower berm carries overflow toward the abutter's detention pond and a higher, 70' long x 10' wide berm carries any extreme overflow toward a depression in the woods represented as Analysis Point AP1. Additionally, a stretch of the road and areas of abutting properties drain directly toward Analysis Point AP1 and are represented as Subcatchment 6S.

Existing soil types were determined through a High Intensity Soil Survey (HISS) conducted by a Certified Soil Scientist. A Site-Specific Soil Map (SSSM) conversion table was provided along with the report that was generated based on the results of the HISS. These soils are categorized into Hydrologic Soil Groups (HSG) B and D. Areas surrounding ledge outcrops are categorized into HSG D while the remainder of the upland area of the site is mostly categorized into HSG B. Specifically, the upland soil types include the Hollis-Rock Outcrop Complex, Made Land – Similar to Canton, Newfields, and Chatfield Variant. According to "Ksat Values for New Hampshire Soils" sponsored by the Society of Soil Scientists of Northern New England SSSNNE Special Publication No. 5, the saturated hydraulic conductivity (Ksat) value for Canton soils ranges from 2 to 6 inches/hour within the B horizon and 6 to 20 inches/hour within the C horizon; the Ksat value for Newfields soils ranges from 0.6 to 2 inches per hour within both the B and C horizons, and the Ksat value for both Chatfield Variant and Hollis soils ranges from 0.6 to 6 inches/hour within both the B and C horizons.

3.0 PROPOSED CONDITIONS ANALYSIS

The addition of the proposed impervious paved areas and buildings causes an increase in the curve number (C_n) and a decrease in the time of concentration (T_c), the result being a potential increase in peak rates of runoff from the site. A stormwater management system was designed in order to mitigate this possibility. The proposed development, consisting of the aforementioned ten (10) condominium units with associated paved roadway and driveways as well as stormwater management features divide the subject parcel into eighteen (18) subcatchments. Subcatchments 2S-4S drain directly into their respective Analysis Points, AP2-AP4, as previously outlined. Subcatchments 5S-6S will drain into the two bioretention systems in the front of the site, and after receiving treatment in the bioretention systems, runoff will be piped into concrete "Galley" chambers for underground detention. Subcatchments 7S-8S represent the rear of the site and runoff from here is graded toward two catch basins in sequence from which a closed drainage network feeds into another Galley chamber system, except that this one is designed for infiltration. Overflow from this will be piped into the Galley chamber system in the center of the site that is designed for detention only. Subcatchments 9S-12S represent lawn areas that are proposed to drain toward yard drains. Subcatchments 13S-15S represent roof subcatchments from which runoff will be infiltrated through subsurface stone infiltration beds in lawn areas. Subcatchments 16S and 17S represents two stretches of Sagamore Avenue that are to drain toward proposed deep sump catch basins, the purpose of which is to pre-treat roadway runoff directed toward this isolated wetland. The two catch basins are "offline" and both drain toward a proposed drain manhole in the proposed sidewalk. Finally, Subcatchment 21S represents the stretch of Sagamore Ave and adjacent properties draining directly toward the wooded depression to the north of the site represented as AP1. As explained in the executive summary, the proposed stormwater management features help to reduce off-site peak rates and volumes to below the existing condition.

After passing through the bioretention systems and concrete "Galley" chambers, treated and attenuated runoff will be gradually drained toward the isolated wetland in the northeast corner of the site. The peak rates and volumes of runoff, will be reduced in all analyzed storm events in the proposed condition compared to the existing condition.

The site will be graded such that runoff from all impervious areas, with the exception of roof, patio, and deck runoff, will be treated, detained, and some of it infiltrated to groundwater, by way of bioretention systems and subsurface infiltration and detention chambers. The two bioretention systems in the front of the site cannot be used for infiltration due to the presence of ledge in the area where they are proposed, therefore they shall be lined and underdrained. The proposed concrete Galley chambers in the center of the site will also lined and underdrained due to the presence of groundwater while the

proposed concrete Galley chambers in the northwest corner of the site are designed as a subsurface infiltration basin, with at least 3' between the bottom of the chamber and the SHWT.

The Ksat values stated at the end of the Existing Conditions Analysis were used to determine the design infiltration rates of each stormwater practice. The lower Ksat for each soil type was divided by 2 to develop a design infiltration rate of 0.3 or 1 inches/hour for each stormwater practice depending on what soil type they are located in. When a practice is located within multiple soil types, a weighted average is taken. For example, the underground stone infiltration bed in back of Units 1 and 2 straddles two soil types, one with each aforementioned design infiltration rate, so the two rates were averaged and a design infiltration rate of 0.65 inches/hour was ultimately used.

By reducing the peak rate and volume of stormwater runoff toward the neighbor's detention pond, the functioning of the overall drainage system between the two properties is improved resultant to this development. The outfall is in an optimal location as the treated and attenuated runoff will be released toward an existing wetland, and a rip rap outlet protection apron is proposed in order to dissipate any concentrated flows that result. The contours surrounding the isolated wetland in the northeastern corner of the site are modelled as a pond, 19P, in the proposed condition, where it is modelled as 2P in the existing condition.

According to the NH Stormwater Manual, bioretention systems provide a pollutant removal efficiency of 90% for TSS and 65% for nitrogen, and infiltration basins (including subsurface ones) provide a removal efficiency of 90% for TSS and 60% for nitrogen provided that there is 3' of soil or stone separating the bottom of the chamber from the seasonal high water table and that the chamber is at least 75' from surface water. Runoff from all impervious surfaces with the exception of roofs is being directed toward one of these two types of treatment systems. The City of Portsmouth Site Plan Review Regulations stipulate that stormwater BMPs should either be designed for 80% TSS removal and 50% nitrogen removal, OR to retain and treat the Water Quality Volume. This plan exceeds the requirements for pollutant removal because appropriate treatment / groundwater recharge systems are used and the Water Quality Volume is retained and treated.

5.0 CONCLUSION

This proposed site development will have minimal adverse effect on abutting infrastructures, properties, and wetlands by way of stormwater runoff or siltation. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of site grading, catch basins, drain manholes, yard drains, bioretention systems, concrete "Galley" chambers, subsurface stone infiltration beds, and rip rap outlet protection as well as temporary erosion control measures including but not limited to silt fence and the use of a stabilized construction entrance. The drainage outfall is in its optimal location and the rate and the volume of runoff reaching the abutter's detention pond from the subject site will be reduced. Best Management Practices developed by the State of New Hampshire have been utilized in the design of this system and their application will be enforced throughout the construction process. Peak rates and volumes of runoff from the site will be reduced toward all analysis points during all analyzed storm events.

This project disturbs less than 100,000 S.F. and does not require a NHDES Alteration of Terrain Permit.

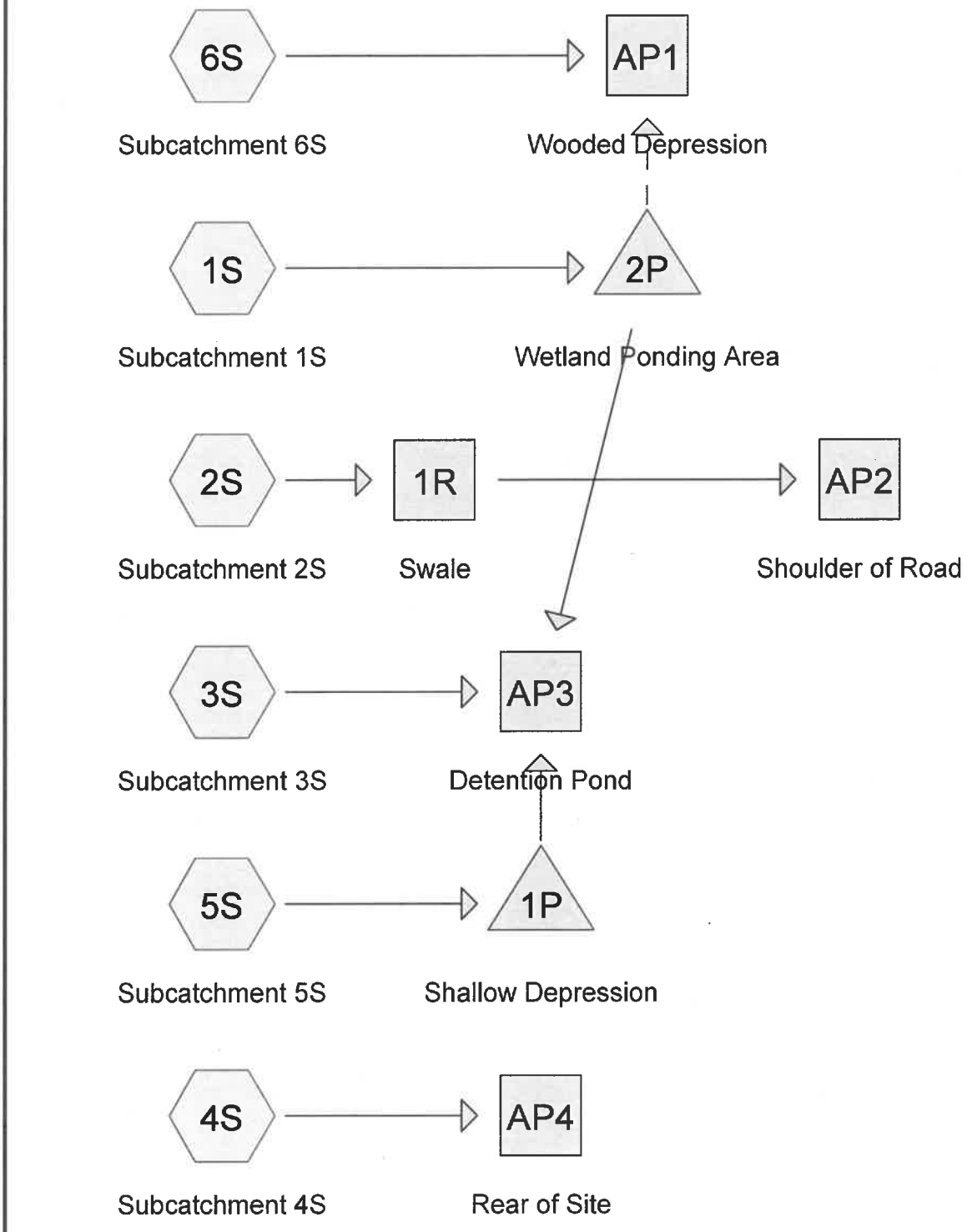
Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

Daniel Meditz, E.I.T
Project Engineer

APPENDIX I

EXISTING CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Summary 25 YEAR
Complete 50 YEAR



Routing Diagram for 21047-EXISTING
Prepared by Jones and Beach Engineers, Inc., Printed 3/21/2022
HydroCAD® 10.10-4a s/n 10589 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.644	61	>75% Grass cover, Good, HSG B (1S, 3S, 4S, 5S, 6S)
0.448	80	>75% Grass cover, Good, HSG D (1S, 2S, 3S, 4S, 5S)
0.135	96	Gravel surface, HSG B (1S, 5S)
0.107	96	Gravel surface, HSG D (1S, 2S, 3S, 4S, 5S)
0.156	98	Ledge Outcrop, HSG D (1S, 2S, 3S, 4S, 5S)
0.228	98	Paved parking, HSG B (5S, 6S)
0.047	98	Paved roads w/curbs & sewers, HSG B (1S)
0.040	98	Paved roads w/curbs & sewers, HSG D (1S, 2S)
0.064	98	Roofs, HSG B (1S, 4S, 5S, 6S)
0.103	98	Roofs, HSG D (1S, 2S, 4S, 5S)
0.861	55	Woods, Good, HSG B (1S, 3S, 4S, 5S, 6S)
0.088	77	Woods, Good, HSG D (1S, 3S, 4S, 5S)
2.921	**74**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.980	HSG B	1S, 3S, 4S, 5S, 6S
0.000	HSG C	
0.941	HSG D	1S, 2S, 3S, 4S, 5S
0.000	Other	
2.921		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=34,729 sf 15.46% Impervious Runoff Depth>1.25"
Flow Length=112' Tc=20.1 min CN=72 Runoff=0.75 cfs 0.083 af

Subcatchment2S: Subcatchment2S Runoff Area=16,495 sf 25.67% Impervious Runoff Depth>2.27"
Flow Length=45' Slope=0.0400 '/' Tc=6.0 min CN=86 Runoff=0.99 cfs 0.072 af

Subcatchment3S: Subcatchment3S Runoff Area=16,448 sf 0.17% Impervious Runoff Depth>0.61"
Flow Length=180' Tc=24.1 min CN=60 Runoff=0.13 cfs 0.019 af

Subcatchment4S: Subcatchment4S Runoff Area=7,905 sf 42.56% Impervious Runoff Depth>1.44"
Flow Length=68' Slope=0.0290 '/' Tc=12.6 min CN=75 Runoff=0.24 cfs 0.022 af

Subcatchment5S: Subcatchment5S Runoff Area=22,358 sf 25.08% Impervious Runoff Depth>1.87"
Flow Length=87' Tc=7.2 min CN=81 Runoff=1.07 cfs 0.080 af

Subcatchment6S: Subcatchment6S Runoff Area=29,310 sf 31.34% Impervious Runoff Depth>1.13"
Flow Length=137' Tc=16.7 min CN=70 Runoff=0.60 cfs 0.063 af

Reach 1R: Swale Avg. Flow Depth=0.43' Max Vel=0.52 fps Inflow=0.99 cfs 0.072 af
n=0.150 L=140.0' S=0.0214 '/' Capacity=8.19 cfs Outflow=0.86 cfs 0.072 af

Reach AP1: Wooded Depression Inflow=0.60 cfs 0.063 af
Outflow=0.60 cfs 0.063 af

Reach AP2: Shoulder of Road Inflow=0.86 cfs 0.072 af
Outflow=0.86 cfs 0.072 af

Reach AP3: Detention Pond Inflow=1.20 cfs 0.086 af
Outflow=1.20 cfs 0.086 af

Reach AP4: Rear of Site Inflow=0.24 cfs 0.022 af
Outflow=0.24 cfs 0.022 af

Pond 1P: Shallow Depression Peak Elev=37.14' Storage=590 cf Inflow=1.07 cfs 0.080 af
Outflow=1.16 cfs 0.067 af

Pond 2P: Wetland Ponding Area Peak Elev=30.48' Storage=3,609 cf Inflow=0.75 cfs 0.083 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 2.921 ac Runoff Volume = 0.339 af Average Runoff Depth = 1.39"
78.16% Pervious = 2.283 ac 21.84% Impervious = 0.638 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=34,729 sf 15.46% Impervious Runoff Depth>2.67"
Flow Length=112' Tc=20.1 min CN=72 Runoff=1.67 cfs 0.177 af

Subcatchment2S: Subcatchment2S Runoff Area=16,495 sf 25.67% Impervious Runoff Depth>4.04"
Flow Length=45' Slope=0.0400 '/' Tc=6.0 min CN=86 Runoff=1.72 cfs 0.127 af

Subcatchment3S: Subcatchment3S Runoff Area=16,448 sf 0.17% Impervious Runoff Depth>1.66"
Flow Length=180' Tc=24.1 min CN=60 Runoff=0.43 cfs 0.052 af

Subcatchment4S: Subcatchment4S Runoff Area=7,905 sf 42.56% Impervious Runoff Depth>2.95"
Flow Length=68' Slope=0.0290 '/' Tc=12.6 min CN=75 Runoff=0.50 cfs 0.045 af

Subcatchment5S: Subcatchment5S Runoff Area=22,358 sf 25.08% Impervious Runoff Depth>3.53"
Flow Length=87' Tc=7.2 min CN=81 Runoff=2.00 cfs 0.151 af

Subcatchment6S: Subcatchment6S Runoff Area=29,310 sf 31.34% Impervious Runoff Depth>2.49"
Flow Length=137' Tc=16.7 min CN=70 Runoff=1.40 cfs 0.140 af

Reach 1R: Swale Avg. Flow Depth=0.53' Max Vel=0.60 fps Inflow=1.72 cfs 0.127 af
n=0.150 L=140.0' S=0.0214 '/' Capacity=8.19 cfs Outflow=1.53 cfs 0.127 af

Reach AP1: Wooded Depression Inflow=1.40 cfs 0.140 af
Outflow=1.40 cfs 0.140 af

Reach AP2: Shoulder of Road Inflow=1.53 cfs 0.127 af
Outflow=1.53 cfs 0.127 af

Reach AP3: Detention Pond Inflow=2.24 cfs 0.228 af
Outflow=2.24 cfs 0.228 af

Reach AP4: Rear of Site Inflow=0.50 cfs 0.045 af
Outflow=0.50 cfs 0.045 af

Pond 1P: Shallow Depression Peak Elev=37.17' Storage=590 cf Inflow=2.00 cfs 0.151 af
Outflow=2.06 cfs 0.138 af

Pond 2P: Wetland Ponding Area Peak Elev=31.32' Storage=6,101 cf Inflow=1.67 cfs 0.177 af
Primary=0.10 cfs 0.038 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.038 af

Total Runoff Area = 2.921 ac Runoff Volume = 0.692 af Average Runoff Depth = 2.84"
78.16% Pervious = 2.283 ac 21.84% Impervious = 0.638 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 1.67 cfs @ 12.29 hrs, Volume= 0.177 af, Depth> 2.67"

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 24 Hr(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
	4,202	55	Woods, Good, HSG B
	191	61	>75% Grass cover, Good, HSG B
	9,900	61	>75% Grass cover, Good, HSG B
	4,049	96	Gravel surface, HSG B
	2,054	98	Paved roads w/curbs & sewers, HSG B
	5,450	55	Woods, Good, HSG B
	745	98	Roofs, HSG B
*	1,274	98	Ledge Outcrop, HSG D
	1,901	77	Woods, Good, HSG D
	666	96	Gravel surface, HSG D
	3,000	80	>75% Grass cover, Good, HSG D
	534	98	Paved roads w/curbs & sewers, HSG D
	763	98	Roofs, HSG D
	34,729	72	Weighted Average
	29,359		84.54% Pervious Area
	5,370		15.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
0.1	12	0.3300	2.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.1	112	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 1.72 cfs @ 12.09 hrs, Volume= 0.127 af, Depth> 4.04"

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 24 Hr(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
*	401	98	Ledge Outcrop, HSG D
	1,855	96	Gravel surface, HSG D
	7,620	80	>75% Grass cover, Good, HSG D
	1,200	98	Paved roads w/curbs & sewers, HSG D
	908	98	Roofs, HSG D
	2,786	80	>75% Grass cover, Good, HSG D
	1,725	98	Roofs, HSG D
	16,495	86	Weighted Average
	12,261		74.33% Pervious Area
	4,234		25.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	45	0.0400	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
3.6	45	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 0.43 cfs @ 12.37 hrs, Volume= 0.052 af, Depth> 1.66"

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 24 Hr(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
*	28	98	Ledge Outcrop, HSG D
	660	96	Gravel surface, HSG D
	1,114	77	Woods, Good, HSG D
	291	80	>75% Grass cover, Good, HSG D
	4,820	61	>75% Grass cover, Good, HSG B
	9,535	55	Woods, Good, HSG B
	16,448	60	Weighted Average
	16,420		99.83% Pervious Area
	28		0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	11	0.0230	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
5.4	18	0.0167	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
3.2	19	0.0100	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
4.0	22	0.0540	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
8.0	30	0.0180	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
2.0	80	0.0180	0.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.1	180	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 0.50 cfs @ 12.18 hrs, Volume= 0.045 af, Depth> 2.95"

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 24 Hr(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
*	2,545	98	Ledge Outcrop, HSG D
	27	96	Gravel surface, HSG D
	21	98	Roofs, HSG D
	111	77	Woods, Good, HSG D
	174	80	>75% Grass cover, Good, HSG D
	798	98	Roofs, HSG B
	1,028	61	>75% Grass cover, Good, HSG B
	3,201	55	Woods, Good, HSG B
	7,905	75	Weighted Average
	4,541		57.44% Pervious Area
	3,364		42.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	68	0.0290	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"

Summary for Subcatchment 5S: Subcatchment 5S

Runoff = 2.00 cfs @ 12.10 hrs, Volume= 0.151 af, Depth> 3.53"

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 24 Hr(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
*	2,532	98	Ledge Outcrop, HSG D
	1,442	96	Gravel surface, HSG D
	59	98	Roofs, HSG D
	715	77	Woods, Good, HSG D
	3,730	80	>75% Grass cover, Good, HSG D
	1,158	98	Roofs, HSG B
	852	98	Paved parking, HSG B
	1,842	96	Gravel surface, HSG B
	6,869	61	>75% Grass cover, Good, HSG B
	256	55	Woods, Good, HSG B
	1,896	80	>75% Grass cover, Good, HSG D
	1,007	98	Roofs, HSG D
	22,358	81	Weighted Average
	16,750		74.92% Pervious Area
	5,608		25.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	6	0.0500	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.2	15	0.0200	1.01		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
3.8	31	0.0167	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.9	14	0.1400	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
1.6	21	0.0676	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
7.2	87	Total			

Summary for Subcatchment 6S: Subcatchment 6S

Runoff = 1.40 cfs @ 12.24 hrs, Volume= 0.140 af, Depth> 2.49"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
9,085	98	Paved parking, HSG B
5,246	61	>75% Grass cover, Good, HSG B
14,877	55	Woods, Good, HSG B
102	98	Roofs, HSG B
29,310	70	Weighted Average
20,123		68.66% Pervious Area
9,187		31.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0350	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
0.7	37	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.7	137	Total			

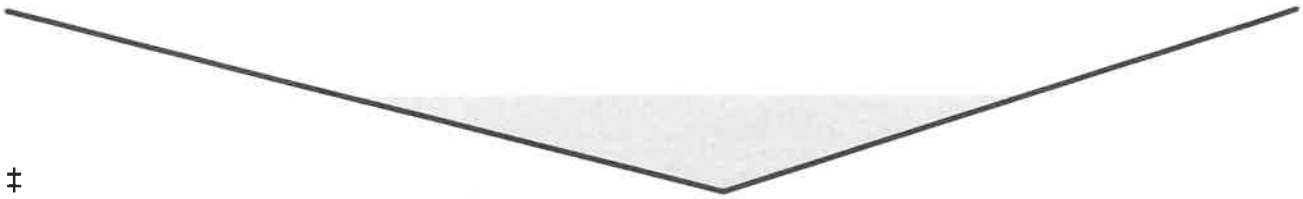
Summary for Reach 1R: Swale

Inflow Area = 0.379 ac, 25.67% Impervious, Inflow Depth > 4.04" for 10 Yr 24 Hr(+15%) event
Inflow = 1.72 cfs @ 12.09 hrs, Volume= 0.127 af
Outflow = 1.53 cfs @ 12.13 hrs, Volume= 0.127 af, Atten= 11%, Lag= 2.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 0.60 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 0.24 fps, Avg. Travel Time= 9.6 min

Peak Storage= 358 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.53' , Surface Width= 9.59'
Bank-Full Depth= 1.00' Flow Area= 9.0 sf, Capacity= 8.19 cfs

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 10.0 8.0 '/' Top Width= 18.00'
Length= 140.0' Slope= 0.0214 '/'
Inlet Invert= 40.00', Outlet Invert= 37.00'



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Summary for Reach AP1: Wooded Depression

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

Inflow Area = 0.673 ac, 31.34% Impervious, Inflow Depth > 2.49" for 10 Yr 24 Hr(+15%) event
Inflow = 1.40 cfs @ 12.24 hrs, Volume= 0.140 af
Outflow = 1.40 cfs @ 12.24 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Shoulder of Road

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

Inflow Area = 0.379 ac, 25.67% Impervious, Inflow Depth > 4.03" for 10 Yr 24 Hr(+15%) event
Inflow = 1.53 cfs @ 12.13 hrs, Volume= 0.127 af
Outflow = 1.53 cfs @ 12.13 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Detention Pond

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

Inflow Area = 1.688 ac, 14.97% Impervious, Inflow Depth > 1.62" for 10 Yr 24 Hr(+15%) event
Inflow = 2.24 cfs @ 12.11 hrs, Volume= 0.228 af
Outflow = 2.24 cfs @ 12.11 hrs, Volume= 0.228 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP4: Rear of Site

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

Inflow Area = 0.181 ac, 42.56% Impervious, Inflow Depth > 2.95" for 10 Yr 24 Hr(+15%) event
Inflow = 0.50 cfs @ 12.18 hrs, Volume= 0.045 af
Outflow = 0.50 cfs @ 12.18 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Shallow Depression

[93] Warning: Storage range exceeded by 0.09'
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=39)

Inflow Area =	0.513 ac,	25.08% Impervious,	Inflow Depth >	3.53" for 10 Yr 24 Hr(+15%) event
Inflow =	2.00 cfs @	12.10 hrs, Volume=	0.151 af	
Outflow =	2.06 cfs @	12.10 hrs, Volume=	0.138 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.06 cfs @	12.10 hrs, Volume=	0.138 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 37.17' @ 12.10 hrs Surf.Area= 3,088 sf Storage= 590 cf

Plug-Flow detention time= 64.1 min calculated for 0.138 af (91% of inflow)
Center-of-Mass det. time= 20.8 min (835.5 - 814.7)

Volume	Invert	Avail.Storage	Storage Description
#1	36.75'	590 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.75	417	0	0
36.88	1,613	132	132
37.00	2,380	240	372
37.08	3,088	219	590

Device	Routing	Invert	Outlet Devices
#1	Primary	37.07'	**27.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=2.04 cfs @ 12.10 hrs HW=37.17' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.04 cfs @ 0.77 fps)

Summary for Pond 2P: Wetland Ponding Area

Inflow Area =	0.797 ac,	15.46% Impervious,	Inflow Depth >	2.67" for 10 Yr 24 Hr(+15%) event
Inflow =	1.67 cfs @	12.29 hrs, Volume=	0.177 af	
Outflow =	0.10 cfs @	16.12 hrs, Volume=	0.038 af,	Atten= 94%, Lag= 230.1 min
Primary =	0.10 cfs @	16.12 hrs, Volume=	0.038 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 31.32' @ 16.12 hrs Surf.Area= 4,120 sf Storage= 6,101 cf

Plug-Flow detention time= 438.2 min calculated for 0.038 af (21% of inflow)

Center-of-Mass det. time= 299.4 min (1,146.8 - 847.3)

Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	6,968 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
28.00	619	194.0	0	0	619
29.00	1,245	250.0	914	914	2,610
30.00	2,036	357.0	1,624	2,538	7,787
31.00	2,891	433.0	2,451	4,989	12,582
31.50	4,916	435.0	1,929	6,919	12,839
31.51	4,916	435.0	49	6,968	12,843

Device	Routing	Invert	Outlet Devices
#1	Secondary	31.50'	**70.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	31.30'	**16.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.10 cfs @ 16.12 hrs HW=31.32' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.10 cfs @ 0.33 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=28.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=34,729 sf 15.46% Impervious Runoff Depth>3.92"
Flow Length=112' Tc=20.1 min CN=72 Runoff=2.46 cfs 0.260 af

Subcatchment2S: Subcatchment2S Runoff Area=16,495 sf 25.67% Impervious Runoff Depth>5.48"
Flow Length=45' Slope=0.0400 '/' Tc=6.0 min CN=86 Runoff=2.30 cfs 0.173 af

Subcatchment3S: Subcatchment3S Runoff Area=16,448 sf 0.17% Impervious Runoff Depth>2.67"
Flow Length=180' Tc=24.1 min CN=60 Runoff=0.72 cfs 0.084 af

Subcatchment4S: Subcatchment4S Runoff Area=7,905 sf 42.56% Impervious Runoff Depth>4.25"
Flow Length=68' Slope=0.0290 '/' Tc=12.6 min CN=75 Runoff=0.73 cfs 0.064 af

Subcatchment5S: Subcatchment5S Runoff Area=22,358 sf 25.08% Impervious Runoff Depth>4.91"
Flow Length=87' Tc=7.2 min CN=81 Runoff=2.77 cfs 0.210 af

Subcatchment6S: Subcatchment6S Runoff Area=29,310 sf 31.34% Impervious Runoff Depth>3.71"
Flow Length=137' Tc=16.7 min CN=70 Runoff=2.11 cfs 0.208 af

Reach 1R: Swale Avg. Flow Depth=0.60' Max Vel=0.64 fps Inflow=2.30 cfs 0.173 af
n=0.150 L=140.0' S=0.0214 '/' Capacity=8.19 cfs Outflow=2.06 cfs 0.172 af

Reach AP1: Wooded Depression Inflow=2.11 cfs 0.208 af
Outflow=2.11 cfs 0.208 af

Reach AP2: Shoulder of Road Inflow=2.06 cfs 0.172 af
Outflow=2.06 cfs 0.172 af

Reach AP3: Detention Pond Inflow=3.14 cfs 0.402 af
Outflow=3.14 cfs 0.402 af

Reach AP4: Rear of Site Inflow=0.73 cfs 0.064 af
Outflow=0.73 cfs 0.064 af

Pond 1P: Shallow Depression Peak Elev=37.19' Storage=590 cf Inflow=2.77 cfs 0.210 af
Outflow=2.81 cfs 0.197 af

Pond 2P: Wetland Ponding Area Peak Elev=31.36' Storage=6,271 cf Inflow=2.46 cfs 0.260 af
Primary=0.55 cfs 0.121 af Secondary=0.00 cfs 0.000 af Outflow=0.55 cfs 0.121 af

Total Runoff Area = 2.921 ac Runoff Volume = 0.999 af Average Runoff Depth = 4.11"
78.16% Pervious = 2.283 ac 21.84% Impervious = 0.638 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=34,729 sf 15.46% Impervious Runoff Depth>5.14"
Flow Length=112' Tc=20.1 min CN=72 Runoff=3.23 cfs 0.342 af

Subcatchment2S: Subcatchment2S Runoff Area=16,495 sf 25.67% Impervious Runoff Depth>6.84"
Flow Length=45' Slope=0.0400 '/' Tc=6.0 min CN=86 Runoff=2.84 cfs 0.216 af

Subcatchment3S: Subcatchment3S Runoff Area=16,448 sf 0.17% Impervious Runoff Depth>3.72"
Flow Length=180' Tc=24.1 min CN=60 Runoff=1.01 cfs 0.117 af

Subcatchment4S: Subcatchment4S Runoff Area=7,905 sf 42.56% Impervious Runoff Depth>5.51"
Flow Length=68' Slope=0.0290 '/' Tc=12.6 min CN=75 Runoff=0.94 cfs 0.083 af

Subcatchment5S: Subcatchment5S Runoff Area=22,358 sf 25.08% Impervious Runoff Depth>6.24"
Flow Length=87' Tc=7.2 min CN=81 Runoff=3.48 cfs 0.267 af

Subcatchment6S: Subcatchment6S Runoff Area=29,310 sf 31.34% Impervious Runoff Depth>4.91"
Flow Length=137' Tc=16.7 min CN=70 Runoff=2.80 cfs 0.275 af

Reach 1R: Swale Avg. Flow Depth=0.65' Max Vel=0.68 fps Inflow=2.84 cfs 0.216 af
n=0.150 L=140.0' S=0.0214 '/' Capacity=8.19 cfs Outflow=2.56 cfs 0.215 af

Reach AP1: Wooded Depression Inflow=2.80 cfs 0.275 af
Outflow=2.80 cfs 0.275 af

Reach AP2: Shoulder of Road Inflow=2.56 cfs 0.215 af
Outflow=2.56 cfs 0.215 af

Reach AP3: Detention Pond Inflow=3.98 cfs 0.573 af
Outflow=3.98 cfs 0.573 af

Reach AP4: Rear of Site Inflow=0.94 cfs 0.083 af
Outflow=0.94 cfs 0.083 af

Pond 1P: Shallow Depression Peak Elev=37.21' Storage=590 cf Inflow=3.48 cfs 0.267 af
Outflow=3.48 cfs 0.253 af

Pond 2P: Wetland Ponding Area Peak Elev=31.44' Storage=6,611 cf Inflow=3.23 cfs 0.342 af
Primary=1.90 cfs 0.202 af Secondary=0.00 cfs 0.000 af Outflow=1.90 cfs 0.202 af

Total Runoff Area = 2.921 ac Runoff Volume = 1.300 af Average Runoff Depth = 5.34"
78.16% Pervious = 2.283 ac 21.84% Impervious = 0.638 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 3.23 cfs @ 12.28 hrs, Volume= 0.342 af, Depth> 5.14"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
	4,202	55	Woods, Good, HSG B
	191	61	>75% Grass cover, Good, HSG B
	9,900	61	>75% Grass cover, Good, HSG B
	4,049	96	Gravel surface, HSG B
	2,054	98	Paved roads w/curbs & sewers, HSG B
	5,450	55	Woods, Good, HSG B
	745	98	Roofs, HSG B
*	1,274	98	Ledge Outcrop, HSG D
	1,901	77	Woods, Good, HSG D
	666	96	Gravel surface, HSG D
	3,000	80	>75% Grass cover, Good, HSG D
	534	98	Paved roads w/curbs & sewers, HSG D
	763	98	Roofs, HSG D
	34,729	72	Weighted Average
	29,359		84.54% Pervious Area
	5,370		15.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
0.1	12	0.3300	2.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.1	112	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 2.84 cfs @ 12.09 hrs, Volume= 0.216 af, Depth> 6.84"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
*	401	98	Ledge Outcrop, HSG D
	1,855	96	Gravel surface, HSG D
	7,620	80	>75% Grass cover, Good, HSG D
	1,200	98	Paved roads w/curbs & sewers, HSG D
	908	98	Roofs, HSG D
	2,786	80	>75% Grass cover, Good, HSG D
	1,725	98	Roofs, HSG D
	16,495	86	Weighted Average
	12,261		74.33% Pervious Area
	4,234		25.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	45	0.0400	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
3.6	45	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 1.01 cfs @ 12.35 hrs, Volume= 0.117 af, Depth> 3.72"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
*	28	98	Ledge Outcrop, HSG D
	660	96	Gravel surface, HSG D
	1,114	77	Woods, Good, HSG D
	291	80	>75% Grass cover, Good, HSG D
	4,820	61	>75% Grass cover, Good, HSG B
	9,535	55	Woods, Good, HSG B
	16,448	60	Weighted Average
	16,420		99.83% Pervious Area
	28		0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	11	0.0230	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
5.4	18	0.0167	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
3.2	19	0.0100	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
4.0	22	0.0540	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
8.0	30	0.0180	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
2.0	80	0.0180	0.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.1	180	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 0.94 cfs @ 12.17 hrs, Volume= 0.083 af, Depth> 5.51"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
*	2,545	98	Ledge Outcrop, HSG D
	27	96	Gravel surface, HSG D
	21	98	Roofs, HSG D
	111	77	Woods, Good, HSG D
	174	80	>75% Grass cover, Good, HSG D
	798	98	Roofs, HSG B
	1,028	61	>75% Grass cover, Good, HSG B
	3,201	55	Woods, Good, HSG B
	7,905	75	Weighted Average
	4,541		57.44% Pervious Area
	3,364		42.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	68	0.0290	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"

Summary for Subcatchment 5S: Subcatchment 5S

Runoff = 3.48 cfs @ 12.10 hrs, Volume= 0.267 af, Depth> 6.24"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
*	2,532	98	Ledge Outcrop, HSG D
	1,442	96	Gravel surface, HSG D
	59	98	Roofs, HSG D
	715	77	Woods, Good, HSG D
	3,730	80	>75% Grass cover, Good, HSG D
	1,158	98	Roofs, HSG B
	852	98	Paved parking, HSG B
	1,842	96	Gravel surface, HSG B
	6,869	61	>75% Grass cover, Good, HSG B
	256	55	Woods, Good, HSG B
	1,896	80	>75% Grass cover, Good, HSG D
	1,007	98	Roofs, HSG D
	22,358	81	Weighted Average
	16,750		74.92% Pervious Area
	5,608		25.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	6	0.0500	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.2	15	0.0200	1.01		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
3.8	31	0.0167	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.9	14	0.1400	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
1.6	21	0.0676	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
7.2	87	Total			

Summary for Subcatchment 6S: Subcatchment 6S

Runoff = 2.80 cfs @ 12.23 hrs, Volume= 0.275 af, Depth> 4.91"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
9,085	98	Paved parking, HSG B
5,246	61	>75% Grass cover, Good, HSG B
14,877	55	Woods, Good, HSG B
102	98	Roofs, HSG B
29,310	70	Weighted Average
20,123		68.66% Pervious Area
9,187		31.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0350	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
0.7	37	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.7	137	Total			

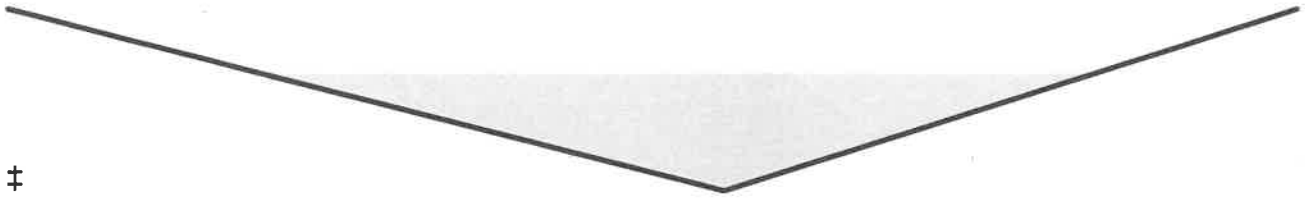
Summary for Reach 1R: Swale

Inflow Area = 0.379 ac, 25.67% Impervious, Inflow Depth > 6.84" for 50 Yr 24 Hr(+15%) event
Inflow = 2.84 cfs @ 12.09 hrs, Volume= 0.216 af
Outflow = 2.56 cfs @ 12.13 hrs, Volume= 0.215 af, Atten= 10%, Lag= 2.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 0.68 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 8.6 min

Peak Storage= 527 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.65' , Surface Width= 11.65'
Bank-Full Depth= 1.00' Flow Area= 9.0 sf, Capacity= 8.19 cfs

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 10.0 8.0 '/' Top Width= 18.00'
Length= 140.0' Slope= 0.0214 '/'
Inlet Invert= 40.00', Outlet Invert= 37.00'



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Summary for Reach AP1: Wooded Depression

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

Inflow Area = 0.673 ac, 31.34% Impervious, Inflow Depth > 4.91" for 50 Yr 24 Hr(+15%) event
Inflow = 2.80 cfs @ 12.23 hrs, Volume= 0.275 af
Outflow = 2.80 cfs @ 12.23 hrs, Volume= 0.275 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Shoulder of Road

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

Inflow Area = 0.379 ac, 25.67% Impervious, Inflow Depth > 6.83" for 50 Yr 24 Hr(+15%) event
Inflow = 2.56 cfs @ 12.13 hrs, Volume= 0.215 af
Outflow = 2.56 cfs @ 12.13 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Detention Pond

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

Inflow Area = 1.688 ac, 14.97% Impervious, Inflow Depth > 4.07" for 50 Yr 24 Hr(+15%) event
Inflow = 3.98 cfs @ 12.11 hrs, Volume= 0.573 af
Outflow = 3.98 cfs @ 12.11 hrs, Volume= 0.573 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP4: Rear of Site

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

Inflow Area = 0.181 ac, 42.56% Impervious, Inflow Depth > 5.51" for 50 Yr 24 Hr(+15%) event
Inflow = 0.94 cfs @ 12.17 hrs, Volume= 0.083 af
Outflow = 0.94 cfs @ 12.17 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Shallow Depression

[93] Warning: Storage range exceeded by 0.13'

Inflow Area = 0.513 ac, 25.08% Impervious, Inflow Depth > 6.24" for 50 Yr 24 Hr(+15%) event
Inflow = 3.48 cfs @ 12.10 hrs, Volume= 0.267 af
Outflow = 3.48 cfs @ 12.10 hrs, Volume= 0.253 af, Atten= 0%, Lag= 0.0 min
Primary = 3.48 cfs @ 12.10 hrs, Volume= 0.253 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 37.21' @ 12.10 hrs Surf.Area= 3,088 sf Storage= 590 cf

Plug-Flow detention time= 43.0 min calculated for 0.253 af (95% of inflow)
Center-of-Mass det. time= 15.6 min (814.3 - 798.7)

Volume	Invert	Avail.Storage	Storage Description
#1	36.75'	590 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.75	417	0	0
36.88	1,613	132	132
37.00	2,380	240	372
37.08	3,088	219	590

Device	Routing	Invert	Outlet Devices
#1	Primary	37.07'	**27.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=3.45 cfs @ 12.10 hrs HW=37.21' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 3.45 cfs @ 0.91 fps)

Summary for Pond 2P: Wetland Ponding Area

Inflow Area = 0.797 ac, 15.46% Impervious, Inflow Depth > 5.14" for 50 Yr 24 Hr(+15%) event
Inflow = 3.23 cfs @ 12.28 hrs, Volume= 0.342 af
Outflow = 1.90 cfs @ 12.57 hrs, Volume= 0.202 af, Atten= 41%, Lag= 17.7 min
Primary = 1.90 cfs @ 12.57 hrs, Volume= 0.202 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 31.44' @ 12.57 hrs Surf.Area= 4,625 sf Storage= 6,611 cf

Plug-Flow detention time= 192.9 min calculated for 0.202 af (59% of inflow)
Center-of-Mass det. time= 88.0 min (916.6 - 828.7)

Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	6,968 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
28.00	619	194.0	0	0	619
29.00	1,245	250.0	914	914	2,610
30.00	2,036	357.0	1,624	2,538	7,787
31.00	2,891	433.0	2,451	4,989	12,582
31.50	4,916	435.0	1,929	6,919	12,839
31.51	4,916	435.0	49	6,968	12,843

Device	Routing	Invert	Outlet Devices
#1	Secondary	31.50'	**70.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	31.30'	**16.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

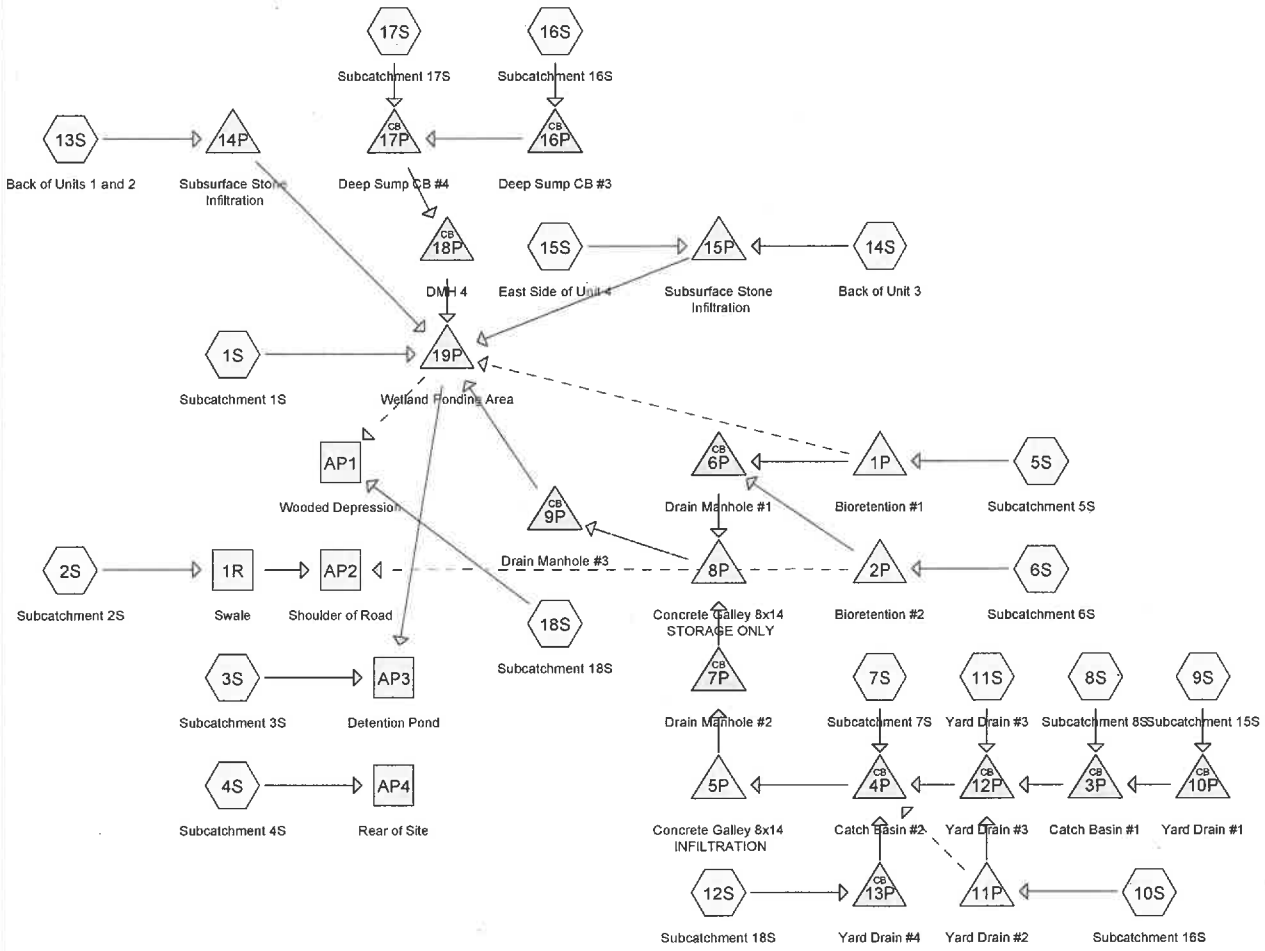
Primary OutFlow Max=1.86 cfs @ 12.57 hrs HW=31.43' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.86 cfs @ 0.87 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=28.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

APPENDIX II

PROPOSED CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Summary 25 YEAR
Complete 50 YEAR



Subcat Reach Pond Link

Routing Diagram for 21047-PROPOSED

Prepared by Jones and Beach Engineers, Inc., Printed 3/21/2022

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.666	61	>75% Grass cover, Good, HSG B (1S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 18S)
0.400	80	>75% Grass cover, Good, HSG D (1S, 2S, 6S, 7S, 8S, 9S, 10S, 12S)
0.095	98	Ledge Outcrop, HSG D (2S, 4S, 8S)
0.529	98	Paved parking, HSG B (5S, 6S, 7S, 8S, 17S, 18S)
0.136	98	Paved parking, HSG D (5S, 6S, 7S, 8S, 17S)
0.042	98	Paved roads w/curbs & sewers, HSG B (1S, 16S)
0.007	98	Paved roads w/curbs & sewers, HSG D (2S)
0.257	98	Roofs, HSG B (1S, 3S, 4S, 5S, 7S, 8S, 9S, 11S, 12S, 13S, 15S, 18S)
0.289	98	Roofs, HSG D (1S, 2S, 6S, 7S, 8S, 9S, 12S, 14S, 15S)
0.487	55	Woods, Good, HSG B (1S, 3S, 4S, 18S)
0.014	77	Woods, Good, HSG D (1S, 4S)
2.921	**80**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.980	HSG B	1S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 15S, 16S, 17S, 18S
0.000	HSG C	
0.941	HSG D	1S, 2S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 12S, 14S, 15S, 17S
0.000	Other	
2.921		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=13,938 sf 18.32% Impervious Runoff Depth>0.96"
Flow Length=48' Tc=6.6 min CN=67 Runoff=0.31 cfs 0.026 af

Subcatchment2S: Subcatchment2S Runoff Area=14,773 sf 41.02% Impervious Runoff Depth>2.36"
Flow Length=126' Tc=12.0 min CN=87 Runoff=0.76 cfs 0.067 af

Subcatchment3S: Subcatchment3S Runoff Area=8,436 sf 21.48% Impervious Runoff Depth>1.07"
Tc=6.0 min CN=69 Runoff=0.22 cfs 0.017 af

Subcatchment4S: Subcatchment4S Runoff Area=5,429 sf 56.24% Impervious Runoff Depth>1.87"
Flow Length=87' Tc=13.2 min CN=81 Runoff=0.21 cfs 0.019 af

Subcatchment5S: Subcatchment5S Runoff Area=6,946 sf 74.89% Impervious Runoff Depth>2.54"
Tc=6.0 min CN=89 Runoff=0.46 cfs 0.034 af

Subcatchment6S: Subcatchment6S Runoff Area=10,412 sf 63.47% Impervious Runoff Depth>2.63"
Flow Length=60' Tc=6.0 min CN=90 Runoff=0.71 cfs 0.052 af

Subcatchment7S: Subcatchment7S Runoff Area=9,749 sf 84.16% Impervious Runoff Depth>2.93"
Flow Length=135' Tc=6.0 min CN=93 Runoff=0.72 cfs 0.055 af

Subcatchment8S: Subcatchment8S Runoff Area=13,276 sf 70.57% Impervious Runoff Depth>2.63"
Flow Length=86' Tc=11.2 min CN=90 Runoff=0.77 cfs 0.067 af

Subcatchment9S: Subcatchment15S Runoff Area=3,072 sf 26.66% Impervious Runoff Depth>1.58"
Flow Length=67' Slope=0.0160 '/' Tc=7.2 min CN=77 Runoff=0.12 cfs 0.009 af

Subcatchment10S: Subcatchment16S Runoff Area=3,155 sf 0.00% Impervious Runoff Depth>0.71"
Flow Length=83' Slope=0.0060 '/' Tc=12.7 min CN=62 Runoff=0.04 cfs 0.004 af

Subcatchment11S: Yard Drain #3 Runoff Area=2,881 sf 15.97% Impervious Runoff Depth>0.96"
Flow Length=60' Slope=0.0150 '/' Tc=6.8 min CN=67 Runoff=0.06 cfs 0.005 af

Subcatchment12S: Subcatchment18S Runoff Area=1,341 sf 25.58% Impervious Runoff Depth>2.03"
Flow Length=37' Slope=0.0190 '/' Tc=6.0 min CN=83 Runoff=0.07 cfs 0.005 af

Subcatchment13S: Back of Units 1 and 2 Runoff Area=918 sf 100.00% Impervious Runoff Depth>3.46"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af

Subcatchment14S: Back of Unit 3 Runoff Area=310 sf 100.00% Impervious Runoff Depth>3.46"
Tc=6.0 min CN=98 Runoff=0.03 cfs 0.002 af

Subcatchment15S: East Side of Unit 4 Runoff Area=502 sf 100.00% Impervious Runoff Depth>3.46"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment16S: Subcatchment16S Runoff Area=1,247 sf 100.00% Impervious Runoff Depth>3.46"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.008 af

Subcatchment 17S: Subcatchment 17S Runoff Area=2,806 sf 100.00% Impervious Runoff Depth>3.46"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.019 af

Subcatchment 18S: Subcatchment 18S Runoff Area=28,063 sf 31.09% Impervious Runoff Depth>1.07"
Flow Length=137' Tc=16.7 min CN=69 Runoff=0.54 cfs 0.058 af

Reach 1R: Swale Avg. Flow Depth=0.61' Max Vel=0.64 fps Inflow=0.76 cfs 0.067 af
n=0.150 L=140.0' S=0.0214 '/' Capacity=2.65 cfs Outflow=0.72 cfs 0.067 af

Reach AP1: Wooded Depression Inflow=0.54 cfs 0.058 af
Outflow=0.54 cfs 0.058 af

Reach AP2: Shoulder of Road Inflow=0.72 cfs 0.067 af
Outflow=0.72 cfs 0.067 af

Reach AP3: Detention Pond Inflow=0.22 cfs 0.017 af
Outflow=0.22 cfs 0.017 af

Reach AP4: Rear of Site Inflow=0.21 cfs 0.019 af
Outflow=0.21 cfs 0.019 af

Pond 1P: Bioretention #1 Peak Elev=35.09' Storage=131 cf Inflow=0.46 cfs 0.034 af
Primary=0.47 cfs 0.032 af Secondary=0.00 cfs 0.000 af Outflow=0.47 cfs 0.032 af

Pond 2P: Bioretention #2 Peak Elev=35.42' Storage=184 cf Inflow=0.71 cfs 0.052 af
Primary=0.61 cfs 0.051 af Secondary=0.00 cfs 0.000 af Outflow=0.61 cfs 0.051 af

Pond 3P: Catch Basin #1 Peak Elev=35.59' Inflow=0.89 cfs 0.076 af
15.0" Round Culvert n=0.013 L=47.0' S=0.0053 '/' Outflow=0.89 cfs 0.076 af

Pond 4P: Catch Basin #2 Peak Elev=35.08' Inflow=1.70 cfs 0.145 af
15.0" Round Culvert n=0.013 L=36.0' S=0.0056 '/' Outflow=1.70 cfs 0.145 af

Pond 5P: Concrete Galley 8x14 INFILTRATION Peak Elev=34.18' Storage=0.050 af Inflow=1.70 cfs 0.145 af
Discarded=0.46 cfs 0.144 af Primary=0.00 cfs 0.000 af Outflow=0.46 cfs 0.144 af

Pond 6P: Drain Manhole #1 Peak Elev=34.72' Inflow=1.07 cfs 0.083 af
12.0" Round Culvert n=0.013 L=48.0' S=0.0056 '/' Outflow=1.07 cfs 0.083 af

Pond 7P: Drain Manhole #2 Peak Elev=34.20' Inflow=0.00 cfs 0.000 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0050 '/' Outflow=0.00 cfs 0.000 af

Pond 8P: Concrete Galley 8x14 STORAGE Peak Elev=33.79' Storage=0.021 af Inflow=1.07 cfs 0.083 af
Primary=0.38 cfs 0.082 af Secondary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.082 af

Pond 9P: Drain Manhole #3 Peak Elev=31.95' Inflow=0.38 cfs 0.082 af
12.0" Round Culvert n=0.013 L=85.0' S=0.0059 '/' Outflow=0.38 cfs 0.082 af

Pond 10P: Yard Drain #1 Peak Elev=36.03' Inflow=0.12 cfs 0.009 af
8.0" Round Culvert n=0.013 L=40.0' S=0.0055 '/' Outflow=0.12 cfs 0.009 af

Pond 11P: Yard Drain #2 Peak Elev=39.02' Storage=1 cf Inflow=0.04 cfs 0.004 af
Primary=0.04 cfs 0.004 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.004 af

Pond 12P: Yard Drain #3 Peak Elev=35.31' Inflow=0.98 cfs 0.086 af
15.0" Round Culvert n=0.013 L=48.0' S=0.0052 '/' Outflow=0.98 cfs 0.086 af

Pond 13P: Yard Drain #4 Peak Elev=36.66' Inflow=0.07 cfs 0.005 af
8.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=0.07 cfs 0.005 af

Pond 14P: Subsurface Stone Infiltration Peak Elev=29.07' Storage=0.002 af Inflow=0.07 cfs 0.006 af
Discarded=0.01 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.006 af

Pond 15P: Subsurface Stone Infiltration Peak Elev=32.44' Storage=0.002 af Inflow=0.07 cfs 0.005 af
Discarded=0.02 cfs 0.005 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.005 af

Pond 16P: Deep Sump CB #3 Peak Elev=31.24' Inflow=0.10 cfs 0.008 af
12.0" Round Culvert n=0.013 L=65.0' S=0.0046 '/' Outflow=0.10 cfs 0.008 af

Pond 17P: Deep Sump CB #4 Peak Elev=31.25' Inflow=0.33 cfs 0.027 af
12.0" Round Culvert n=0.013 L=2.0' S=0.0250 '/' Outflow=0.33 cfs 0.027 af

Pond 18P: DMH 4 Peak Elev=31.26' Inflow=0.33 cfs 0.027 af
12.0" Round Culvert n=0.013 L=8.0' S=0.0125 '/' Outflow=0.33 cfs 0.027 af

Pond 19P: Wetland Ponding Area Peak Elev=31.26' Storage=5,858 cf Inflow=0.95 cfs 0.135 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 2.921 ac Runoff Volume = 0.457 af Average Runoff Depth = 1.88"
53.64% Pervious = 1.567 ac 46.36% Impervious = 1.354 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=13,938 sf 18.32% Impervious Runoff Depth>2.24"
Flow Length=48' Tc=6.6 min CN=67 Runoff=0.80 cfs 0.060 af

Subcatchment2S: Subcatchment2S Runoff Area=14,773 sf 41.02% Impervious Runoff Depth>4.14"
Flow Length=126' Tc=12.0 min CN=87 Runoff=1.32 cfs 0.117 af

Subcatchment3S: Subcatchment3S Runoff Area=8,436 sf 21.48% Impervious Runoff Depth>2.41"
Tc=6.0 min CN=69 Runoff=0.53 cfs 0.039 af

Subcatchment4S: Subcatchment4S Runoff Area=5,429 sf 56.24% Impervious Runoff Depth>3.52"
Flow Length=87' Tc=13.2 min CN=81 Runoff=0.40 cfs 0.037 af

Subcatchment5S: Subcatchment5S Runoff Area=6,946 sf 74.89% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=89 Runoff=0.77 cfs 0.058 af

Subcatchment6S: Subcatchment6S Runoff Area=10,412 sf 63.47% Impervious Runoff Depth>4.46"
Flow Length=60' Tc=6.0 min CN=90 Runoff=1.17 cfs 0.089 af

Subcatchment7S: Subcatchment7S Runoff Area=9,749 sf 84.16% Impervious Runoff Depth>4.79"
Flow Length=135' Tc=6.0 min CN=93 Runoff=1.15 cfs 0.089 af

Subcatchment8S: Subcatchment8S Runoff Area=13,276 sf 70.57% Impervious Runoff Depth>4.46"
Flow Length=86' Tc=11.2 min CN=90 Runoff=1.28 cfs 0.113 af

Subcatchment9S: Subcatchment15S Runoff Area=3,072 sf 26.66% Impervious Runoff Depth>3.14"
Flow Length=67' Slope=0.0160 '/' Tc=7.2 min CN=77 Runoff=0.25 cfs 0.018 af

Subcatchment10S: Subcatchment16S Runoff Area=3,155 sf 0.00% Impervious Runoff Depth>1.82"
Flow Length=83' Slope=0.0060 '/' Tc=12.7 min CN=62 Runoff=0.12 cfs 0.011 af

Subcatchment11S: Yard Drain #3 Runoff Area=2,881 sf 15.97% Impervious Runoff Depth>2.24"
Flow Length=60' Slope=0.0150 '/' Tc=6.8 min CN=67 Runoff=0.16 cfs 0.012 af

Subcatchment12S: Subcatchment18S Runoff Area=1,341 sf 25.58% Impervious Runoff Depth>3.73"
Flow Length=37' Slope=0.0190 '/' Tc=6.0 min CN=83 Runoff=0.13 cfs 0.010 af

Subcatchment13S: Back of Units 1 and 2 Runoff Area=918 sf 100.00% Impervious Runoff Depth>5.37"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment14S: Back of Unit 3 Runoff Area=310 sf 100.00% Impervious Runoff Depth>5.37"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment15S: East Side of Unit 4 Runoff Area=502 sf 100.00% Impervious Runoff Depth>5.37"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment16S: Subcatchment16S Runoff Area=1,247 sf 100.00% Impervious Runoff Depth>5.37"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.013 af

Subcatchment 17S: Subcatchment 17S Runoff Area=2,806 sf 100.00% Impervious Runoff Depth>5.37"
Tc=6.0 min CN=98 Runoff=0.35 cfs 0.029 af

Subcatchment 18S: Subcatchment 18S Runoff Area=28,063 sf 31.09% Impervious Runoff Depth>2.40"
Flow Length=137' Tc=16.7 min CN=69 Runoff=1.29 cfs 0.129 af

Reach 1R: Swale Avg. Flow Depth=0.76' Max Vel=0.73 fps Inflow=1.32 cfs 0.117 af
n=0.150 L=140.0' S=0.0214 '/' Capacity=2.65 cfs Outflow=1.25 cfs 0.117 af

Reach AP1: Wooded Depression Inflow=1.29 cfs 0.129 af
Outflow=1.29 cfs 0.129 af

Reach AP2: Shoulder of Road Inflow=1.25 cfs 0.117 af
Outflow=1.25 cfs 0.117 af

Reach AP3: Detention Pond Inflow=0.53 cfs 0.143 af
Outflow=0.53 cfs 0.143 af

Reach AP4: Rear of Site Inflow=0.40 cfs 0.037 af
Outflow=0.40 cfs 0.037 af

Pond 1P: Bioretention #1 Peak Elev=35.53' Storage=152 cf Inflow=0.77 cfs 0.058 af
Primary=0.72 cfs 0.056 af Secondary=0.00 cfs 0.000 af Outflow=0.72 cfs 0.056 af

Pond 2P: Bioretention #2 Peak Elev=36.25' Storage=254 cf Inflow=1.17 cfs 0.089 af
Primary=1.06 cfs 0.087 af Secondary=0.00 cfs 0.000 af Outflow=1.06 cfs 0.087 af

Pond 3P: Catch Basin #1 Peak Elev=35.87' Inflow=1.50 cfs 0.132 af
15.0" Round Culvert n=0.013 L=47.0' S=0.0053 '/' Outflow=1.50 cfs 0.132 af

Pond 4P: Catch Basin #2 Peak Elev=35.75' Inflow=2.93 cfs 0.254 af
15.0" Round Culvert n=0.013 L=36.0' S=0.0056 '/' Outflow=2.93 cfs 0.254 af

Pond 5P: Concrete Galley 8x14 INFILTRATION Peak Elev=35.72' Storage=0.094 af Inflow=2.93 cfs 0.254 af
Discarded=0.67 cfs 0.251 af Primary=0.00 cfs 0.000 af Outflow=0.68 cfs 0.251 af

Pond 6P: Drain Manhole #1 Peak Elev=34.96' Inflow=1.78 cfs 0.143 af
12.0" Round Culvert n=0.013 L=48.0' S=0.0056 '/' Outflow=1.78 cfs 0.143 af

Pond 7P: Drain Manhole #2 Peak Elev=34.71' Inflow=0.00 cfs 0.000 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0050 '/' Outflow=0.00 cfs 0.000 af

Pond 8P: Concrete Galley 8x14 STORAGE Peak Elev=34.74' Storage=0.041 af Inflow=1.78 cfs 0.143 af
Primary=0.50 cfs 0.142 af Secondary=0.00 cfs 0.000 af Outflow=0.50 cfs 0.142 af

Pond 9P: Drain Manhole #3 Peak Elev=32.01' Inflow=0.50 cfs 0.142 af
12.0" Round Culvert n=0.013 L=85.0' S=0.0059 '/' Outflow=0.50 cfs 0.142 af

Pond 10P: Yard Drain #1 Peak Elev=36.14' Inflow=0.25 cfs 0.018 af
8.0" Round Culvert n=0.013 L=40.0' S=0.0055 '/' Outflow=0.25 cfs 0.018 af

Pond 11P: Yard Drain #2 Peak Elev=39.04' Storage=2 cf Inflow=0.12 cfs 0.011 af
Primary=0.12 cfs 0.011 af Secondary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.011 af

Pond 12P: Yard Drain #3 Peak Elev=35.76' Inflow=1.76 cfs 0.155 af
15.0" Round Culvert n=0.013 L=48.0' S=0.0052 '/' Outflow=1.76 cfs 0.155 af

Pond 13P: Yard Drain #4 Peak Elev=36.72' Inflow=0.13 cfs 0.010 af
8.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=0.13 cfs 0.010 af

Pond 14P: Subsurface Stone Infiltration Peak Elev=30.07' Storage=0.004 af Inflow=0.11 cfs 0.009 af
Discarded=0.02 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.009 af

Pond 15P: Subsurface Stone Infiltration Peak Elev=32.81' Storage=0.003 af Inflow=0.10 cfs 0.008 af
Discarded=0.03 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.008 af

Pond 16P: Deep Sump CB #3 Peak Elev=31.35' Inflow=0.15 cfs 0.013 af
12.0" Round Culvert n=0.013 L=65.0' S=0.0046 '/' Outflow=0.15 cfs 0.013 af

Pond 17P: Deep Sump CB #4 Peak Elev=31.35' Inflow=0.50 cfs 0.042 af
12.0" Round Culvert n=0.013 L=2.0' S=0.0250 '/' Outflow=0.50 cfs 0.042 af

Pond 18P: DMH 4 Peak Elev=31.35' Inflow=0.50 cfs 0.042 af
12.0" Round Culvert n=0.013 L=8.0' S=0.0125 '/' Outflow=0.50 cfs 0.042 af

Pond 19P: Wetland Ponding Area Peak Elev=31.35' Storage=6,248 cf Inflow=1.68 cfs 0.243 af
Primary=0.48 cfs 0.104 af Secondary=0.00 cfs 0.000 af Outflow=0.48 cfs 0.104 af

Total Runoff Area = 2.921 ac Runoff Volume = 0.841 af Average Runoff Depth = 3.46"
53.64% Pervious = 1.567 ac 46.36% Impervious = 1.354 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 0.80 cfs @ 12.10 hrs, Volume= 0.060 af, Depth> 2.24"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
586	98	Paved roads w/curbs & sewers, HSG B
1,864	55	Woods, Good, HSG B
3,396	61	>75% Grass cover, Good, HSG B
611	80	>75% Grass cover, Good, HSG D
541	77	Woods, Good, HSG D
3,408	55	Woods, Good, HSG B
1,564	61	>75% Grass cover, Good, HSG B
1,600	98	Roofs, HSG B
368	98	Roofs, HSG D
13,938	67	Weighted Average
11,384		81.68% Pervious Area
2,554		18.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	32	0.0625	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
1.5	16	0.3300	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
6.6	48	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 1.32 cfs @ 12.16 hrs, Volume= 0.117 af, Depth> 4.14"

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 24 Hr(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
	4,812	80	>75% Grass cover, Good, HSG D
	319	98	Paved roads w/curbs & sewers, HSG D
	2,823	98	Roofs, HSG D
*	186	98	Ledge Outcrop, HSG D
	3,901	80	>75% Grass cover, Good, HSG D
	2,732	98	Roofs, HSG D
	14,773	87	Weighted Average
	8,713		58.98% Pervious Area
	6,060		41.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	38	0.1000	0.29		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.7	17	0.3300	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
9.1	71	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
12.0	126	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 0.53 cfs @ 12.10 hrs, Volume= 0.039 af, Depth> 2.41"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
6,481	61	>75% Grass cover, Good, HSG B
143	55	Woods, Good, HSG B
1,812	98	Roofs, HSG B
8,436	69	Weighted Average
6,624		78.52% Pervious Area
1,812		21.48% Impervious Area

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

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 0.40 cfs @ 12.18 hrs, Volume= 0.037 af, Depth> 3.52"

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 24 Hr(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
*	2,343	98	Ledge Outcrop, HSG D
	73	77	Woods, Good, HSG D
	917	55	Woods, Good, HSG B
	1,386	61	>75% Grass cover, Good, HSG B
	710	98	Roofs, HSG B
	5,429	81	Weighted Average
	2,376		43.76% Pervious Area
	3,053		56.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	38	0.2100	3.12		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
0.8	7	0.2860	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
12.2	42	0.0120	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
13.2	87	Total			

Summary for Subcatchment 5S: Subcatchment 5S

Runoff = 0.77 cfs @ 12.09 hrs, Volume= 0.058 af, Depth> 4.36"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
1,744	61	>75% Grass cover, Good, HSG B
14	98	Paved parking, HSG D
3,348	98	Paved parking, HSG B
1,840	98	Roofs, HSG B
6,946	89	Weighted Average
1,744		25.11% Pervious Area
5,202		74.89% Impervious Area

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

Summary for Subcatchment 6S: Subcatchment 6S

Runoff = 1.17 cfs @ 12.09 hrs, Volume= 0.089 af, Depth> 4.46"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
607	61	>75% Grass cover, Good, HSG B
1,414	98	Paved parking, HSG B
2,813	98	Paved parking, HSG D
3,196	80	>75% Grass cover, Good, HSG D
2,382	98	Roofs, HSG D
10,412	90	Weighted Average
3,803		36.53% Pervious Area
6,609		63.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	20	0.0500	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.7	40	0.0100	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
2.4	60	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 7S: Subcatchment 7S

Runoff = 1.15 cfs @ 12.09 hrs, Volume= 0.089 af, Depth> 4.79"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
1,935	98	Roofs, HSG B
2,932	98	Paved parking, HSG B
972	61	>75% Grass cover, Good, HSG B
857	98	Roofs, HSG D
2,481	98	Paved parking, HSG D
572	80	>75% Grass cover, Good, HSG D
9,749	93	Weighted Average
1,544		15.84% Pervious Area
8,205		84.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	40	0.0175	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
1.0	60	0.0100	1.01		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
0.3	35	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.9	135	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 8S: Subcatchment 8S

Runoff = 1.28 cfs @ 12.15 hrs, Volume= 0.113 af, Depth> 4.46"

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 24 Hr(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
	1,713	61	>75% Grass cover, Good, HSG B
	4,487	98	Paved parking, HSG B
	1,219	98	Roofs, HSG B
	2,194	80	>75% Grass cover, Good, HSG D
*	1,608	98	Ledge Outcrop, HSG D
	39	98	Paved parking, HSG D
	2,016	98	Roofs, HSG D
	13,276	90	Weighted Average
	3,907		29.43% Pervious Area
	9,369		70.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	40	0.0400	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
2.5	20	0.0200	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
5.4	26	0.0050	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
11.2	86	Total			

Summary for Subcatchment 9S: Subcatchment 15S

Runoff = 0.25 cfs @ 12.11 hrs, Volume= 0.018 af, Depth> 3.14"

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 24 Hr(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
	1,238	61	>75% Grass cover, Good, HSG B
	1,015	80	>75% Grass cover, Good, HSG D
	72	98	Roofs, HSG B
	747	98	Roofs, HSG D
	3,072	77	Weighted Average
	2,253		73.34% Pervious Area
	819		26.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	67	0.0160	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"

Summary for Subcatchment 10S: Subcatchment 16S

Runoff = 0.12 cfs @ 12.19 hrs, Volume= 0.011 af, Depth> 1.82"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
2,918	61	>75% Grass cover, Good, HSG B
237	80	>75% Grass cover, Good, HSG D
3,155	62	Weighted Average
3,155		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	83	0.0060	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"

Summary for Subcatchment 11S: Yard Drain #3

Runoff = 0.16 cfs @ 12.11 hrs, Volume= 0.012 af, Depth> 2.24"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
2,421	61	>75% Grass cover, Good, HSG B
460	98	Roofs, HSG B
2,881	67	Weighted Average
2,421		84.03% Pervious Area
460		15.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	60	0.0150	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"

Summary for Subcatchment 12S: Subcatchment 18S

Runoff = 0.13 cfs @ 12.09 hrs, Volume= 0.010 af, Depth> 3.73"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
94	61	>75% Grass cover, Good, HSG B
904	80	>75% Grass cover, Good, HSG D
11	98	Roofs, HSG B
332	98	Roofs, HSG D
1,341	83	Weighted Average
998		74.42% Pervious Area
343		25.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	37	0.0190	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
4.2	37	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 13S: Back of Units 1 and 2

Runoff = 0.11 cfs @ 12.09 hrs, Volume= 0.009 af, Depth> 5.37"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
918	98	Roofs, HSG B
918		100.00% Impervious Area

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

Summary for Subcatchment 14S: Back of Unit 3

Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 5.37"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
310	98	Roofs, HSG D
310		100.00% Impervious Area

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

Summary for Subcatchment 15S: East Side of Unit 4

Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 5.37"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
500	98	Roofs, HSG B
2	98	Roofs, HSG D
502	98	Weighted Average
502		100.00% Impervious Area

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

Summary for Subcatchment 16S: Subcatchment 16S

Runoff = 0.15 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 5.37"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
1,247	98	Paved roads w/curbs & sewers, HSG B
1,247		100.00% Impervious Area

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

Summary for Subcatchment 17S: Subcatchment 17S

Runoff = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af, Depth> 5.37"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
2,230	98	Paved parking, HSG B
576	98	Paved parking, HSG D
2,806	98	Weighted Average
2,806		100.00% Impervious Area

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

Summary for Subcatchment 18S: Subcatchment 18S

Runoff = 1.29 cfs @ 12.24 hrs, Volume= 0.129 af, Depth> 2.40"

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 24 Hr(+15%) Rainfall=5.61"

Area (sf)	CN	Description
8,622	98	Paved parking, HSG B
4,462	61	>75% Grass cover, Good, HSG B
102	98	Roofs, HSG B
14,877	55	Woods, Good, HSG B
28,063	69	Weighted Average
19,339		68.91% Pervious Area
8,724		31.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0350	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
0.7	37	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.7	137	Total			

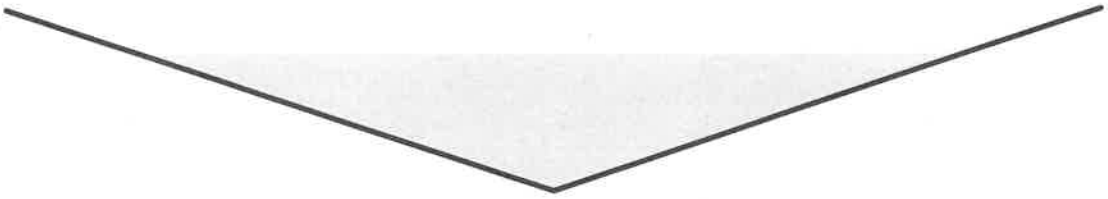
Summary for Reach 1R: Swale

Inflow Area = 0.339 ac, 41.02% Impervious, Inflow Depth > 4.14" for 10 Yr 24 Hr(+15%) event
Inflow = 1.32 cfs @ 12.16 hrs, Volume= 0.117 af
Outflow = 1.25 cfs @ 12.21 hrs, Volume= 0.117 af, Atten= 5%, Lag= 2.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 0.73 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 0.30 fps, Avg. Travel Time= 7.7 min

Peak Storage= 240 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.76' , Surface Width= 4.53'
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 2.65 cfs

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 3.0 '/' Top Width= 6.00'
Length= 140.0' Slope= 0.0214 '/'
Inlet Invert= 40.00', Outlet Invert= 37.00'



Summary for Reach AP1: Wooded Depression

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

Inflow Area = 0.644 ac, 31.09% Impervious, Inflow Depth > 2.40" for 10 Yr 24 Hr(+15%) event
Inflow = 1.29 cfs @ 12.24 hrs, Volume= 0.129 af
Outflow = 1.29 cfs @ 12.24 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Shoulder of Road

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

Inflow Area = 0.339 ac, 41.02% Impervious, Inflow Depth > 4.13" for 10 Yr 24 Hr(+15%) event
Inflow = 1.25 cfs @ 12.21 hrs, Volume= 0.117 af
Outflow = 1.25 cfs @ 12.21 hrs, Volume= 0.117 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Detention Pond

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

Inflow Area = 1.813 ac, 52.10% Impervious, Inflow Depth > 0.95" for 10 Yr 24 Hr(+15%) event
Inflow = 0.53 cfs @ 12.10 hrs, Volume= 0.143 af
Outflow = 0.53 cfs @ 12.10 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP4: Rear of Site

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

Inflow Area = 0.125 ac, 56.24% Impervious, Inflow Depth > 3.52" for 10 Yr 24 Hr(+15%) event
Inflow = 0.40 cfs @ 12.18 hrs, Volume= 0.037 af
Outflow = 0.40 cfs @ 12.18 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Bioretention #1

Inflow Area = 0.159 ac, 74.89% Impervious, Inflow Depth > 4.36" for 10 Yr 24 Hr(+15%) event
Inflow = 0.77 cfs @ 12.09 hrs, Volume= 0.058 af
Outflow = 0.72 cfs @ 12.11 hrs, Volume= 0.056 af, Atten= 7%, Lag= 1.4 min
Primary = 0.72 cfs @ 12.11 hrs, Volume= 0.056 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 35.53' @ 12.12 hrs Surf.Area= 315 sf Storage= 152 cf

Plug-Flow detention time= 33.3 min calculated for 0.056 af (97% of inflow)
Center-of-Mass det. time= 14.4 min (804.4 - 790.0)

Volume	Invert	Avail.Storage	Storage Description
#1	33.99'	694 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.99	315	0.0	0	0
34.00	315	40.0	1	1
34.99	315	40.0	125	126
35.00	315	15.0	0	126
36.49	315	15.0	70	197
36.50	315	100.0	3	200
37.00	484	100.0	200	400
37.50	668	100.0	288	688
37.51	668	100.0	7	694

Device	Routing	Invert	Outlet Devices
#1	Primary	34.58'	**8.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.58' / 34.40' S= 0.0045 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	34.25'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	37.30'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	37.50'	**31.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.71 cfs @ 12.11 hrs HW=35.51' TW=34.95' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.71 cfs of 0.92 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.71 cfs @ 3.59 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.99' TW=28.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Bioretention #2

Inflow Area = 0.239 ac, 63.47% Impervious, Inflow Depth > 4.46" for 10 Yr 24 Hr(+15%) event
Inflow = 1.17 cfs @ 12.09 hrs, Volume= 0.089 af
Outflow = 1.06 cfs @ 12.13 hrs, Volume= 0.087 af, Atten= 10%, Lag= 2.3 min
Primary = 1.06 cfs @ 12.13 hrs, Volume= 0.087 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 36.25' @ 12.13 hrs Surf.Area= 494 sf Storage= 254 cf

Plug-Flow detention time= 20.3 min calculated for 0.087 af (98% of inflow)
Center-of-Mass det. time= 10.3 min (796.7 - 786.4)

Volume	Invert	Avail.Storage	Storage Description
#1	34.49'	984 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.49	494	0.0	0	0
34.50	494	40.0	2	2
35.49	494	40.0	196	198
35.50	494	15.0	1	198
36.99	494	15.0	110	309
37.00	494	100.0	5	314
38.00	831	100.0	663	976
38.01	831	100.0	8	984

Device	Routing	Invert	Outlet Devices
#1	Primary	34.58'	**8.0" Round Culvert** L= 33.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.58' / 34.40' S= 0.0055 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	34.75'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	37.70'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	38.00'	**13.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=1.04 cfs @ 12.13 hrs HW=36.21' TW=34.95' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.04 cfs of 1.49 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.04 cfs @ 5.29 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=34.49' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Catch Basin #1

Inflow Area = 0.375 ac, 62.32% Impervious, Inflow Depth > 4.21" for 10 Yr 24 Hr(+15%) event
Inflow = 1.50 cfs @ 12.15 hrs, Volume= 0.132 af
Outflow = 1.50 cfs @ 12.15 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min
Primary = 1.50 cfs @ 12.15 hrs, Volume= 0.132 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 35.87' @ 12.13 hrs
Flood Elev= 38.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	**15.0" Round Culvert** L= 47.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.00' / 34.75' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.49 cfs @ 12.15 hrs HW=35.86' TW=35.61' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.49 cfs @ 2.33 fps)

Summary for Pond 4P: Catch Basin #2

Inflow Area = 0.768 ac, 57.35% Impervious, Inflow Depth > 3.97" for 10 Yr 24 Hr(+15%) event
Inflow = 2.93 cfs @ 12.11 hrs, Volume= 0.254 af
Outflow = 2.93 cfs @ 12.11 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.0 min
Primary = 2.93 cfs @ 12.11 hrs, Volume= 0.254 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 35.75' @ 12.55 hrs
Flood Elev= 38.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.30'	**15.0" Round Culvert** L= 36.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.30' / 34.10' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.88 cfs @ 12.11 hrs HW=35.38' TW=34.39' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 2.88 cfs @ 3.42 fps)

Summary for Pond 5P: Concrete Galley 8x14 INFILTRATION

Inflow Area = 0.768 ac, 57.35% Impervious, Inflow Depth > 3.97" for 10 Yr 24 Hr(+15%) event
Inflow = 2.93 cfs @ 12.11 hrs, Volume= 0.254 af
Outflow = 0.68 cfs @ 12.57 hrs, Volume= 0.251 af, Atten= 77%, Lag= 27.6 min
Discarded = 0.67 cfs @ 12.57 hrs, Volume= 0.251 af
Primary = 0.00 cfs @ 12.57 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 35.72' @ 12.57 hrs Surf.Area= 0.071 ac Storage= 0.094 af

Plug-Flow detention time= 79.0 min calculated for 0.251 af (99% of inflow)
Center-of-Mass det. time= 71.3 min (865.5 - 794.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	33.90'	0.000 af	**24.00'W x 42.00'L x 3.67'H Field A** 0.085 af Overall - 0.085 af Embedded = 0.000 af x 40.0% Voids
#2A	33.90'	0.062 af	**Shea Leaching Chamber 8x14x3.7** x 9 Inside #1 Inside= 84.0"W x 36.0"H => 23.08 sf x 13.00'L = 300.0 cf Outside= 96.0"W x 44.0"H => 29.36 sf x 14.00'L = 411.0 cf 9 Chambers in 3 Rows
#3	30.90'	0.035 af	**28.00'W x 46.00'L x 3.00'H Prismatoid** 0.089 af Overall x 40.0% Voids
#4	30.90'	0.007 af	**8.00'W x 32.00'L x 3.00'H Prismatoid** 0.018 af Overall x 40.0% Voids
#5	33.90'	0.010 af	**2.00'W x 148.00'L x 3.67'H Prismatoid** 0.025 af Overall x 40.0% Voids
#6B	33.90'	0.000 af	**8.00'W x 28.00'L x 3.67'H Field B** 0.019 af Overall - 0.019 af Embedded = 0.000 af x 40.0% Voids
#7B	33.90'	0.014 af	**Shea Leaching Chamber 8x14x3.7** x 2 Inside #6 Inside= 84.0"W x 36.0"H => 23.08 sf x 13.00'L = 300.0 cf Outside= 96.0"W x 44.0"H => 29.36 sf x 14.00'L = 411.0 cf

0.128 af Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.90'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 30.82' Phase-In= 0.01'
#2	Primary	35.70'	**12.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.70' / 34.30' S= 0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Primary	37.56'	**160.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.67 cfs @ 12.57 hrs HW=35.72' (Free Discharge)
└**1=Exfiltration** (Controls 0.67 cfs)

Primary OutFlow Max=0.00 cfs @ 12.57 hrs HW=35.72' TW=34.71' (Dynamic Tailwater)
├**2=Culvert** (Inlet Controls 0.00 cfs @ 0.39 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Drain Manhole #1

Inflow Area = 0.398 ac, 68.04% Impervious, Inflow Depth > 4.32" for 10 Yr 24 Hr(+15%) event
Inflow = 1.78 cfs @ 12.12 hrs, Volume= 0.143 af
Outflow = 1.78 cfs @ 12.12 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min
Primary = 1.78 cfs @ 12.12 hrs, Volume= 0.143 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 34.96' @ 12.12 hrs
Flood Elev= 38.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.07'	**12.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.07' / 33.80' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.74 cfs @ 12.12 hrs HW=34.95' TW=33.97' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 1.74 cfs @ 3.17 fps)

Summary for Pond 7P: Drain Manhole #2

Inflow Area = 0.768 ac, 57.35% Impervious, Inflow Depth = 0.00" for 10 Yr 24 Hr(+15%) event
Inflow = 0.00 cfs @ 12.57 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 12.57 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 12.57 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 34.71' @ 12.56 hrs
Flood Elev= 39.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.20'	**12.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.20' / 34.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.57 hrs HW=34.71' TW=34.72' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 8P: Concrete Galley 8x14 STORAGE ONLY

[92] Warning: Device #4 is above defined storage
[80] Warning: Exceeded Pond 7P by 0.43' @ 12.70 hrs (0.49 cfs 0.010 af)

Inflow Area =	1.167 ac, 61.00% Impervious, Inflow Depth >	1.48"	for 10 Yr 24 Hr(+15%) event		
Inflow =	1.78 cfs @	12.12 hrs, Volume=	0.143 af		
Outflow =	0.50 cfs @	12.50 hrs, Volume=	0.142 af, Atten= 72%, Lag= 22.6 min		
Primary =	0.50 cfs @	12.50 hrs, Volume=	0.142 af		
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 34.74' @ 12.50 hrs Surf.Area= 0.055 ac Storage= 0.041 af

Plug-Flow detention time= 38.0 min calculated for 0.142 af (99% of inflow)
Center-of-Mass det. time= 32.7 min (832.4 - 799.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	33.30'	0.000 af	**16.00'W x 56.00'L x 3.67'H Field A** 0.075 af Overall - 0.075 af Embedded = 0.000 af x 40.0% Voids
#2A	33.30'	0.055 af	**Shea Leaching Chamber 8x14x3.7** x 8 Inside #1 Inside= 84.0"W x 36.0"H => 23.08 sf x 13.00'L = 300.0 cf Outside= 96.0"W x 44.0"H => 29.36 sf x 14.00'L = 411.0 cf 8 Chambers in 2 Rows
#3	32.30'	0.011 af	**20.00'W x 60.00'L x 1.00'H Prismatoid** 0.028 af Overall x 40.0% Voids
#4	33.30'	0.010 af	**2.00'W x 144.00'L x 3.67'H Prismatoid** 0.024 af Overall x 40.0% Voids
		0.076 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	32.30'	**4.0" Round Culvert** L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.30' / 32.27' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Device 1	32.30'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	34.70'	**8.0" Round Culvert**

L= 3.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 34.70' / 34.67' S= 0.0100 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

#4	Secondary	39.80'	**160.0' long x 1.0' breadth Broad-Crested Rectangular Weir**

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00
Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.50 cfs @ 12.50 hrs HW=34.74' TW=32.01' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.50 cfs @ 5.73 fps)
└─**2=Orifice/Grate** (Passes 0.50 cfs of 0.63 cfs potential flow)
└─**3=Culvert** (Barrel Controls 0.00 cfs @ 0.75 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=32.30' TW=31.60' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: Drain Manhole #3

Inflow Area =	1.167 ac, 61.00% Impervious, Inflow Depth > 1.46"		for 10 Yr 24 Hr(+15%) event	
Inflow	=	0.50 cfs @ 12.50 hrs, Volume=	0.142 af	
Outflow	=	0.50 cfs @ 12.50 hrs, Volume=	0.142 af, Atten= 0%, Lag= 0.0 min	
Primary	=	0.50 cfs @ 12.50 hrs, Volume=	0.142 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 32.01' @ 12.50 hrs
Flood Elev= 39.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	31.60'	**12.0" Round Culvert**

L= 85.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 31.60' / 31.10' S= 0.0059 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.50 hrs HW=32.01' TW=30.77' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 0.50 cfs @ 2.49 fps)

Summary for Pond 10P: Yard Drain #1

Inflow Area =	0.071 ac, 26.66% Impervious, Inflow Depth > 3.14"		for 10 Yr 24 Hr(+15%) event	
Inflow	=	0.25 cfs @ 12.11 hrs, Volume=	0.018 af	
Outflow	=	0.25 cfs @ 12.11 hrs, Volume=	0.018 af, Atten= 0%, Lag= 0.0 min	
Primary	=	0.25 cfs @ 12.11 hrs, Volume=	0.018 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 36.14' @ 12.12 hrs
Flood Elev= 39.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.80'	**8.0" Round Culvert**

L= 40.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 35.80' / 35.58' S= 0.0055 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.24 cfs @ 12.11 hrs HW=36.13' TW=35.85' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.24 cfs @ 1.98 fps)

Summary for Pond 11P: Yard Drain #2

Inflow Area = 0.072 ac, 0.00% Impervious, Inflow Depth > 1.82" for 10 Yr 24 Hr(+15%) event
Inflow = 0.12 cfs @ 12.19 hrs, Volume= 0.011 af
Outflow = 0.12 cfs @ 12.20 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.4 min
Primary = 0.12 cfs @ 12.20 hrs, Volume= 0.011 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 39.04' @ 12.20 hrs Surf.Area= 107 sf Storage= 2 cf

Plug-Flow detention time= 0.2 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (866.4 - 866.2)

Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	1,358 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	5	0	0
40.01	2,685	1,358	1,358

Device	Routing	Invert	Outlet Devices
#1	Primary	36.00'	**8.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.00' / 35.33' S= 0.0134 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	39.00'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	40.00'	**100.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.12 cfs @ 12.20 hrs HW=39.04' TW=35.55' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.12 cfs of 2.18 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 0.12 cfs @ 0.64 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=39.00' TW=34.30' (Dynamic Tailwater)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 12P: Yard Drain #3

Inflow Area = 0.514 ac, 47.57% Impervious, Inflow Depth > 3.62" for 10 Yr 24 Hr(+15%) event
Inflow = 1.76 cfs @ 12.14 hrs, Volume= 0.155 af
Outflow = 1.76 cfs @ 12.14 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min
Primary = 1.76 cfs @ 12.14 hrs, Volume= 0.155 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 35.76' @ 12.53 hrs
Flood Elev= 38.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.65'	**15.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.65' / 34.40' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.74 cfs @ 12.14 hrs HW=35.61' TW=35.36' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.74 cfs @ 2.38 fps)

Summary for Pond 13P: Yard Drain #4

Inflow Area = 0.031 ac, 25.58% Impervious, Inflow Depth > 3.73" for 10 Yr 24 Hr(+15%) event
Inflow = 0.13 cfs @ 12.09 hrs, Volume= 0.010 af
Outflow = 0.13 cfs @ 12.09 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 12.09 hrs, Volume= 0.010 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 36.72' @ 12.09 hrs
Flood Elev= 39.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	**8.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.50' / 36.10' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.13 cfs @ 12.09 hrs HW=36.72' TW=35.37' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.13 cfs @ 1.26 fps)

Summary for Pond 14P: Subsurface Stone Infiltration

Inflow Area = 0.021 ac,100.00% Impervious, Inflow Depth > 5.37" for 10 Yr 24 Hr(+15%) event
Inflow = 0.11 cfs @ 12.09 hrs, Volume= 0.009 af
Outflow = 0.02 cfs @ 12.58 hrs, Volume= 0.009 af, Atten= 85%, Lag= 29.4 min
Discarded = 0.02 cfs @ 12.58 hrs, Volume= 0.009 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 30.07' @ 12.58 hrs Surf.Area= 0.004 ac Storage= 0.004 af

Plug-Flow detention time= 111.7 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 111.0 min (856.8 - 745.7)

Volume	Invert	Avail.Storage	Storage Description
#1	27.50'	0.007 af	**4.00'W x 40.00'L x 4.51'H Prismatoid** 0.017 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.50'	**0.650 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 27.08' Phase-In= 0.01'
#2	Primary	32.00'	**88.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.02 cfs @ 12.58 hrs HW=30.07' (Free Discharge)
↑**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=27.50' TW=28.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 15P: Subsurface Stone Infiltration

Inflow Area =	0.019 ac,100.00% Impervious,	Inflow Depth >	5.37"	for 10 Yr 24 Hr(+15%) event
Inflow =	0.10 cfs @	12.09 hrs, Volume=	0.008 af	
Outflow =	0.03 cfs @	12.44 hrs, Volume=	0.008 af, Atten= 73%, Lag= 21.3 min	
Discarded =	0.03 cfs @	12.44 hrs, Volume=	0.008 af	
Primary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 32.81' @ 12.44 hrs Surf.Area= 0.006 ac Storage= 0.003 af

Plug-Flow detention time= 51.1 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 50.1 min (795.8 - 745.7)

Volume	Invert	Avail.Storage	Storage Description
#1	31.80'	0.004 af	**8.00'W x 35.00'L x 1.71'H Prismatoid** 0.011 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	31.80'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 31.72' Phase-In= 0.01'
#2	Primary	33.50'	**86.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.03 cfs @ 12.44 hrs HW=32.81' (Free Discharge)
↑**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=31.80' TW=28.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 16P: Deep Sump CB #3

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=103)

Inflow Area = 0.029 ac,100.00% Impervious, Inflow Depth > 5.37" for 10 Yr 24 Hr(+15%) event
Inflow = 0.15 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.15 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 12.09 hrs, Volume= 0.013 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 31.35' @ 13.61 hrs
Flood Elev= 33.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.80'	**12.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 29.80' / 29.50' S= 0.0046 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=30.15' TW=30.16' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 17P: Deep Sump CB #4

[80] Warning: Exceeded Pond 16P by 1.52' @ 17.90 hrs (2.87 cfs 1.071 af)

Inflow Area = 0.093 ac,100.00% Impervious, Inflow Depth > 5.37" for 10 Yr 24 Hr(+15%) event
Inflow = 0.50 cfs @ 12.09 hrs, Volume= 0.042 af
Outflow = 0.50 cfs @ 12.09 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.09 hrs, Volume= 0.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 31.35' @ 13.60 hrs
Flood Elev= 33.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.55'	**12.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 29.55' / 29.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.49 cfs @ 12.09 hrs HW=30.16' TW=30.09' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 0.49 cfs @ 0.98 fps)

Summary for Pond 18P: DMH 4

[80] Warning: Exceeded Pond 17P by 1.70' @ 17.30 hrs (3.33 cfs 0.099 af)

Inflow Area =	0.093 ac,100.00% Impervious,	Inflow Depth >	5.36"	for	10 Yr 24 Hr(+15%) event
Inflow =	0.50 cfs @	12.09 hrs,	Volume=	0.042 af	
Outflow =	0.50 cfs @	12.09 hrs,	Volume=	0.042 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.50 cfs @	12.09 hrs,	Volume=	0.042 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 31.35' @ 13.60 hrs
Flood Elev= 33.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.40'	**12.0" Round Culvert** L= 8.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 29.40' / 29.30' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.49 cfs @ 12.09 hrs HW=30.09' TW=30.04' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.49 cfs @ 0.85 fps)

Summary for Pond 19P: Wetland Ponding Area

[80] Warning: Exceeded Pond 18P by 1.92' @ 15.60 hrs (3.56 cfs 0.379 af)

Inflow Area =	1.620 ac, 55.77% Impervious,	Inflow Depth >	1.80"	for	10 Yr 24 Hr(+15%) event
Inflow =	1.68 cfs @	12.10 hrs,	Volume=	0.243 af	
Outflow =	0.48 cfs @	13.60 hrs,	Volume=	0.104 af,	Atten= 72%, Lag= 89.7 min
Primary =	0.48 cfs @	13.60 hrs,	Volume=	0.104 af	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 31.35' @ 13.60 hrs Surf.Area= 4,269 sf Storage= 6,248 cf

Plug-Flow detention time= 285.8 min calculated for 0.104 af (43% of inflow)
Center-of-Mass det. time= 154.6 min (976.2 - 821.6)

Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	6,968 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
28.00	619	194.0	0	0	619
29.00	1,245	250.0	914	914	2,610
30.00	2,036	357.0	1,624	2,538	7,787
31.00	2,891	433.0	2,451	4,989	12,582
31.50	4,916	435.0	1,929	6,919	12,839
31.51	4,916	435.0	49	6,968	12,843

Device	Routing	Invert	Outlet Devices
#1	Secondary	31.50'	**70.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	31.30'	**16.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.48 cfs @ 13.60 hrs HW=31.35' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.48 cfs @ 0.55 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=28.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=13,938 sf 18.32% Impervious Runoff Depth>3.40"
Flow Length=48' Tc=6.6 min CN=67 Runoff=1.23 cfs 0.091 af

Subcatchment2S: Subcatchment2S Runoff Area=14,773 sf 41.02% Impervious Runoff Depth>5.59"
Flow Length=126' Tc=12.0 min CN=87 Runoff=1.75 cfs 0.158 af

Subcatchment3S: Subcatchment3S Runoff Area=8,436 sf 21.48% Impervious Runoff Depth>3.61"
Tc=6.0 min CN=69 Runoff=0.80 cfs 0.058 af

Subcatchment4S: Subcatchment4S Runoff Area=5,429 sf 56.24% Impervious Runoff Depth>4.91"
Flow Length=87' Tc=13.2 min CN=81 Runoff=0.56 cfs 0.051 af

Subcatchment5S: Subcatchment5S Runoff Area=6,946 sf 74.89% Impervious Runoff Depth>5.82"
Tc=6.0 min CN=89 Runoff=1.01 cfs 0.077 af

Subcatchment6S: Subcatchment6S Runoff Area=10,412 sf 63.47% Impervious Runoff Depth>5.94"
Flow Length=60' Tc=6.0 min CN=90 Runoff=1.53 cfs 0.118 af

Subcatchment7S: Subcatchment7S Runoff Area=9,749 sf 84.16% Impervious Runoff Depth>6.29"
Flow Length=135' Tc=6.0 min CN=93 Runoff=1.48 cfs 0.117 af

Subcatchment8S: Subcatchment8S Runoff Area=13,276 sf 70.57% Impervious Runoff Depth>5.93"
Flow Length=86' Tc=11.2 min CN=90 Runoff=1.68 cfs 0.151 af

Subcatchment9S: Subcatchment15S Runoff Area=3,072 sf 26.66% Impervious Runoff Depth>4.47"
Flow Length=67' Slope=0.0160 '/' Tc=7.2 min CN=77 Runoff=0.35 cfs 0.026 af

Subcatchment10S: Subcatchment16S Runoff Area=3,155 sf 0.00% Impervious Runoff Depth>2.88"
Flow Length=83' Slope=0.0060 '/' Tc=12.7 min CN=62 Runoff=0.19 cfs 0.017 af

Subcatchment11S: Yard Drain #3 Runoff Area=2,881 sf 15.97% Impervious Runoff Depth>3.40"
Flow Length=60' Slope=0.0150 '/' Tc=6.8 min CN=67 Runoff=0.25 cfs 0.019 af

Subcatchment12S: Subcatchment18S Runoff Area=1,341 sf 25.58% Impervious Runoff Depth>5.14"
Flow Length=37' Slope=0.0190 '/' Tc=6.0 min CN=83 Runoff=0.18 cfs 0.013 af

Subcatchment13S: Back of Units 1 and 2 Runoff Area=918 sf 100.00% Impervious Runoff Depth>6.88"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.012 af

Subcatchment14S: Back of Unit 3 Runoff Area=310 sf 100.00% Impervious Runoff Depth>6.88"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment15S: East Side of Unit 4 Runoff Area=502 sf 100.00% Impervious Runoff Depth>6.88"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment16S: Subcatchment16S Runoff Area=1,247 sf 100.00% Impervious Runoff Depth>6.88"
Tc=6.0 min CN=98 Runoff=0.20 cfs 0.016 af

Subcatchment 17S: Subcatchment 17S Runoff Area=2,806 sf 100.00% Impervious Runoff Depth>6.88"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.037 af

Subcatchment 18S: Subcatchment 18S Runoff Area=28,063 sf 31.09% Impervious Runoff Depth>3.60"
Flow Length=137' Tc=16.7 min CN=69 Runoff=1.96 cfs 0.193 af

Reach 1R: Swale Avg. Flow Depth=0.84' Max Vel=0.79 fps Inflow=1.75 cfs 0.158 af
n=0.150 L=140.0' S=0.0214 '/' Capacity=2.65 cfs Outflow=1.68 cfs 0.158 af

Reach AP1: Wooded Depression Inflow=1.96 cfs 0.193 af
Outflow=1.96 cfs 0.193 af

Reach AP2: Shoulder of Road Inflow=1.68 cfs 0.158 af
Outflow=1.68 cfs 0.158 af

Reach AP3: Detention Pond Inflow=2.00 cfs 0.287 af
Outflow=2.00 cfs 0.287 af

Reach AP4: Rear of Site Inflow=0.56 cfs 0.051 af
Outflow=0.56 cfs 0.051 af

Pond 1P: Bioretention #1 Peak Elev=36.13' Storage=180 cf Inflow=1.01 cfs 0.077 af
Primary=0.94 cfs 0.075 af Secondary=0.00 cfs 0.000 af Outflow=0.94 cfs 0.075 af

Pond 2P: Bioretention #2 Peak Elev=37.04' Storage=332 cf Inflow=1.53 cfs 0.118 af
Primary=1.32 cfs 0.117 af Secondary=0.00 cfs 0.000 af Outflow=1.32 cfs 0.117 af

Pond 3P: Catch Basin #1 Peak Elev=36.58' Inflow=1.99 cfs 0.177 af
15.0" Round Culvert n=0.013 L=47.0' S=0.0053 '/' Outflow=1.99 cfs 0.177 af

Pond 4P: Catch Basin #2 Peak Elev=36.51' Inflow=3.93 cfs 0.343 af
15.0" Round Culvert n=0.013 L=36.0' S=0.0056 '/' Outflow=3.93 cfs 0.343 af

Pond 5P: Concrete Galley 8x14 INFILTRATION Peak Elev=36.33' Storage=0.110 af Inflow=3.93 cfs 0.343 af
Discarded=0.76 cfs 0.306 af Primary=1.10 cfs 0.033 af Outflow=1.86 cfs 0.339 af

Pond 6P: Drain Manhole #1 Peak Elev=35.67' Inflow=2.26 cfs 0.192 af
12.0" Round Culvert n=0.013 L=48.0' S=0.0056 '/' Outflow=2.26 cfs 0.192 af

Pond 7P: Drain Manhole #2 Peak Elev=35.72' Inflow=1.10 cfs 0.033 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0050 '/' Outflow=1.10 cfs 0.033 af

Pond 8P: Concrete Galley 8x14 STORAGE Peak Elev=35.61' Storage=0.060 af Inflow=2.26 cfs 0.225 af
Primary=1.60 cfs 0.224 af Secondary=0.00 cfs 0.000 af Outflow=1.60 cfs 0.224 af

Pond 9P: Drain Manhole #3 Peak Elev=32.40' Inflow=1.60 cfs 0.224 af
12.0" Round Culvert n=0.013 L=85.0' S=0.0059 '/' Outflow=1.60 cfs 0.224 af

Pond 10P: Yard Drain #1 Peak Elev=36.67' Inflow=0.35 cfs 0.026 af
8.0" Round Culvert n=0.013 L=40.0' S=0.0055 '/' Outflow=0.35 cfs 0.026 af

Pond 11P: Yard Drain #2 Peak Elev=39.05' Storage=4 cf Inflow=0.19 cfs 0.017 af
Primary=0.19 cfs 0.017 af Secondary=0.00 cfs 0.000 af Outflow=0.19 cfs 0.017 af

Pond 12P: Yard Drain #3 Peak Elev=36.62' Inflow=2.39 cfs 0.213 af
15.0" Round Culvert n=0.013 L=48.0' S=0.0052 '/' Outflow=2.39 cfs 0.213 af

Pond 13P: Yard Drain #4 Peak Elev=36.76' Inflow=0.18 cfs 0.013 af
8.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=0.18 cfs 0.013 af

Pond 14P: Subsurface Stone Infiltration Peak Elev=30.87' Storage=0.005 af Inflow=0.14 cfs 0.012 af
Discarded=0.02 cfs 0.012 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.012 af

Pond 15P: Subsurface Stone Infiltration Peak Elev=33.11' Storage=0.003 af Inflow=0.13 cfs 0.011 af
Discarded=0.03 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.011 af

Pond 16P: Deep Sump CB #3 Peak Elev=31.44' Inflow=0.20 cfs 0.016 af
12.0" Round Culvert n=0.013 L=65.0' S=0.0046 '/' Outflow=0.20 cfs 0.016 af

Pond 17P: Deep Sump CB #4 Peak Elev=31.44' Inflow=0.63 cfs 0.053 af
12.0" Round Culvert n=0.013 L=2.0' S=0.0250 '/' Outflow=0.63 cfs 0.053 af

Pond 18P: DMH 4 Peak Elev=31.43' Inflow=0.63 cfs 0.053 af
12.0" Round Culvert n=0.013 L=8.0' S=0.0125 '/' Outflow=0.63 cfs 0.053 af

Pond 19P: Wetland Ponding Area Peak Elev=31.43' Storage=6,602 cf Inflow=2.30 cfs 0.368 af
Primary=1.86 cfs 0.228 af Secondary=0.00 cfs 0.000 af Outflow=1.86 cfs 0.228 af

Total Runoff Area = 2.921 ac Runoff Volume = 1.166 af Average Runoff Depth = 4.79"
53.64% Pervious = 1.567 ac 46.36% Impervious = 1.354 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=13,938 sf 18.32% Impervious Runoff Depth>4.56"
Flow Length=48' Tc=6.6 min CN=67 Runoff=1.65 cfs 0.122 af

Subcatchment2S: Subcatchment2S Runoff Area=14,773 sf 41.02% Impervious Runoff Depth>6.95"
Flow Length=126' Tc=12.0 min CN=87 Runoff=2.16 cfs 0.197 af

Subcatchment3S: Subcatchment3S Runoff Area=8,436 sf 21.48% Impervious Runoff Depth>4.80"
Tc=6.0 min CN=69 Runoff=1.07 cfs 0.077 af

Subcatchment4S: Subcatchment4S Runoff Area=5,429 sf 56.24% Impervious Runoff Depth>6.23"
Flow Length=87' Tc=13.2 min CN=81 Runoff=0.70 cfs 0.065 af

Subcatchment5S: Subcatchment5S Runoff Area=6,946 sf 74.89% Impervious Runoff Depth>7.20"
Tc=6.0 min CN=89 Runoff=1.23 cfs 0.096 af

Subcatchment6S: Subcatchment6S Runoff Area=10,412 sf 63.47% Impervious Runoff Depth>7.32"
Flow Length=60' Tc=6.0 min CN=90 Runoff=1.87 cfs 0.146 af

Subcatchment7S: Subcatchment7S Runoff Area=9,749 sf 84.16% Impervious Runoff Depth>7.68"
Flow Length=135' Tc=6.0 min CN=93 Runoff=1.79 cfs 0.143 af

Subcatchment8S: Subcatchment8S Runoff Area=13,276 sf 70.57% Impervious Runoff Depth>7.32"
Flow Length=86' Tc=11.2 min CN=90 Runoff=2.05 cfs 0.186 af

Subcatchment9S: Subcatchment15S Runoff Area=3,072 sf 26.66% Impervious Runoff Depth>5.76"
Flow Length=67' Slope=0.0160 '/' Tc=7.2 min CN=77 Runoff=0.45 cfs 0.034 af

Subcatchment10S: Subcatchment16S Runoff Area=3,155 sf 0.00% Impervious Runoff Depth>3.96"
Flow Length=83' Slope=0.0060 '/' Tc=12.7 min CN=62 Runoff=0.27 cfs 0.024 af

Subcatchment11S: Yard Drain #3 Runoff Area=2,881 sf 15.97% Impervious Runoff Depth>4.56"
Flow Length=60' Slope=0.0150 '/' Tc=6.8 min CN=67 Runoff=0.34 cfs 0.025 af

Subcatchment12S: Subcatchment18S Runoff Area=1,341 sf 25.58% Impervious Runoff Depth>6.48"
Flow Length=37' Slope=0.0190 '/' Tc=6.0 min CN=83 Runoff=0.22 cfs 0.017 af

Subcatchment13S: Back of Units 1 and 2 Runoff Area=918 sf 100.00% Impervious Runoff Depth>8.28"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.015 af

Subcatchment14S: Back of Unit 3 Runoff Area=310 sf 100.00% Impervious Runoff Depth>8.28"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment15S: East Side of Unit 4 Runoff Area=502 sf 100.00% Impervious Runoff Depth>8.28"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.008 af

Subcatchment16S: Subcatchment16S Runoff Area=1,247 sf 100.00% Impervious Runoff Depth>8.28"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.020 af

Subcatchment 17S: Subcatchment 17S Runoff Area=2,806 sf 100.00% Impervious Runoff Depth>8.28"
Tc=6.0 min CN=98 Runoff=0.53 cfs 0.044 af

Subcatchment 18S: Subcatchment 18S Runoff Area=28,063 sf 31.09% Impervious Runoff Depth>4.79"
Flow Length=137' Tc=16.7 min CN=69 Runoff=2.62 cfs 0.257 af

Reach 1R: Swale Avg. Flow Depth=0.91' Max Vel=0.83 fps Inflow=2.16 cfs 0.197 af
n=0.150 L=140.0' S=0.0214 '/' Capacity=2.65 cfs Outflow=2.07 cfs 0.196 af

Reach AP1: Wooded Depression Inflow=2.62 cfs 0.257 af
Outflow=2.62 cfs 0.257 af

Reach AP2: Shoulder of Road Inflow=2.07 cfs 0.196 af
Outflow=2.07 cfs 0.196 af

Reach AP3: Detention Pond Inflow=3.28 cfs 0.430 af
Outflow=3.28 cfs 0.430 af

Reach AP4: Rear of Site Inflow=0.70 cfs 0.065 af
Outflow=0.70 cfs 0.065 af

Pond 1P: Bioretention #1 Peak Elev=36.78' Storage=302 cf Inflow=1.23 cfs 0.096 af
Primary=1.05 cfs 0.094 af Secondary=0.00 cfs 0.000 af Outflow=1.05 cfs 0.094 af

Pond 2P: Bioretention #2 Peak Elev=37.34' Storage=499 cf Inflow=1.87 cfs 0.146 af
Primary=1.29 cfs 0.144 af Secondary=0.00 cfs 0.000 af Outflow=1.29 cfs 0.144 af

Pond 3P: Catch Basin #1 Peak Elev=37.51' Inflow=2.44 cfs 0.220 af
15.0" Round Culvert n=0.013 L=47.0' S=0.0053 '/' Outflow=2.44 cfs 0.220 af

Pond 4P: Catch Basin #2 Peak Elev=37.27' Inflow=4.86 cfs 0.429 af
15.0" Round Culvert n=0.013 L=36.0' S=0.0056 '/' Outflow=4.86 cfs 0.429 af

Pond 5P: Concrete Galley 8x14 INFILTRATION Peak Elev=36.88' Storage=0.126 af Inflow=4.86 cfs 0.429 af
Discarded=0.83 cfs 0.353 af Primary=1.90 cfs 0.070 af Outflow=2.70 cfs 0.423 af

Pond 6P: Drain Manhole #1 Peak Elev=36.82' Inflow=2.34 cfs 0.238 af
12.0" Round Culvert n=0.013 L=48.0' S=0.0056 '/' Outflow=2.34 cfs 0.238 af

Pond 7P: Drain Manhole #2 Peak Elev=36.75' Inflow=1.90 cfs 0.070 af
12.0" Round Culvert n=0.013 L=40.0' S=0.0050 '/' Outflow=1.90 cfs 0.070 af

Pond 8P: Concrete Galley 8x14 STORAGE Peak Elev=36.24' Storage=0.073 af Inflow=3.63 cfs 0.308 af
Primary=2.09 cfs 0.306 af Secondary=0.00 cfs 0.000 af Outflow=2.09 cfs 0.306 af

Pond 9P: Drain Manhole #3 Peak Elev=32.59' Inflow=2.09 cfs 0.306 af
12.0" Round Culvert n=0.013 L=85.0' S=0.0059 '/' Outflow=2.09 cfs 0.306 af

Pond 10P: Yard Drain #1 Peak Elev=37.85' Inflow=0.45 cfs 0.034 af
8.0" Round Culvert n=0.013 L=40.0' S=0.0055 '/' Outflow=0.45 cfs 0.034 af

Pond 11P: Yard Drain #2 Peak Elev=39.07' Storage=6 cf Inflow=0.27 cfs 0.024 af
Primary=0.27 cfs 0.024 af Secondary=0.00 cfs 0.000 af Outflow=0.27 cfs 0.024 af

Pond 12P: Yard Drain #3 Peak Elev=37.69' Inflow=3.00 cfs 0.269 af
15.0" Round Culvert n=0.013 L=48.0' S=0.0052 '/' Outflow=3.00 cfs 0.269 af

Pond 13P: Yard Drain #4 Peak Elev=37.28' Inflow=0.22 cfs 0.017 af
8.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=0.22 cfs 0.017 af

Pond 14P: Subsurface Stone Infiltration Peak Elev=31.61' Storage=0.006 af Inflow=0.17 cfs 0.015 af
Discarded=0.03 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.014 af

Pond 15P: Subsurface Stone Infiltration Peak Elev=33.39' Storage=0.004 af Inflow=0.15 cfs 0.013 af
Discarded=0.04 cfs 0.013 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.013 af

Pond 16P: Deep Sump CB #3 Peak Elev=31.49' Inflow=0.23 cfs 0.020 af
12.0" Round Culvert n=0.013 L=65.0' S=0.0046 '/' Outflow=0.23 cfs 0.020 af

Pond 17P: Deep Sump CB #4 Peak Elev=31.50' Inflow=0.76 cfs 0.064 af
12.0" Round Culvert n=0.013 L=2.0' S=0.0250 '/' Outflow=0.76 cfs 0.064 af

Pond 18P: DMH 4 Peak Elev=31.49' Inflow=0.76 cfs 0.064 af
12.0" Round Culvert n=0.013 L=8.0' S=0.0125 '/' Outflow=0.76 cfs 0.064 af

Pond 19P: Wetland Ponding Area Peak Elev=31.48' Storage=6,821 cf Inflow=3.05 cfs 0.492 af
Primary=2.91 cfs 0.352 af Secondary=0.00 cfs 0.000 af Outflow=2.91 cfs 0.352 af

Total Runoff Area = 2.921 ac Runoff Volume = 1.479 af Average Runoff Depth = 6.08"
53.64% Pervious = 1.567 ac 46.36% Impervious = 1.354 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 1.65 cfs @ 12.10 hrs, Volume= 0.122 af, Depth> 4.56"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
586	98	Paved roads w/curbs & sewers, HSG B
1,864	55	Woods, Good, HSG B
3,396	61	>75% Grass cover, Good, HSG B
611	80	>75% Grass cover, Good, HSG D
541	77	Woods, Good, HSG D
3,408	55	Woods, Good, HSG B
1,564	61	>75% Grass cover, Good, HSG B
1,600	98	Roofs, HSG B
368	98	Roofs, HSG D
13,938	67	Weighted Average
11,384		81.68% Pervious Area
2,554		18.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	32	0.0625	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
1.5	16	0.3300	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
6.6	48	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 2.16 cfs @ 12.16 hrs, Volume= 0.197 af, Depth> 6.95"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
	4,812	80	>75% Grass cover, Good, HSG D
	319	98	Paved roads w/curbs & sewers, HSG D
	2,823	98	Roofs, HSG D
*	186	98	Ledge Outcrop, HSG D
	3,901	80	>75% Grass cover, Good, HSG D
	2,732	98	Roofs, HSG D
	14,773	87	Weighted Average
	8,713		58.98% Pervious Area
	6,060		41.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	38	0.1000	0.29		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.7	17	0.3300	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
9.1	71	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
12.0	126	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 1.07 cfs @ 12.09 hrs, Volume= 0.077 af, Depth> 4.80"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
6,481	61	>75% Grass cover, Good, HSG B
143	55	Woods, Good, HSG B
1,812	98	Roofs, HSG B
8,436	69	Weighted Average
6,624		78.52% Pervious Area
1,812		21.48% Impervious Area

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

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 0.70 cfs @ 12.18 hrs, Volume= 0.065 af, Depth> 6.23"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
*	2,343	98	Ledge Outcrop, HSG D
	73	77	Woods, Good, HSG D
	917	55	Woods, Good, HSG B
	1,386	61	>75% Grass cover, Good, HSG B
	710	98	Roofs, HSG B
	5,429	81	Weighted Average
	2,376		43.76% Pervious Area
	3,053		56.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	38	0.2100	3.12		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
0.8	7	0.2860	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
12.2	42	0.0120	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
13.2	87	Total			

Summary for Subcatchment 5S: Subcatchment 5S

Runoff = 1.23 cfs @ 12.09 hrs, Volume= 0.096 af, Depth> 7.20"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
1,744	61	>75% Grass cover, Good, HSG B
14	98	Paved parking, HSG D
3,348	98	Paved parking, HSG B
1,840	98	Roofs, HSG B
6,946	89	Weighted Average
1,744		25.11% Pervious Area
5,202		74.89% Impervious Area

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

Summary for Subcatchment 6S: Subcatchment 6S

Runoff = 1.87 cfs @ 12.09 hrs, Volume= 0.146 af, Depth> 7.32"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
607	61	>75% Grass cover, Good, HSG B
1,414	98	Paved parking, HSG B
2,813	98	Paved parking, HSG D
3,196	80	>75% Grass cover, Good, HSG D
2,382	98	Roofs, HSG D
10,412	90	Weighted Average
3,803		36.53% Pervious Area
6,609		63.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	20	0.0500	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.7	40	0.0100	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
2.4	60	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 7S: Subcatchment 7S

Runoff = 1.79 cfs @ 12.09 hrs, Volume= 0.143 af, Depth> 7.68"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
1,935	98	Roofs, HSG B
2,932	98	Paved parking, HSG B
972	61	>75% Grass cover, Good, HSG B
857	98	Roofs, HSG D
2,481	98	Paved parking, HSG D
572	80	>75% Grass cover, Good, HSG D
9,749	93	Weighted Average
1,544		15.84% Pervious Area
8,205		84.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	40	0.0175	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
1.0	60	0.0100	1.01		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
0.3	35	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.9	135	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 8S: Subcatchment 8S

Runoff = 2.05 cfs @ 12.15 hrs, Volume= 0.186 af, Depth> 7.32"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
	1,713	61	>75% Grass cover, Good, HSG B
	4,487	98	Paved parking, HSG B
	1,219	98	Roofs, HSG B
	2,194	80	>75% Grass cover, Good, HSG D
*	1,608	98	Ledge Outcrop, HSG D
	39	98	Paved parking, HSG D
	2,016	98	Roofs, HSG D
	13,276	90	Weighted Average
	3,907		29.43% Pervious Area
	9,369		70.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	40	0.0400	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
2.5	20	0.0200	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
5.4	26	0.0050	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
11.2	86	Total			

Summary for Subcatchment 9S: Subcatchment 15S

Runoff = 0.45 cfs @ 12.10 hrs, Volume= 0.034 af, Depth> 5.76"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
1,238	61	>75% Grass cover, Good, HSG B
1,015	80	>75% Grass cover, Good, HSG D
72	98	Roofs, HSG B
747	98	Roofs, HSG D
3,072	77	Weighted Average
2,253		73.34% Pervious Area
819		26.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	67	0.0160	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"

Summary for Subcatchment 10S: Subcatchment 16S

Runoff = 0.27 cfs @ 12.18 hrs, Volume= 0.024 af, Depth> 3.96"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
2,918	61	>75% Grass cover, Good, HSG B
237	80	>75% Grass cover, Good, HSG D
3,155	62	Weighted Average
3,155		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	83	0.0060	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"

Summary for Subcatchment 11S: Yard Drain #3

Runoff = 0.34 cfs @ 12.10 hrs, Volume= 0.025 af, Depth> 4.56"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
2,421	61	>75% Grass cover, Good, HSG B
460	98	Roofs, HSG B
2,881	67	Weighted Average
2,421		84.03% Pervious Area
460		15.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	60	0.0150	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"

Summary for Subcatchment 12S: Subcatchment 18S

Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 6.48"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
94	61	>75% Grass cover, Good, HSG B
904	80	>75% Grass cover, Good, HSG D
11	98	Roofs, HSG B
332	98	Roofs, HSG D
1,341	83	Weighted Average
998		74.42% Pervious Area
343		25.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	37	0.0190	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
4.2	37	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 13S: Back of Units 1 and 2

Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.015 af, Depth> 8.28"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
918	98	Roofs, HSG B
918		100.00% Impervious Area

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

Summary for Subcatchment 14S: Back of Unit 3

Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 8.28"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
310	98	Roofs, HSG D
310		100.00% Impervious Area

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

Summary for Subcatchment 15S: East Side of Unit 4

Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.008 af, Depth> 8.28"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
500	98	Roofs, HSG B
2	98	Roofs, HSG D
502	98	Weighted Average
502		100.00% Impervious Area

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

Summary for Subcatchment 16S: Subcatchment 16S

Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.020 af, Depth> 8.28"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
1,247	98	Paved roads w/curbs & sewers, HSG B
1,247		100.00% Impervious Area

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

Summary for Subcatchment 17S: Subcatchment 17S

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 0.044 af, Depth> 8.28"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
2,230	98	Paved parking, HSG B
576	98	Paved parking, HSG D
2,806	98	Weighted Average
2,806		100.00% Impervious Area

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

Summary for Subcatchment 18S: Subcatchment 18S

Runoff = 2.62 cfs @ 12.23 hrs, Volume= 0.257 af, Depth> 4.79"

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 50 Yr 24 Hr(+15%) Rainfall=8.53"

Area (sf)	CN	Description
8,622	98	Paved parking, HSG B
4,462	61	>75% Grass cover, Good, HSG B
102	98	Roofs, HSG B
14,877	55	Woods, Good, HSG B
28,063	69	Weighted Average
19,339		68.91% Pervious Area
8,724		31.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0350	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
0.7	37	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.7	137	Total			

Summary for Reach 1R: Swale

Inflow Area = 0.339 ac, 41.02% Impervious, Inflow Depth > 6.95" for 50 Yr 24 Hr(+15%) event
Inflow = 2.16 cfs @ 12.16 hrs, Volume= 0.197 af
Outflow = 2.07 cfs @ 12.20 hrs, Volume= 0.196 af, Atten= 4%, Lag= 2.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 0.83 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 0.34 fps, Avg. Travel Time= 6.9 min

Peak Storage= 349 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.91' , Surface Width= 5.47'
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 2.65 cfs

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 3.0 '/' Top Width= 6.00'
Length= 140.0' Slope= 0.0214 '/'
Inlet Invert= 40.00', Outlet Invert= 37.00'



Summary for Reach AP1: Wooded Depression

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

Inflow Area = 0.644 ac, 31.09% Impervious, Inflow Depth > 4.79" for 50 Yr 24 Hr(+15%) event
Inflow = 2.62 cfs @ 12.23 hrs, Volume= 0.257 af
Outflow = 2.62 cfs @ 12.23 hrs, Volume= 0.257 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Shoulder of Road

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

Inflow Area = 0.339 ac, 41.02% Impervious, Inflow Depth > 6.94" for 50 Yr 24 Hr(+15%) event
Inflow = 2.07 cfs @ 12.20 hrs, Volume= 0.196 af
Outflow = 2.07 cfs @ 12.20 hrs, Volume= 0.196 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Detention Pond

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

Inflow Area = 1.813 ac, 52.10% Impervious, Inflow Depth > 2.84" for 50 Yr 24 Hr(+15%) event
Inflow = 3.28 cfs @ 12.39 hrs, Volume= 0.430 af
Outflow = 3.28 cfs @ 12.39 hrs, Volume= 0.430 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP4: Rear of Site

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

Inflow Area = 0.125 ac, 56.24% Impervious, Inflow Depth > 6.23" for 50 Yr 24 Hr(+15%) event
Inflow = 0.70 cfs @ 12.18 hrs, Volume= 0.065 af
Outflow = 0.70 cfs @ 12.18 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Bioretention #1

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=2)

Inflow Area = 0.159 ac, 74.89% Impervious, Inflow Depth > 7.20" for 50 Yr 24 Hr(+15%) event
Inflow = 1.23 cfs @ 12.09 hrs, Volume= 0.096 af
Outflow = 1.05 cfs @ 12.10 hrs, Volume= 0.094 af, Atten= 15%, Lag= 0.5 min
Primary = 1.05 cfs @ 12.10 hrs, Volume= 0.094 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 36.78' @ 12.49 hrs Surf.Area= 410 sf Storage= 302 cf

Plug-Flow detention time= 24.7 min calculated for 0.094 af (98% of inflow)
Center-of-Mass det. time= 12.6 min (789.3 - 776.7)

Volume	Invert	Avail.Storage	Storage Description
#1	33.99'	694 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.99	315	0.0	0	0
34.00	315	40.0	1	1
34.99	315	40.0	125	126
35.00	315	15.0	0	126
36.49	315	15.0	70	197
36.50	315	100.0	3	200
37.00	484	100.0	200	400
37.50	668	100.0	288	688
37.51	668	100.0	7	694

Device	Routing	Invert	Outlet Devices
#1	Primary	34.58'	**8.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.58' / 34.40' S= 0.0045 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	34.25'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	37.30'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	37.50'	**31.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=1.05 cfs @ 12.10 hrs HW=36.50' TW=35.26' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.05 cfs of 1.48 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.05 cfs @ 5.35 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.99' TW=28.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Bioretention #2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area =	0.239 ac, 63.47% Impervious, Inflow Depth > 7.32"	for 50 Yr 24 Hr(+15%) event		
Inflow =	1.87 cfs @	12.09 hrs, Volume=	0.146 af	
Outflow =	1.29 cfs @	12.08 hrs, Volume=	0.144 af, Atten= 31%, Lag= 0.0 min	
Primary =	1.29 cfs @	12.08 hrs, Volume=	0.144 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 37.34' @ 12.22 hrs Surf.Area= 607 sf Storage= 499 cf

Plug-Flow detention time= 16.2 min calculated for 0.144 af (99% of inflow)
Center-of-Mass det. time= 9.7 min (783.3 - 773.6)

Volume	Invert	Avail.Storage	Storage Description
#1	34.49'	984 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.49	494	0.0	0	0
34.50	494	40.0	2	2
35.49	494	40.0	196	198
35.50	494	15.0	1	198
36.99	494	15.0	110	309
37.00	494	100.0	5	314
38.00	831	100.0	663	976
38.01	831	100.0	8	984

Device	Routing	Invert	Outlet Devices
#1	Primary	34.58'	**8.0" Round Culvert** L= 33.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.58' / 34.40' S= 0.0055 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	34.75'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	37.70'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	38.00'	**13.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=1.28 cfs @ 12.08 hrs HW=37.06' TW=35.22' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.28 cfs of 1.80 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.28 cfs @ 6.54 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=34.49' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Catch Basin #1

[80] Warning: Exceeded Pond 10P by 0.20' @ 12.10 hrs (0.59 cfs 0.005 af)

Inflow Area =	0.375 ac,	62.32% Impervious,	Inflow Depth >	7.02" for 50 Yr 24 Hr(+15%) event
Inflow =	2.44 cfs @	12.14 hrs,	Volume=	0.220 af
Outflow =	2.44 cfs @	12.14 hrs,	Volume=	0.220 af, Atten= 0%, Lag= 0.0 min
Primary =	2.44 cfs @	12.14 hrs,	Volume=	0.220 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 37.51' @ 12.20 hrs
Flood Elev= 38.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	**15.0" Round Culvert**

L= 47.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 35.00' / 34.75' S= 0.0053 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 12.14 hrs HW=37.34' TW=37.59' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 4P: Catch Basin #2

[80] Warning: Exceeded Pond 13P by 0.01' @ 12.30 hrs (0.13 cfs 0.001 af)

Inflow Area =	0.768 ac,	57.35% Impervious,	Inflow Depth >	6.69"	for 50 Yr 24 Hr(+15%) event
Inflow =	4.86 cfs @	12.11 hrs,	Volume=	0.429 af	
Outflow =	4.86 cfs @	12.11 hrs,	Volume=	0.429 af,	Atten= 0%, Lag= 0.0 min
Primary =	4.86 cfs @	12.11 hrs,	Volume=	0.429 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 37.27' @ 12.18 hrs
Flood Elev= 38.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.30'	**15.0" Round Culvert**
			L= 36.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 34.30' / 34.10' S= 0.0056 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.77 cfs @ 12.11 hrs HW=36.94' TW=35.90' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 4.77 cfs @ 3.89 fps)

Summary for Pond 5P: Concrete Galley 8x14 INFILTRATION

[80] Warning: Exceeded Pond 4P by 0.02' @ 12.50 hrs (0.62 cfs 0.003 af)

Inflow Area =	0.768 ac,	57.35% Impervious,	Inflow Depth >	6.69"	for 50 Yr 24 Hr(+15%) event
Inflow =	4.86 cfs @	12.11 hrs,	Volume=	0.429 af	
Outflow =	2.70 cfs @	12.21 hrs,	Volume=	0.423 af,	Atten= 45%, Lag= 6.2 min
Discarded =	0.83 cfs @	12.41 hrs,	Volume=	0.353 af	
Primary =	1.90 cfs @	12.21 hrs,	Volume=	0.070 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 36.88' @ 12.41 hrs Surf.Area= 0.071 ac Storage= 0.126 af

Plug-Flow detention time= 69.5 min calculated for 0.423 af (99% of inflow)
Center-of-Mass det. time= 61.2 min (843.7 - 782.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	33.90'	0.000 af	**24.00'W x 42.00'L x 3.67'H Field A** 0.085 af Overall - 0.085 af Embedded = 0.000 af x 40.0% Voids
#2A	33.90'	0.062 af	**Shea Leaching Chamber 8x14x3.7** x 9 Inside #1 Inside= 84.0"W x 36.0"H => 23.08 sf x 13.00'L = 300.0 cf Outside= 96.0"W x 44.0"H => 29.36 sf x 14.00'L = 411.0 cf 9 Chambers in 3 Rows
#3	30.90'	0.035 af	**28.00'W x 46.00'L x 3.00'H Prismatoid** 0.089 af Overall x 40.0% Voids
#4	30.90'	0.007 af	**8.00'W x 32.00'L x 3.00'H Prismatoid** 0.018 af Overall x 40.0% Voids
#5	33.90'	0.010 af	**2.00'W x 148.00'L x 3.67'H Prismatoid** 0.025 af Overall x 40.0% Voids
#6B	33.90'	0.000 af	**8.00'W x 28.00'L x 3.67'H Field B** 0.019 af Overall - 0.019 af Embedded = 0.000 af x 40.0% Voids
#7B	33.90'	0.014 af	**Shea Leaching Chamber 8x14x3.7** x 2 Inside #6 Inside= 84.0"W x 36.0"H => 23.08 sf x 13.00'L = 300.0 cf Outside= 96.0"W x 44.0"H => 29.36 sf x 14.00'L = 411.0 cf
		0.128 af	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.90'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 30.82' Phase-In= 0.01'
#2	Primary	35.70'	**12.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.70' / 34.30' S= 0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Primary	37.56'	**160.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.83 cfs @ 12.41 hrs HW=36.88' (Free Discharge)
└**1=Exfiltration** (Controls 0.83 cfs)

Primary OutFlow Max=1.96 cfs @ 12.21 hrs HW=36.62' TW=36.00' (Dynamic Tailwater)
├**2=Culvert** (Inlet Controls 1.96 cfs @ 2.58 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Drain Manhole #1

[80] Warning: Exceeded Pond 1P by 0.04' @ 12.50 hrs (0.19 cfs 0.001 af)

Inflow Area =	0.398 ac, 68.04% Impervious, Inflow Depth > 7.17"	for 50 Yr 24 Hr(+15%) event		
Inflow =	2.34 cfs @ 12.09 hrs, Volume=	0.238 af		
Outflow =	2.34 cfs @ 12.09 hrs, Volume=	0.238 af, Atten= 0%, Lag= 0.0 min		
Primary =	2.34 cfs @ 12.09 hrs, Volume=	0.238 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 36.82' @ 12.50 hrs
Flood Elev= 38.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.07'	**12.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.07' / 33.80' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.39 cfs @ 12.09 hrs HW=35.25' TW=34.61' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.39 cfs @ 3.05 fps)

Summary for Pond 7P: Drain Manhole #2

Inflow Area =	0.768 ac, 57.35% Impervious,	Inflow Depth =	1.09"	for 50 Yr 24 Hr(+15%) event
Inflow =	1.90 cfs @	12.21 hrs, Volume=	0.070 af	
Outflow =	1.90 cfs @	12.21 hrs, Volume=	0.070 af, Atten= 0%, Lag= 0.0 min	
Primary =	1.90 cfs @	12.21 hrs, Volume=	0.070 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 36.75' @ 12.50 hrs
Flood Elev= 39.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.20'	**12.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.20' / 34.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.90 cfs @ 12.21 hrs HW=36.00' TW=35.59' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.90 cfs @ 2.42 fps)

Summary for Pond 8P: Concrete Galley 8x14 STORAGE ONLY

[92] Warning: Device #4 is above defined storage
[80] Warning: Exceeded Pond 6P by 0.01' @ 12.70 hrs (0.32 cfs 0.004 af)
[80] Warning: Exceeded Pond 7P by 0.55' @ 13.35 hrs (0.76 cfs 0.021 af)

Inflow Area =	1.167 ac, 61.00% Impervious,	Inflow Depth >	3.16"	for 50 Yr 24 Hr(+15%) event
Inflow =	3.63 cfs @	12.20 hrs, Volume=	0.308 af	
Outflow =	2.09 cfs @	12.44 hrs, Volume=	0.306 af, Atten= 42%, Lag= 14.5 min	
Primary =	2.09 cfs @	12.44 hrs, Volume=	0.306 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 36.24' @ 12.44 hrs Surf.Area= 0.055 ac Storage= 0.073 af

Plug-Flow detention time= 31.6 min calculated for 0.306 af (99% of inflow)
Center-of-Mass det. time= 28.3 min (805.4 - 777.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	33.30'	0.000 af	**16.00'W x 56.00'L x 3.67'H Field A** 0.075 af Overall - 0.075 af Embedded = 0.000 af x 40.0% Voids
#2A	33.30'	0.055 af	**Shea Leaching Chamber 8x14x3.7** x 8 Inside #1 Inside= 84.0"W x 36.0"H => 23.08 sf x 13.00'L = 300.0 cf Outside= 96.0"W x 44.0"H => 29.36 sf x 14.00'L = 411.0 cf 8 Chambers in 2 Rows
#3	32.30'	0.011 af	**20.00'W x 60.00'L x 1.00'H Prismatoid** 0.028 af Overall x 40.0% Voids
#4	33.30'	0.010 af	**2.00'W x 144.00'L x 3.67'H Prismatoid** 0.024 af Overall x 40.0% Voids
		0.076 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	32.30'	**4.0" Round Culvert** L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.30' / 32.27' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Device 1	32.30'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	34.70'	**8.0" Round Culvert** L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.70' / 34.67' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Secondary	39.80'	**160.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=2.09 cfs @ 12.44 hrs HW=36.23' TW=32.58' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 0.63 cfs @ 7.26 fps)
  - **2=Orifice/Grate** (Passes 0.63 cfs of 0.80 cfs potential flow)
- **3=Culvert** (Inlet Controls 1.45 cfs @ 4.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=32.30' TW=31.60' (Dynamic Tailwater)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: Drain Manhole #3

Inflow Area = 1.167 ac, 61.00% Impervious, Inflow Depth > 3.15" for 50 Yr 24 Hr(+15%) event
Inflow = 2.09 cfs @ 12.44 hrs, Volume= 0.306 af
Outflow = 2.09 cfs @ 12.44 hrs, Volume= 0.306 af, Atten= 0%, Lag= 0.0 min
Primary = 2.09 cfs @ 12.44 hrs, Volume= 0.306 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 32.59' @ 12.44 hrs
Flood Elev= 39.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	31.60'	**12.0" Round Culvert**

L= 85.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 31.60' / 31.10' S= 0.0059 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.08 cfs @ 12.44 hrs HW=32.58' TW=31.48' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.08 cfs @ 2.66 fps)

Summary for Pond 10P: Yard Drain #1

Inflow Area = 0.071 ac, 26.66% Impervious, Inflow Depth > 5.76" for 50 Yr 24 Hr(+15%) event
Inflow = 0.45 cfs @ 12.10 hrs, Volume= 0.034 af
Outflow = 0.45 cfs @ 12.10 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.10 hrs, Volume= 0.034 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 37.85' @ 12.20 hrs
Flood Elev= 39.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.80'	**8.0" Round Culvert**
			L= 40.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 35.80' / 35.58' S= 0.0055 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.00 cfs @ 12.10 hrs HW=36.78' TW=36.94' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 11P: Yard Drain #2

Inflow Area = 0.072 ac, 0.00% Impervious, Inflow Depth > 3.96" for 50 Yr 24 Hr(+15%) event
Inflow = 0.27 cfs @ 12.18 hrs, Volume= 0.024 af
Outflow = 0.27 cfs @ 12.19 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.6 min
Primary = 0.27 cfs @ 12.19 hrs, Volume= 0.024 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 39.07' @ 12.19 hrs Surf.Area= 183 sf Storage= 6 cf

Plug-Flow detention time= 0.3 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (843.5 - 843.2)

Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	1,358 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	5	0	0
40.01	2,685	1,358	1,358

Device	Routing	Invert	Outlet Devices
#1	Primary	36.00'	**8.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.00' / 35.33' S= 0.0134 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	39.00'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	40.00'	**100.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.26 cfs @ 12.19 hrs HW=39.07' TW=37.60' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.26 cfs of 1.58 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 0.26 cfs @ 0.84 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=39.00' TW=34.30' (Dynamic Tailwater)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 12P: Yard Drain #3

[80] Warning: Exceeded Pond 3P by 0.32' @ 12.10 hrs (2.64 cfs 0.032 af)

Inflow Area =	0.514 ac, 47.57% Impervious, Inflow Depth > 6.28"	for 50 Yr 24 Hr(+15%) event		
Inflow =	3.00 cfs @ 12.14 hrs, Volume=	0.269 af		
Outflow =	3.00 cfs @ 12.14 hrs, Volume=	0.269 af, Atten= 0%, Lag= 0.0 min		
Primary =	3.00 cfs @ 12.14 hrs, Volume=	0.269 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 37.69' @ 12.17 hrs
Flood Elev= 38.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.65'	**15.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.65' / 34.40' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.96 cfs @ 12.14 hrs HW=37.58' TW=37.17' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.96 cfs @ 2.41 fps)

Summary for Pond 13P: Yard Drain #4

Inflow Area =	0.031 ac, 25.58% Impervious, Inflow Depth > 6.48"	for 50 Yr 24 Hr(+15%) event		
Inflow =	0.22 cfs @ 12.09 hrs, Volume=	0.017 af		
Outflow =	0.22 cfs @ 12.09 hrs, Volume=	0.017 af, Atten= 0%, Lag= 0.0 min		
Primary =	0.22 cfs @ 12.09 hrs, Volume=	0.017 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 37.28' @ 12.18 hrs
Flood Elev= 39.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	36.50'	**8.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.50' / 36.10' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.31 cfs @ 12.09 hrs HW=36.91' TW=36.65' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.31 cfs @ 1.99 fps)

Summary for Pond 14P: Subsurface Stone Infiltration

Inflow Area = 0.021 ac,100.00% Impervious, Inflow Depth > 8.28" for 50 Yr 24 Hr(+15%) event
Inflow = 0.17 cfs @ 12.09 hrs, Volume= 0.015 af
Outflow = 0.03 cfs @ 12.58 hrs, Volume= 0.014 af, Atten= 85%, Lag= 29.4 min
Discarded = 0.03 cfs @ 12.58 hrs, Volume= 0.014 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 31.61' @ 12.58 hrs Surf.Area= 0.004 ac Storage= 0.006 af

Plug-Flow detention time= 130.4 min calculated for 0.014 af (99% of inflow)
Center-of-Mass det. time= 122.9 min (862.9 - 740.0)

Volume	Invert	Avail.Storage	Storage Description
#1	27.50'	0.007 af	**4.00'W x 40.00'L x 4.51'H Prismatoid** 0.017 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.50'	**0.650 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 27.08' Phase-In= 0.01'
#2	Primary	32.00'	**88.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.03 cfs @ 12.58 hrs HW=31.61' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=27.50' TW=28.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 15P: Subsurface Stone Infiltration

Inflow Area = 0.019 ac,100.00% Impervious, Inflow Depth > 8.28" for 50 Yr 24 Hr(+15%) event
Inflow = 0.15 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.04 cfs @ 12.44 hrs, Volume= 0.013 af, Atten= 73%, Lag= 21.3 min
Discarded = 0.04 cfs @ 12.44 hrs, Volume= 0.013 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 33.39' @ 12.44 hrs Surf.Area= 0.006 ac Storage= 0.004 af

Plug-Flow detention time= 56.9 min calculated for 0.013 af (100% of inflow)
Center-of-Mass det. time= 55.9 min (796.0 - 740.0)

Volume	Invert	Avail.Storage	Storage Description
#1	31.80'	0.004 af	**8.00'W x 35.00'L x 1.71'H Prismatoid** 0.011 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	31.80'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 31.72' Phase-In= 0.01'
#2	Primary	33.50'	**86.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.04 cfs @ 12.44 hrs HW=33.39' (Free Discharge)
↑**1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=31.80' TW=28.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 16P: Deep Sump CB #3

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=92)

Inflow Area = 0.029 ac,100.00% Impervious, Inflow Depth > 8.28" for 50 Yr 24 Hr(+15%) event
Inflow = 0.23 cfs @ 12.09 hrs, Volume= 0.020 af
Outflow = 0.23 cfs @ 12.09 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.09 hrs, Volume= 0.020 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 31.49' @ 12.42 hrs
Flood Elev= 33.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.80'	**12.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 29.80' / 29.50' S= 0.0046 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=31.00' TW=31.15' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 17P: Deep Sump CB #4

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=10)
[80] Warning: Exceeded Pond 16P by 1.48' @ 18.00 hrs (2.83 cfs 0.187 af)

Inflow Area =	0.093 ac,100.00% Impervious,	Inflow Depth >	8.28"	for	50 Yr 24 Hr(+15%) event
Inflow =	0.76 cfs @	12.09 hrs,	Volume=	0.064 af	
Outflow =	0.76 cfs @	12.09 hrs,	Volume=	0.064 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.76 cfs @	12.09 hrs,	Volume=	0.064 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 31.50' @ 12.38 hrs
Flood Elev= 33.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.55'	**12.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 29.55' / 29.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 12.09 hrs HW=31.15' TW=31.09' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 0.74 cfs @ 0.94 fps)

Summary for Pond 18P: DMH 4

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=13)
[80] Warning: Exceeded Pond 17P by 1.77' @ 18.55 hrs (3.36 cfs 0.449 af)

Inflow Area =	0.093 ac,100.00% Impervious,	Inflow Depth >	8.28"	for	50 Yr 24 Hr(+15%) event
Inflow =	0.76 cfs @	12.09 hrs,	Volume=	0.064 af	
Outflow =	0.76 cfs @	12.09 hrs,	Volume=	0.064 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.76 cfs @	12.09 hrs,	Volume=	0.064 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 31.49' @ 12.39 hrs
Flood Elev= 33.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.40'	**12.0" Round Culvert** L= 8.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 29.40' / 29.30' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 12.09 hrs HW=31.09' TW=31.03' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 0.74 cfs @ 0.94 fps)

Summary for Pond 19P: Wetland Ponding Area

[80] Warning: Exceeded Pond 18P by 1.92' @ 17.60 hrs (3.56 cfs 0.509 af)

Inflow Area =	1.620 ac,	55.77% Impervious,	Inflow Depth >	3.64" for 50 Yr 24 Hr(+15%) event
Inflow =	3.05 cfs @	12.27 hrs, Volume=	0.492 af	
Outflow =	2.91 cfs @	12.41 hrs, Volume=	0.352 af,	Atten= 5%, Lag= 8.1 min
Primary =	2.91 cfs @	12.41 hrs, Volume=	0.352 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 31.48' @ 12.41 hrs Surf.Area= 4,825 sf Storage= 6,821 cf

Plug-Flow detention time= 144.2 min calculated for 0.352 af (72% of inflow)
Center-of-Mass det. time= 63.2 min (865.7 - 802.4)

Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	6,968 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
28.00	619	194.0	0	0	619
29.00	1,245	250.0	914	914	2,610
30.00	2,036	357.0	1,624	2,538	7,787
31.00	2,891	433.0	2,451	4,989	12,582
31.50	4,916	435.0	1,929	6,919	12,839
31.51	4,916	435.0	49	6,968	12,843

Device	Routing	Invert	Outlet Devices
#1	Secondary	31.50'	**70.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	31.30'	**16.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=2.90 cfs @ 12.41 hrs HW=31.48' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 2.90 cfs @ 1.01 fps)

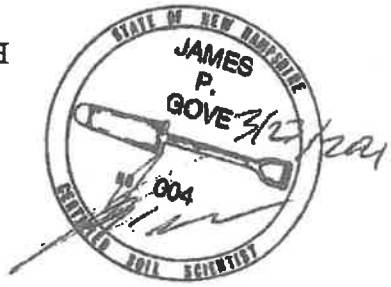
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=28.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

APPENDIX III

Test Pit Logs

GOVE ENVIRONMENTAL SERVICES, INC.

TEST PIT DATA



Project	1169 &1171 Sagamore Avenue, Portsmouth, NH
Client	Garrepy Planning Consultants, LLC
GES Project No.	2021039
MM/DD/YY Staff	03-23-2021 JP Gove, CSS # 004

Test Pit No.	1	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	60"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Fill – 0-12"	10YR3/2	SL	Gr	Fr	None
Fill – 12-35"	10YR3/3	SL	Gr	Fr	None
Apb – 35-45"	10YR3/2	SL	Gr	Fr	None
Bwb – 45-60"	10YR4/3	SL	Om	Fr	None
Bedrock – 60"					

Test Pit No.	2	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	55"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-10"	10YR3/2	SL	Gr	Fr	None
Bw – 10-55"	7.5YR3/4	SL	Gr	Fr	None
Rippable Bedrock – 55"					

Test Pit No.	3	Lot No.:	
ESHWT:	31"	WSPCD Group:	
Termination @	51"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-11"	10YR3/3	SL	Gr	Fr	None
Bw – 11-31"	10YR4/4	GRLS	Gr	Fr	None
Bw2 – 31-51"	7.5YR5/4	CBSL	Om	Fr	Yes
Rippable Bedrock – 51"					

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Test Pit No.	4	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	33"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap - 0-11"	10YR3/2	SL	Gr	Fr	None
Bw – 11-33"	10YR4/4	CBSL	Gr	Fr	None
Bedrock – 33"					

Test Pit No.	5	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	22"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-10"	10YR3/3	SL	Gr	Fr	None
Bw – 10-22"	10YR4/4	CBSL	Gr	Fr	None
Bedrock – 22"					

Test Pit No.	6	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	2"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
A – 0-2"	10YR3/2	CBSL	Gr	Fr	None
Bedrock 2"					

Test Pit No.	7	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	21"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
A – 0-21"	10YR3/3	CBSL	Gr	Fr	None
Bedrock – 21"					

Test Pit No.	**8**	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	31"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-10"	10YR3/2	SL	Gr	Fr	None
Bw – 10-31"	10YR4/6	CBSL	Gr	Fr	None
Bedrock – 31"					

Legend:
GRLS = gravelly loamy sand
CBSL = cobbly sandy loam
SL= sandy loam
Gr = granular
Fr = friable
Om = massive
Ap = top soil
Bw = subsoil
Apb = buried topsoil
Bwb = buried subsoil

GOVE ENVIRONMENTAL SERVICES, INC.

TEST PIT DATA

Project1169 Sagamore Avenue, Portsmouth
Client Garrepy Planning Consultants, LLC
GES Project No. 2021039
MM/DD/YY Staff 11-10-2021 JP Gove

Test Pit No. B1
ESHWT: 54
Termination @ 84
Refusal: 84
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–29"	10YR 4/4	GRS	OM	FR	NONE , Fill
29–33"	10YR 3/2	FSL	GR	FR	NONE, buried A
33–54"	10YR 5/6	FSL	GR	FR	NONE, buried B
54–84"	2.5Y 5/3	FSL	OM	FR	30%, C

Test Pit No. B2
ESHWT: 50
Termination @ 65
Refusal: 65
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–31"	10YR 4/4	GRS	OM	FR	NONE , Fill
31–35"	10YR 3/2	FSL	GR	FR	NONE, buried A
35–50"	10YR 5/6	FSL	GR	FR	NONE, buried B
50–65"	2.5Y 4/3	FSL	OM	FR	30%, C

Test Pit No. B3
ESHWT: 33
Termination @ 47
Refusal: 47
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–33"	10YR 4/4	GRS	OM	FR	NONE , Fill
33–47"	10YR 4/3	FSL	OM	FR	20%, buried A/B

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Test Pit No. B4
ESHWT: 42
Termination @ 60
Refusal: 60
Obs. Water: 50

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–21"	10YR 4/4	GRS	OM	FR	NONE , Fill
21–29"	10YR 3/2	FSL	GR	FR	NONE, buried A
29–42"	10YR 5/6	FSL	GR	FR	NONE, buried B
42–60"	2.5Y 5/3	FSL	OM	FR	30%, C

Test Pit No. B5
ESHWT: 47
Termination @ 62
Refusal: 62
Obs. Water: 60

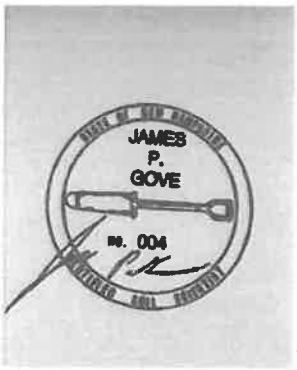
Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–25"	10YR 4/4	GRS	OM	FR	NONE , Fill
25–36"	10YR 3/2	FSL	GR	FR	NONE, buried A
36–47"	10YR 4/6	FSL	GR	FR	NONE, buried B
47–62"	2.5Y 5/3	FSL	OM	FR	30%, C

Test Pit No. B6
ESHWT: none
Termination @ 38
Refusal: 38
Obs. Water: none

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–20"	10YR 4/4	FSL	OM	FR	NONE , A/Fill
20–38"	10YR 5/6	FSL	GR	FR	NONE, B

Test Pit No. B7
ESHWT: none
Termination @ 49
Refusal: 49
Obs. Water: none

Depth	Color	Texture	Structure	Consistence
0–36"	10YR 3/3 - Fill	FSL	OM	FR
20–38"	10YR 5/6 – buried B	FSL	GR	FR



11-11-2021

GOVE ENVIRONMENTAL SERVICES, INC.

TEST PIT DATA

Project – 1169 &1171 Sagamore Ave., Portsmouth, NH – TM 224, Lots 14 & 15.
Client - Jones & Beach Engineers, Inc.
GES Project No. 2021039
MM/DD/YY Staff 1-25-2022 JPG

Test Pit No. X1
ESHWT: n/a
Termination @ 20"
Refusal: 20"
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–12"	10YR 3/2	FSL	GR	FR	NONE , Ap
12–20"	10YR 4/4	FSL	GR	FR	NONE, Bw
20"	Bedrock				

Test Pit No. X2
ESHWT: n/a
Termination @ 36"
Refusal: 36"
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–6"	10YR 3/2	FSL	GR	FR	NONE , Ap
6–36"	10YR 4/6	FSL	GR	FR	NONE, Bw
36"	Bedrock				

Test Pit No. X3
ESHWT: n/a
Termination @ 57"
Refusal: 57"
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–12"	10YR 3/2	FSL	GR	FR	NONE , Ap
12–57"	10YR 4/6	FSL	GR	FR	NONE, Bw
57"	Bedrock				

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Test Pit No. X4
ESHWT: n/a
Termination @ 75"
Refusal: n/a
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–70"	10YR 3/3	FSL	OM	FR	NONE , Fill
70-75"	10YR 4/6	FSL	GR	FR	NONE, Bw

Test Pit No. X5
ESHWT: 51"
Termination @ 66"
Refusal: 66"
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–6"	10YR 3/3	LS	GR	FR	NONE , Fill
6–39"	10YR 5/6	LS	OM	FR	NONE, Fill
39–51"	10YR3/2	FSL	GR	FR	Buried Ap
51-66"	7.5YR4/6	FSL	GR	FR	5%, Bw
66"	Bedrock				

Test Pit No. X6
ESHWT: 51"
Termination @ 65"
Refusal: 65"
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–5"	10YR 3/3	LS	GR	FR	NONE , Fill
5–51"	10YR 4/6	LS	OM	FR	NONE, Fill
51–65"	10YR3/2	FSL	GR	FR	5%, Buried Ap
65"	Bedrock				

Test Pit No. X7
ESHWT: 49"
Termination @ 65"
Refusal: 65"
Obs. Water: None

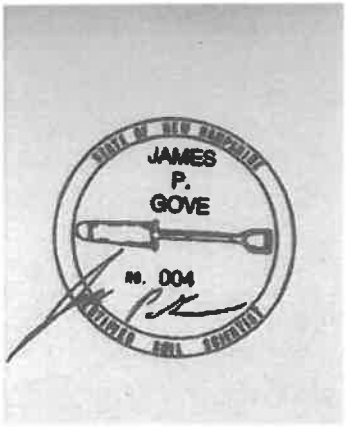
Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–10"	10YR 3/2	LS	GR	FR	NONE , Fill
10–49"	10YR 4/4	LS	OM	FR	NONE, Fill
49–65"	10YR3/2	FSL	GR	FR	5%, Buried Ap
65"	Bedrock				

Test Pit No. X8
ESHWT: n/a
Termination @ 58"
Refusal: 58"
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–25"	10YR 3/3	LS	GR	FR	NONE , Fill
25–37"	10YR 3/2	FSL	GR	FR	NONE, Buried Ap
37–58"	10YR4/6	FSL	GR	FR	NONE, Bw
58"	Bedrock				

Test Pit No. X9
ESHWT: n/a
Termination @ 20"
Refusal: 20"
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–16"	10YR 3/2	FSL	GR	FR	NONE , Ap
16–20"	10YR 4/6	FSL	GR	FR	NONE, Bw
20"	Bedrock				



1-26-2022

APPENDIX IV

HISS Soil Note and Map

This soil map was prepared by a professional soil scientist and meets the technical standards of the SSSNNE Publication No. 1, High Intensity Soil Maps for NH, December 2017. Soil map was prepared on 4 April 2021. Soil map site was 1169 &1171 Sagamore Avenue, Portsmouth, NH.

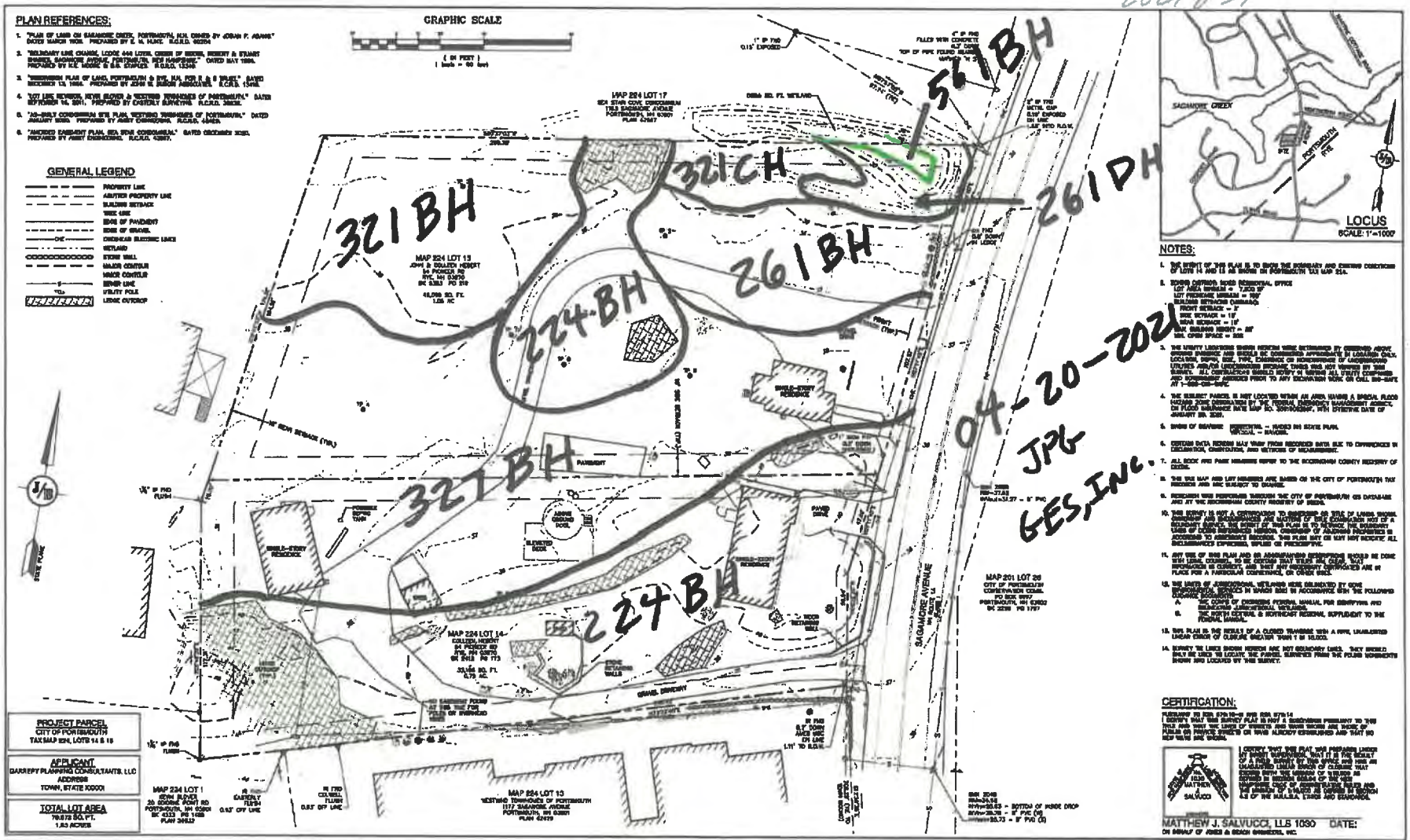
Soil Map Units were identified using the Key to Soil Types. The conversion of High Intensity Soil Map Unit to NRCS Soil Map Unit Name was based upon the observed soil profiles, as was hydrologic soil group, as taken from SSSNNE Special Publication No. 5.

Soil mapping was performed by James Gove, CSS # 004.

HISS Soil Map Unit	Soil Map Unit Name	Hydrologic Soil Group
224 (slope) H	Hollis-Rock Outcrop Complex	D
261 (slope) H	Made land – similar to Canton	B
321 (slope) H	Newfields	B
327 (slope) H	Chatfield Variant	B
561 (slope) H	Made land- similar to Walpole	C

B slope = 0-8%, C slope = 8-15%, D slope = 15-25%

2021039


PLAN REFERENCES:
1. "PLAN OF LAND ON SAGAMORE CREEK, PORTSMOUTH, N.H. OWNED BY JORDAN F. ADAMS" DATED MARCH 1936. PREPARED BY E. N. HUNT. R.L.S.#. 00294
2. "BOUNDARY LINE CHANGE, LOCKE 644 LOTS, CREEK OF RIVER, ROBERT A. STUART ENGRS., SAGAMORE AVENUE, PORTSMOUTH, NEW HAMPSHIRE." DATED MAY 1986. PREPARED BY E.E. MOORE & J.E. STAPLES. R.L.S.#. 12306
3. "SUBDIVISION PLAN OF LAND, PORTSMOUTH & RYE, N.H. FOR P. & P. TRUST." DATED DECEMBER 13, 1966. PREPARED BY JOHN W. DURGIN ASSOCIATES. R.C.R.E. #3418
4. "LOT LINE REVISION, MAPS 224/201 & WESTERN TOWNSHIPS OF PORTSMOUTH." DATED SEPTEMBER 16, 2001. PREPARED BY EASTERLY SURVEYING. R.L.S.#. 398218.
5. "AS-BUILT CONDOMINIUM SITE PLAN, WESTERN TOWNSHIPS OF PORTSMOUTH." DATED JANUARY 2000. PREPARED BY JAMES CHANDLER#. R.L.S.#. 484824.
6. "AMENDED EASEMENT PLAN, SEA STAR CONDOMINIUM." DATED DECEMBER 2000. PREPARED BY JAMES ENGINEERING. R.L.S.#. 12307.
GRAPHIC SCALE
GENERAL LEGEND
PROPERTY LINE
ABUTTER PROPERTY LINE
BUILDING SETBACK
TREE LINE
EDGE OF PAVEMENT
EDGE OF GRAVEL
OVERHEAD ELECTRIC LINES
WETLAND
STONE WALL
MAJOR CONTOUR
MINOR CONTOUR
SEWER LINE
UTILITY POLE
LEDGE OUTCROP
MAP 224 LOT 17
SEA STAR COVE CONDOMINIUM
1183 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
PLAN #2987
5618H
321CH
261DH
321BH
261BH
224-BH
321BH
224BH
MAP 224 LOT 13
JOHN B. COLLEN HEBERT
64 PIONEER RD
RYE, NH 03870
BK 5383 PG 319
49,056 SQ. FT.
1.26 AC
MAP 224 LOT 14
COLLEN HEBERT
64 PIONEER RD
RYE, NH 03870
BK 5418 PG 173
33,156 SQ. FT.
0.79 AC.
MAP 201 LOT 26
CITY OF PORTSMOUTH
CONSERVATION COMM.
PO BOX 1917
PORTSMOUTH, NH 03802
BK 2238 PG 1707
MAP 224 LOT 1
JOHN RUNCO
35 SOUNDS POINT RD
PORTSMOUTH, NH 03801
BK 4333 PG 1488
PLAN 39522
MAP 224 LOT 13
WESTERN TOWNSHIPS OF PORTSMOUTH
1117 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
PLAN #2979
SAGAMORE AVENUE
SAGAMORE CREEK
PORTSMOUTH
RYE
LOCUS
SCALE: 1"=1000'
NOTES:
1. THE INTENT OF THIS PLAN IS TO SHOW THE BOUNDARY AND EXISTING CONDITIONS OF LOTS 14 AND 13 AS SHOWN ON PORTSMOUTH TAX MAP 224.
2. ZONING CRITERIA: GRB GENERAL RESIDENTIAL OFFICE
LOT AREA MINIMUM = 7,500 SF
LOT FRONTAGE MINIMUM = 100'
BUILDING SETBACK DIMENSIONS
FRONT SETBACK = 5'
SIDE SETBACK = 10'
REAR SETBACK = 10'
MAX. BUILDING HEIGHT = 35'
MAX. OPEN SPACE = 35%
3. THE UTILITY LOCATIONS SHOWN HEREON WERE DETERMINED BY OBSERVED ABOVE GROUND EVIDENCE AND RECORDS OF CONFINED APPROXIMATE IN LOCATION ONLY. LOCATIONS, SIZES, TYPES, CONDITIONS OF UNDERGROUND UTILITIES AND/OR UNDERGROUND STRUCTURES, THEIR USE, NOT VERIFIED BY THIS SURVEY. ALL CONTRACTORS SHOULD NOTIFY & VERIFY ALL UTILITY COMPANIES AND DIGSAFE (888-DIG-SAFE) PRIOR TO ANY EXCAVATION WORK OR CALL DIG-SAFE AT 1-888-DIG-SAFE.
4. THE SUBJECT PARCEL IS NOT LOCATED WITHIN AN AREA HAVING A SPECIAL FLOOD HAZARD ZONE DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, ON FLOOD INSURANCE RATE MAP No. 33015C0261F, WITH EFFECTIVE DATE OF JANUARY 29, 2021.
5. SOURCE OF BEARINGS: HORIZONTAL = BASED ON STATE PLANE VERTICAL = BASED
6. CERTAIN DATA HEREON MAY VARY FROM RECORDED DATA DUE TO DIFFERENCES IN DECLINATION, ORIENTATION, AND METHODS OF MEASUREMENT.
7. ALL BOOK AND PAGE REFERENCES REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
8. THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
9. RESEARCH WAS PERFORMED THROUGH THE CITY OF PORTSMOUTH GIS DATABASE AND AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
10. THIS SURVEY IS NOT A CERTIFICATION TO PROPERTY OR TITLE OF LANDS SHOWN. OWNERSHIP AND RELATIONSHIPS AND LOCATION OF LOT LINES ARE NOT OF A SUFFICIENT ACCURACY TO THE EXTENT OF THIS PLAN IS TO CONVEY THE ABSOLUTE LOCATION OF LOT LINES. THE LOCATION OF ADJOINER PROPERTIES IS ACCORDING TO ASSESSORS RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES (EASEMENTS, RIGHTS OF PRESCRIPTION).
11. ANY USE OF THIS PLAN AND OR ASSOCIATED INFORMATION SHOULD BE DONE WITH LEGAL COUNSEL, SO AS ENSURE THAT TERMS INCLUDED, THAT INFORMATION IS CORRECT, AND THAT ANY MISSING INFORMATION ARE IN PLACE FOR A PARTICULAR CONFERENCE, OR OTHER USES.
12. THE LIMITS OF JURISDICTIONAL WETLAND WERE DELINEATED BY GENE RICHARDSON, SENIOR SCIENTIST OF JONES & BEACH ENGINEERS, INC. IN MARCH 2021 IN ACCORDANCE WITH THE FOLLOWING GUIDANCE MANUALS:
A. THE DELINEATION OF FRESHWATER WETLANDS MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
B. THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE REGIONAL MANUAL.
13. THIS PLAN IS THE RESULT OF A CLOSED TRAVERSE WITH A RATIO, UNADJUSTED LINEAR ERROR OF CLOSURE GREATER THAN 1 IN 10,000.
14. SURVEY TO LOCUS SHOWN HEREON ARE NOT BOUNDARY LINES. THEY SHOWN SHALL BE USED TO LOCATE THE PARCEL SURVEYED FROM THE FIELD MONUMENTS SHOWN AND LOCATED BY THIS SURVEY.
CERTIFICATION:
I CERTIFY THAT THIS PLAT AND 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 FIFTY THE NUMBER OF FEATURES AS SHOWN IN RSA 676:3 OF THE RULES. THE SURVEY WAS PERFORMED TO THE STANDARDS OF ACCURACY AS SET FORTH IN RSA 676:3 OF THE RULES& LINES AND BOUNDARIES.
MATTHEW J. SALVUCCI, LLS 1030 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.
PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 13
APPLICANT
GARREPY PLANNING CONSULTANTS, LLC
ADDRESS
TOWN, STATE 10001
TOTAL LOT AREA
78,878 SQ.FT.
1.83 ACRES
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 ISSUED FOR REVIEW DJM
Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-778-0687
E-MAIL: JBE@JONESANDBEACH.COM
Plan Name: EXISTING CONDITIONS PLAN
Project: 1189 & 1171 SAGAMORE AVENUE
PORTSMOUTH, NEW HAMPSHIRE
Owner of Record: LOT 14 COLLEN HEBERT
LOT 13 JOHN J. & SUE LEE HEBERT
Drawing No.
C1
SHEET 6 OF 18
JBE PROJECT NO. 21047

APPENDIX V

NRCS Soil Map

Soil Map—Rockingham County, New Hampshire
(1169 & 1171 Sagamore Ave)



Map Scale: 1:1,280 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil 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 22, May 29, 2020

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

Date(s) aerial images were photographed: Dec 31, 2009—Jun 14, 2017

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
140B	Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky	3.5	53.7%
140C	Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, rocky	2.7	40.6%
699	Urban land	0.4	5.7%
Totals for Area of Interest		**6.6**	**100.0%**

APPENDIX VI

Extreme Precipitation Estimates

Select Product

- Extreme Precipitation Tables - HTML
- Extreme Precipitation Tables - Text/CSV
- Partial Duration Series - by Point
- Partial Duration Series - by Station
- Distribution Curves - Graphical
- Distribution Curves - Text/TBL
- Intensity Frequency Duration Graphs
- Precipitation Frequency Duration Graphs
- GIS Data Files
- Regional/State Maps

Select Location Double-click the map to place a marker, or enter address or latitude/longitude.

Locate by Address: 1169 sagamore ave., po

Locate by Lat/Lon: °N °W

Locate by State/County:



Select Options

Smoothing: Yes

Delivery: Popup

Submit

Version 1.12 Copyright 2010-2021.
This project is a joint collaboration between:

Northeast Regional Climate Center (NRCC) | Natural Resources Conservation Service (NRCS)

Cornell University

Contact: precip@cornell.edu

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	
Location	
Longitude	70.748 degrees West
Latitude	43.051 degrees North
Elevation	0 feet
Date/Time	Wed, 16 Jun 2021 12:03:11 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.82	1.04	1yr	0.70	0.98	1.21	1.56	2.03	2.67	2.94	1yr	2.36	2.82	3.24	3.96	4.57	1yr
2yr	0.32	0.50	0.62	0.82	1.03	1.30	2yr	0.89	1.18	1.52	1.94	2.49	3.22	3.58	2yr	2.85	3.45	3.95	4.70	5.35	2yr
5yr	0.37	0.58	0.73	0.98	1.25	1.61	5yr	1.08	1.47	1.89	2.44	3.15	4.08	4.60	5yr	3.61	4.42	5.07	5.96	6.73	5yr
10yr	0.41	0.65	0.82	1.12	1.46	1.90	10yr	1.26	1.73	2.24	2.91	3.76	4.88	5.55	10yr	4.32	5.34	6.12	7.14	8.01	10yr
25yr	0.48	0.77	0.97	1.34	1.78	2.35	25yr	1.54	2.15	2.79	3.65	4.76	6.19	7.13	25yr	5.48	6.85	7.85	9.07	10.09	25yr
50yr	0.54	0.87	1.11	1.55	2.09	2.78	50yr	1.80	2.54	3.31	4.35	5.69	7.42	8.62	50yr	6.56	8.29	9.48	10.87	12.02	50yr
100yr	0.60	0.97	1.26	1.79	2.44	3.28	100yr	2.10	3.00	3.93	5.19	6.80	8.88	10.42	100yr	7.86	10.02	11.46	13.03	14.33	100yr
200yr	0.68	1.11	1.44	2.07	2.85	3.87	200yr	2.46	3.54	4.65	6.17	8.12	10.65	12.60	200yr	9.42	12.11	13.85	15.63	17.08	200yr
500yr	0.81	1.33	1.73	2.51	3.52	4.81	500yr	3.03	4.42	5.82	7.76	10.28	13.53	16.20	500yr	11.97	15.58	17.81	19.89	21.57	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.72	0.88	1yr	0.62	0.86	0.93	1.34	1.69	2.26	2.50	1yr	2.00	2.41	2.88	3.21	3.94	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.19	2yr	0.86	1.16	1.37	1.81	2.33	3.07	3.47	2yr	2.72	3.33	3.84	4.56	5.11	2yr
5yr	0.35	0.54	0.67	0.92	1.17	1.40	5yr	1.01	1.37	1.61	2.11	2.72	3.80	4.20	5yr	3.36	4.04	4.74	5.56	6.26	5yr
10yr	0.39	0.59	0.74	1.03	1.33	1.60	10yr	1.15	1.57	1.80	2.38	3.05	4.38	4.88	10yr	3.88	4.69	5.47	6.44	7.22	10yr
25yr	0.44	0.67	0.83	1.19	1.56	1.90	25yr	1.35	1.86	2.10	2.74	3.52	4.78	5.91	25yr	4.23	5.68	6.69	7.83	8.72	25yr
50yr	0.48	0.73	0.91	1.31	1.77	2.17	50yr	1.53	2.12	2.35	3.05	3.91	5.41	6.82	50yr	4.79	6.56	7.77	9.10	10.06	50yr
100yr	0.54	0.81	1.02	1.47	2.02	2.47	100yr	1.74	2.41	2.63	3.39	4.31	6.10	7.87	100yr	5.40	7.57	9.04	10.58	11.63	100yr
200yr	0.59	0.89	1.13	1.64	2.28	2.81	200yr	1.97	2.75	2.94	3.74	4.74	6.86	9.09	200yr	6.07	8.74	10.50	12.32	13.45	200yr
500yr	0.69	1.02	1.31	1.91	2.72	3.36	500yr	2.34	3.29	3.42	4.26	5.39	8.01	10.98	500yr	7.09	10.56	12.80	15.09	16.30	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.44	0.54	0.72	0.89	1.09	1yr	0.77	1.06	1.26	1.74	2.20	2.98	3.18	1yr	2.64	3.06	3.59	4.38	5.05	1yr
2yr	0.34	0.52	0.64	0.87	1.07	1.27	2yr	0.92	1.24	1.48	1.96	2.52	3.43	3.72	2yr	3.03	3.58	4.11	4.86	5.64	2yr
5yr	0.40	0.62	0.77	1.05	1.34	1.63	5yr	1.16	1.59	1.89	2.54	3.26	4.36	4.98	5yr	3.85	4.79	5.40	6.40	7.18	5yr
10yr	0.47	0.72	0.89	1.25	1.62	1.99	10yr	1.39	1.94	2.29	3.11	3.97	5.36	6.23	10yr	4.74	5.99	6.85	7.87	8.79	10yr
25yr	0.58	0.88	1.10	1.57	2.06	2.59	25yr	1.78	2.53	2.97	4.08	5.18	7.75	8.38	25yr	6.86	8.05	9.20	10.38	11.45	25yr
50yr	0.68	1.03	1.28	1.84	2.48	3.15	50yr	2.14	3.08	3.61	5.02	6.36	9.69	10.50	50yr	8.57	10.10	11.51	12.78	14.01	50yr
100yr	0.80	1.20	1.51	2.18	2.99	3.84	100yr	2.58	3.76	4.40	6.19	7.83	12.11	13.16	100yr	10.71	12.65	14.40	15.76	17.15	100yr
200yr	0.93	1.41	1.78	2.58	3.60	4.70	200yr	3.10	4.59	5.37	7.63	9.63	15.17	16.51	200yr	13.43	15.87	18.04	19.43	20.98	200yr
500yr	1.16	1.73	2.22	3.23	4.59	6.11	500yr	3.96	5.97	6.97	10.10	12.71	20.46	22.28	500yr	18.11	21.43	24.31	25.62	27.41	500yr

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Northeast Regional Climate Center

APPENDIX VII

Rip Rap Calculations

RIP RAP CALCULATIONS
Sagamore Avenue Condominiums
1169 & 1171 Sagamore Avenue
Portsmouth, NH 03801

Jones & Beach Engineers, Inc.
P.O. Box 219
Stratham, NH 03885
8/11/2021, Revised 9/20/2021, Revised 12/22/2021, Revised 1/28/2022, Revised 3/21/22

Rip Rap equations were obtained from the *Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.*
Aprons are sized for the 25-Year storm event.

TAILWATER < HALF THE D_o

$L_a = (1.8 \times Q) / D_0^{3/2} + (7 \times D_o)$
$W = L_a + (3 \times D_o)$ or defined channel width
$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_0)$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T_w	Discharge (C.F.S.) Q	Diameter of Pipe D_o	Length of Rip Rap L_a (feet)	Width of Rip Rap W (feet)	d_{50}-Median Stone Rip Rap d50 (feet)
12" HDPE (Pond 19P)	0.32	0.63	1	8.1	11	0.03

TAILWATER > HALF THE D_o

$L_a = (3.0 \times Q) / D_0^{3/2} + (7 \times D_o)$
$W = (0.4 \times L_a) + (3 \times D_o)$ or defined channel width
$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_0)$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T_w	Discharge (C.F.S.) Q	Diameter of Pipe D_o	Length of Rip Rap L_a (feet)	Width of Rip Rap W (feet)	d_{50}-Median Stone Rip Rap d50 (feet)
12" HDPE (Pond 9P)	0.55	1.6	1	11.8	8	0.07

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d_{50} Size =	0.25	Feet	3	Inches
% of Weight Smaller		Size of Stone (Inches)		
Than the Given d_{50} Size		From		To
100%		5		6
85%		4		5
50%		3		5
15%		1		2

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d_{50} Size =	0.5	Feet	6	Inches
% of Weight Smaller		Size of Stone (Inches)		
Than the Given d_{50} Size		From		To
100%		9		12
85%		8		11
50%		6		9
15%		2		3

APPENDIX VIII

BMP Worksheets

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: **Concrete Galley 8x14 (Subsurface infiltration basin, 5P)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← yes
0.77	ac	A = Area draining to the practice	
0.44	ac	A_I = Impervious area draining to the practice	
0.57	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.57	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.43	ac-in	WQV= 1" x Rv x A	
1,577	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
394	cf	25% x WQV (check calc for sediment forebay volume)	
		Method of pretreatment? (not required for clean or roof runoff)	
	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
2,178	cf	V = Volume[1] (attach a stage-storage table)	≥ WQV
1,232	sf	A_{SA} = Surface area of the bottom of the pond	
0.30	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
51.2	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
33.90	feet	E_{BTM} = Elevation of the bottom of the basin	
30.82	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
29.57	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.08	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
4.3	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ 24"
	ft	D_T = Depth of trench, if trench proposed	4 - 10 ft
Yes	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←yes
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← yes
	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← yes
	:1	If a basin is proposed, pond side slopes.	≥3:1
35.72	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
36.88	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
36.90	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← yes
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Stage-Area-Storage for Pond 5P: Concrete Galley 8x14 INFILTRATION

Elevation (feet)	Surface (acres)	Storage (acre-feet)
30.90	0.035	0.000
31.00	0.035	0.001
31.10	0.035	0.003
31.20	0.035	0.004
31.30	0.035	0.006
31.40	0.035	0.007
31.50	0.035	0.009
31.60	0.035	0.010
31.70	0.035	0.011
31.80	0.035	0.013
31.90	0.035	0.014
32.00	0.035	0.016
32.10	0.035	0.017
32.20	0.035	0.018
32.30	0.035	0.020
32.40	0.035	0.021
32.50	0.035	0.023
32.60	0.035	0.024
32.70	0.035	0.026
32.80	0.035	0.027
32.90	0.035	0.028
33.00	0.035	0.030
33.10	0.035	0.031
33.20	0.035	0.033
33.30	0.035	0.034
33.40	0.035	0.035
33.50	0.035	0.037
33.60	0.035	0.038
33.70	0.035	0.040
33.80	0.035	0.041
33.90	**0.071**	0.043
34.00	0.071	0.045
34.10	0.071	0.048
34.20	0.071	0.051
34.30	0.071	0.054
34.40	0.071	0.057
34.50	0.071	0.059
34.60	0.071	0.062
34.70	0.071	0.065
34.80	0.071	0.068
34.90	0.071	0.071
35.00	0.071	0.073
35.10	0.071	0.076
35.20	0.071	0.079
35.30	0.071	0.082
35.40	0.071	0.084
35.50	0.071	0.087
35.60	0.071	0.090
35.70	0.071	0.093
35.80	0.071	0.096
35.90	0.071	0.098
36.00	0.071	0.101
36.10	0.071	0.104
36.20	0.071	0.107
36.30	0.071	0.110
36.40	0.071	0.112
36.50	0.071	0.115
36.60	0.071	0.118
36.70	0.071	0.121
36.80	0.071	0.124
36.90	0.071	0.126
37.00	0.071	0.127
37.10	0.071	0.127
37.20	0.071	0.127
37.30	0.071	0.128
37.40	0.071	0.128
37.50	0.071	**0.128**

Overflow El. = 35.7, Vol. Below = 0.093 ac-ft
Bottom of Chamber = 33.9, Vol. Below = 0.043 ac-ft
WQV Required = 1,577 cf
WQV Provided = 0.05 ac-ft * 43560 = 2,178 cf

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Bioretention #1 (1P)**

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).	
0.16	ac	A = Area draining to the practice	
0.12	ac	A_I = Impervious area draining to the practice	
0.77	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.74	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.12	ac-in	WQV= 1" x Rv x A	
427	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
107	cf	25% x WQV (check calc for sediment forebay volume)	
320	cf	75% x WQV (check calc for surface sand filter volume)	
		Method of Pretreatment? (not required for clean or roof runoff)	
	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	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
	Yes/No	If Ksat (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:			
	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
-	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	≤ 72-hrs
	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
	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)	
-	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	≥ 1'
-	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	≥ 1'
-	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	≥ 1'
	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
	ft	Elevation of the top of the practice	
-		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

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	← yes
430	cf	V = Volume of storage[3] (attach a stage-storage table)	≥ WQV
18.0	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet	D5	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	≥ 3:1
Sheet	L1	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	≤ 5:1
	inches	D_{FC} = Filter course thickness	12", or 18" if within GPA mod. 304.1 (see spec)
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Stage-Area-Storage for Pond 1P: Bioretention #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
33.99	315	0
34.04	315	6
34.09	315	13
34.14	315	19
34.19	315	25
34.24	315	32
34.29	315	38
34.34	315	44
34.39	315	50
34.44	315	57
34.49	315	63
34.54	315	69
34.59	315	76
34.64	315	82
34.69	315	88
34.74	315	95
34.79	315	101
34.84	315	107
34.89	315	113
34.94	315	120
34.99	315	126
35.04	315	128
35.09	315	131
35.14	315	133
35.19	315	135
35.24	315	138
35.29	315	140
35.34	315	143
35.39	315	145
35.44	315	147
35.49	315	150
35.54	315	152
35.59	315	154
35.64	315	157
35.69	315	159
35.74	315	161
35.79	315	164
35.84	315	166
35.89	315	169
35.94	315	171
35.99	315	173
36.04	315	176
36.09	315	178
36.14	315	180
36.19	315	183
36.24	315	185
36.29	315	187
36.34	315	190
36.39	315	192
36.44	315	195
36.49	315	197
36.54	329	213
36.59	345	230
36.64	362	247
36.69	379	266
36.74	396	285
36.79	413	306
36.84	430	327
36.89	447	349
36.94	464	371
36.99	481	395
37.04	499	419
37.09	517	445
37.14	536	471
37.19	554	498
37.24	572	527
37.29	591	556
37.34	609	586
37.39	628	617
37.44	646	648
37.49	**664**	**681**

Overflow El. = 37.3, Vol. below = 556 cf

Bottom of Filter Course = 35.0, Vol. Below = 126 cf

WQV Required = 427 cf

WQV Provided = 556 - 126 = 430 cf

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Bioretention #2 (2P)**

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).	
0.24	ac	A = Area draining to the practice	
0.15	ac	A_I = Impervious area draining to the practice	
0.63	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.62	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.15	ac-in	WQV= 1" x Rv x A	
533	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
133	cf	25% x WQV (check calc for sediment forebay volume)	
400	cf	75% x WQV (check calc for surface sand filter volume)	
		Method of Pretreatment? (not required for clean or roof runoff)	
	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	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
-	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	≤ 72-hrs
	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
	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)	
-	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	≥ 1'
-	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	≥ 1'
-	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	≥ 1'
	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
	ft	Elevation of the top of the practice	
-		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

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	← yes
537	cf	V = Volume of storage[3] (attach a stage-storage table)	≥ WQV
18.0	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet	D5	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	≥ 3:1
Sheet	L1	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	≤ 5:1
	inches	D_{FC} = Filter course thickness	12", or 18" if within GPA mod. 304.1 (see spec)
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Stage-Area-Storage for Pond 2P: Bioretention #2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.49	494	0
34.54	494	10
34.59	494	20
34.64	494	30
34.69	494	40
34.74	494	49
34.79	494	59
34.84	494	69
34.89	494	79
34.94	494	89
34.99	494	99
35.04	494	109
35.09	494	119
35.14	494	128
35.19	494	138
35.24	494	148
35.29	494	158
35.34	494	168
35.39	494	178
35.44	494	188
35.49	494	198
35.54	494	201
35.59	494	205
35.64	494	209
35.69	494	212
35.74	494	216
35.79	494	220
35.84	494	224
35.89	494	227
35.94	494	231
35.99	494	235
36.04	494	238
36.09	494	242
36.14	494	246
36.19	494	249
36.24	494	253
36.29	494	257
36.34	494	261
36.39	494	264
36.44	494	268
36.49	494	272
36.54	494	275
36.59	494	279
36.64	494	283
36.69	494	287
36.74	494	290
36.79	494	294
36.84	494	298
36.89	494	301
36.94	494	305
36.99	494	309
37.04	507	334
37.09	524	360
37.14	541	386
37.19	558	414
37.24	575	442
37.29	592	471
37.34	609	501
37.39	625	532
37.44	642	564
37.49	659	596
37.54	676	630
37.59	693	664
37.64	710	699
37.69	727	735
37.74	743	772
37.79	760	809
37.84	777	848
37.89	794	887
37.94	811	927
37.99	**828**	**968**

Overflow El. = 37.7, Vol. below = 735 cf
Bottom of Filter Course = 35.5, Vol. below = 198 cf
WQV Required = 533 cf
WQV Provided = 735 - 198 = 537 cf

APPENDIX IX

Pre- and Post-Construction Watershed Plans



PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: DJM	Draft: DJM	Date: 3/25/21
Checked: PSL	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-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.

STATE OF NEW HAMPSHIRE – PAIGE S. LIBBEY No. 16670 – LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
5	3/21/22	REVISED PER CITY COMMENTS	DJM
4	2/23/22	REVISED PER NHDOT COMMENTS	DJM
3	2/9/22	REVISED PER TAC AND REVIEW ENGINEER COMMENTS	DJM
2	12/27/21	REVISED PER REVIEW ENGINEER COMMENTS	DJM
1	10/5/21	REVISED PER CITY COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EXISTING WATERSHED PLAN

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVENUE, PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
W1
SHEET 1 OF 2
JBE PROJECT NO. 21047



PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: DJM	Draft: DJM	Date: 3/25/21
Checked: PSL	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-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.

STATE OF NEW HAMPSHIRE – PAIGE S. LIBBEY No.16670 – LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
5	3/21/22	REVISED PER CITY COMMENTS	DJM
4	2/23/22	REVISED PER NHDOT COMMENTS	DJM
3	2/9/22	REVISED PER TAC AND REVIEW ENGINEER COMMENTS	DJM
2	12/27/21	REVISED PER REVIEW ENGINEER COMMENTS	DJM
1	10/5/21	REVISED PER CITY COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: PROPOSED WATERSHED PLAN

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVENUE, PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
W2
SHEET 2 OF 2
JBE PROJECT NO. 21047

KHAVARI
ARCHITECTS

March 22nd, 2022.

City of Portsmouth
Planning Department
Attn: Peter Stith, Principal Planner
1 Junkins Ave, 3rd Floor
Portsmouth, NH 03801

Dear Mr. Stith,

The residential units proposed for the project at 1169 & 1171 Sagamore road are being designed to meet or exceed the applicable green building standards as set forth in the 2015 set of iCodes adopted by the State of New Hampshire along with associated amendments codified by the City of Portsmouth.

In promoting the buildings' longevity, efficiency, and health of their occupants, particular attention shall be given to the following building categories:

- Tight building enclosures
  - Watertightness (moisture barriers)
  - Vapor permeability
  - Airtightness
  - Air quality, environmental controls & whole house ventilation
- Thermal control for reduced energy use
  - Envelope framing assembly R values & window U-Values
- High-efficiency water heating & HVAC equipment
- ENERGY STAR appliances
- High-efficiency lighting
- Low-flow water fixtures

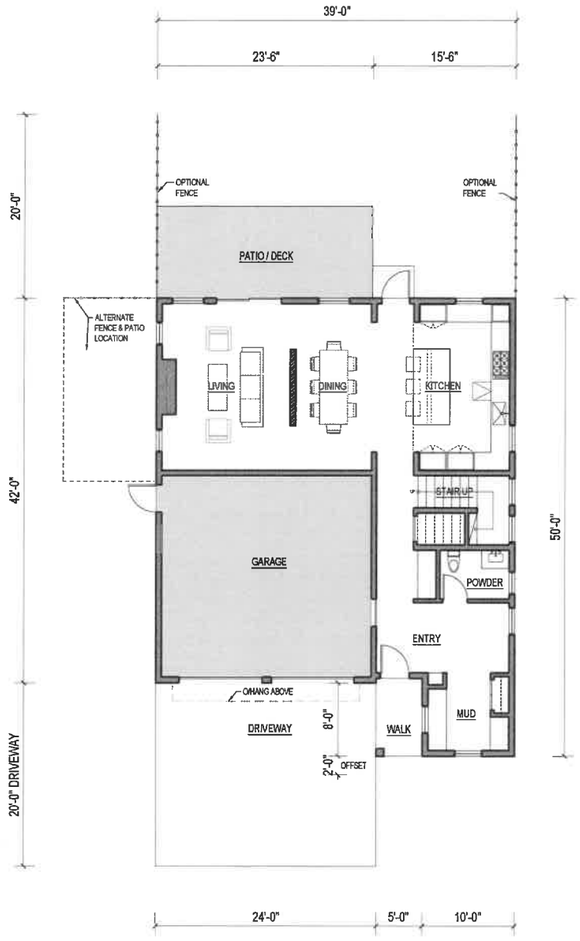
Assemblies and systems for the units shall be specified during the Building Permit application phase.

Respectfully,

Mick Khavari, AIA

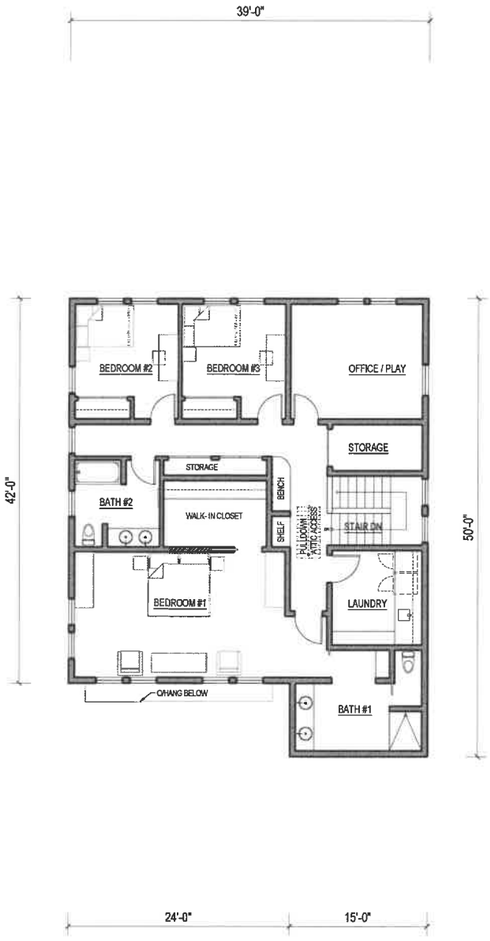
SINGLE DETATCHED

TYPE MAY MIRROR



1 FIRST FLOOR CONCEPT PLAN

1/8" = 1'-0" EXAMPLE UNIT



2 SECOND FLOOR CONCEPT PLAN

1/8" = 1'-0" EXAMPLE UNIT

EXAMPLE UNIT GROSS FLOOR AREA	
FIRST FLOOR:	1,130 SF
SECOND FLOOR:	1,700 SF
TOTAL	2,830 SF

0 4' 8' 16'

SCALE: 1/8" = 1'-0"

KHAVARI ARCHITECTS

40 HARRISON AVENUE
PORTSMOUTH, NH 03801

603 502 0985
KHAVARI.COM

PRELIMINARY

SINGLE FAMILY UNIT PLANS

1169 & 1171 SAGAMORE RD
PORTSMOUTH, NH 03801

CONCEPT

ISSUE:

FOR REVIEW	06.23.2021
FOR REVIEW	08.23.2021
FOR REVIEW	03.22.2022

TYP. SINGLE FAMILY UNIT FLOOR PLANS

A-01

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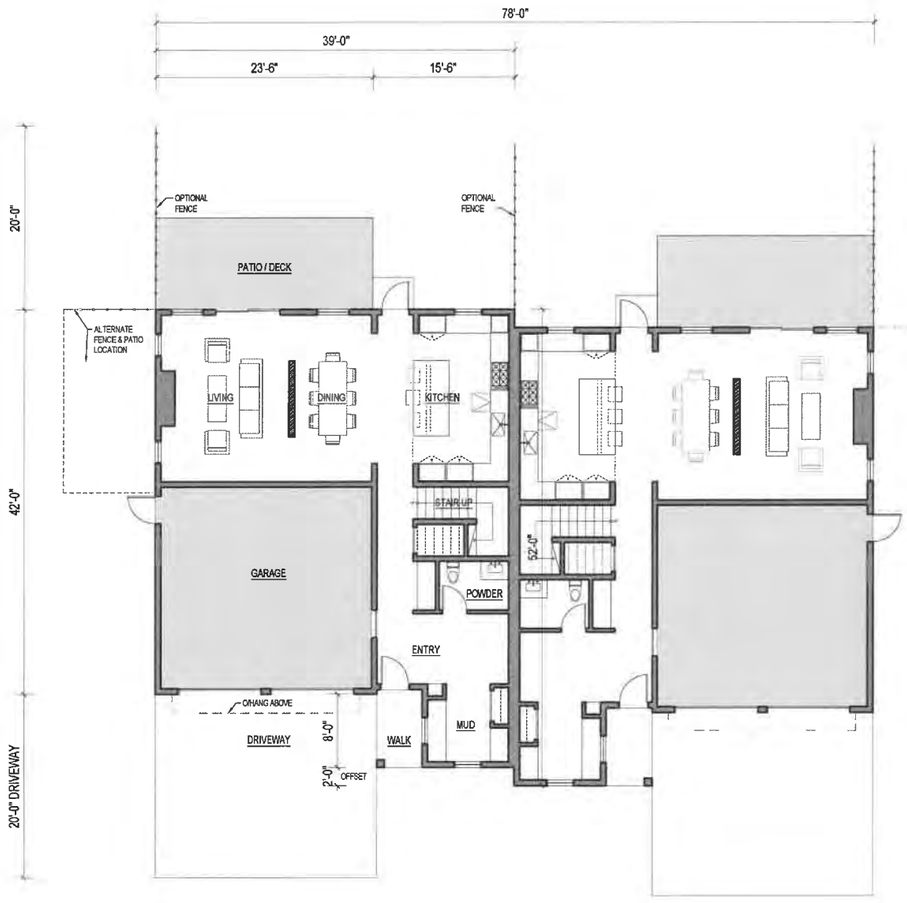
DUPLEX

TYPE MAY MIRROR

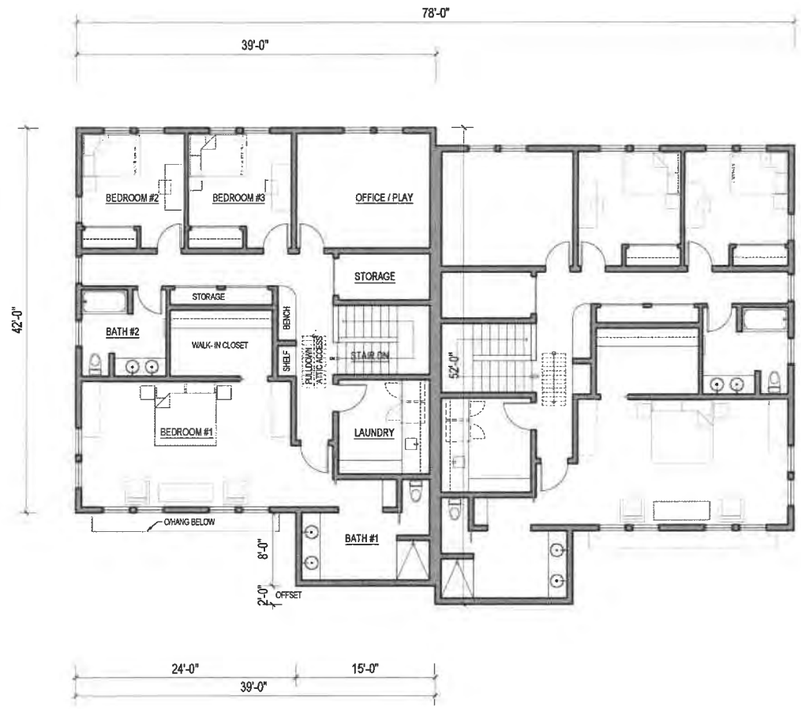


1 FIRST FLOOR CONCEPT PLAN

1/8" = 1'-0" EXAMPLE UNIT

FIRST FLOOR CONCEPT PLAN

1/8" = 1'-0" MIRRORED ADJ. UNIT



2 SECOND FLOOR CONCEPT PLAN

1/8" = 1'-0" EXAMPLE UNIT

SECOND FLOOR CONCEPT PLAN

1/8" = 1'-0" MIRRORED ADJ. UNIT

EXAMPLE UNIT GROSS FLOOR AREA	
FIRST FLOOR:	1,130 SF
SECOND FLOOR:	1,700 SF
TOTAL	2,830 SF

0 4' 8' 16'

SCALE: 1/8" = 1'-0"

KHAVARI
ARCHITECTS

40 HARRISON AVENUE
PORTSMOUTH, NH 03801

603 502 0985
KHAVARI.COM

PRELIMINARY

DUPLEX UNIT PLANS

1169 & 1171 SAGAMORE RD

PORTSMOUTH, NH 03801

CONCEPT

ISSUE:

FOR REVIEW	06.23.2021
FOR REVIEW	08.23.2021
FOR REVIEW	03.22.2022

TYP. DUPLEX UNIT FLOOR PLANS

A-02

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1 SINGLE FAMILY UNIT
EXTERIOR RENDERING

2 DUPLEX UNITS
EXTERIOR RENDERING

KHAVARI
ARCHITECTS

40 HARRISON AVENUE
PORTSMOUTH, NH 03801

603 502 0985
KHAVARI.COM

PRELIMINARY

EXTERIOR RENDERING

1169 & 1171 SAGAMORE RD
PORTSMOUTH, NH 03801

CONCEPT

ISSUE:

FOR REVIEW	06.23.2021
FOR REVIEW	08.23.2021
FOR REVIEW	03.22.2022

EXTERIOR RENDERING - EXAMPLE SINGLE & DUPLEX UNITS

A-03

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A - FRONT ELEVATION



B - SIDE ELEVATION



C - REAR ELEVATION



D - SIDE ELEVATION

1 TYPICAL RESIDENTIAL UNIT - ELEVATIONS

3/16" = 1'-0"

KHAVARI
ARCHITECTS

40 HARRISON AVENUE
PORTSMOUTH, NH 03801

603 502 0985
KHAVARI.COM

PRELIMINARY

EXTERIOR ELEVATIONS

1169 & 1171 SAGAMORE RD
PORTSMOUTH, NH 03801

CONCEPT

ISSUE:

FOR REVIEW	06.23.2021
FOR REVIEW	08.23.2021
FOR REVIEW	03.22.2022

EXTERIOR ELEVATIONS - TYP. RESIDENTIAL UNIT

A-04

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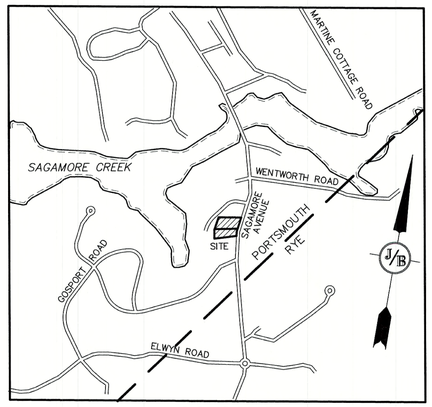
CONDOMINIUM SITE PLAN
"SAGAMORE AVENUE CONDOMINIUMS"
TAX MAP 224, LOTS 14 & 15
1169 & 1171 SAGAMORE AVENUE, PORTSMOUTH, NH

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		CENTERLINE
		FRESHWATER WETLANDS LINE
		TIDAL WETLANDS LINE
		STREAM CHANNEL
		TREE LINE
		STONEWALL
		BARBED WIRE
		FENCE
		STOCKADE FENCE
		SOIL BOUNDARY
		AQUIFER PROTECTION LINE
		FLOOD PLAIN LINE
		ZONELINE
		EASEMENT
100	100	MAJOR CONTOUR
98	98	MINOR CONTOUR
VGC	VGC	EDGE OF PAVEMENT
SGC	SGC	VERTICAL GRANITE CURB
CCB	CCB	SLOPE GRANITE CURB
PCC	PCC	CAPE COD BERM
		POURED CONCRETE CURB
X	X	SILT FENCE
D		DRAINAGE LINE
S	S	SEWER LINE
G	G	GAS LINE
W	W	WATER LINE
WS	WS	WATER SERVICE
OHE	OHE	OVERHEAD ELECTRIC
UGE	UGE	UNDERGROUND ELECTRIC
		GUARDRAIL
UD	UD	UNDERDRAIN
F	F	FIRE PROTECTION LINE
	W	THRUST BLOCK
		IRON PIPE/IRON ROD
		DRILL HOLE
		IRON ROD/DRILL HOLE
		STONE/GRANITE BOUND
100x0 100.00	100x0 100.00	SPOT GRADE PAVEMENT SPOT GRADE
100.00 99.50	100.00 99.50	CURB SPOT GRADE
		BENCHMARK (TBM)
		DOUBLE POST SIGN
		SINGLE POST SIGN
		WELL
TP1		TEST PIT
		FAILED TEST PIT
P1	M	MONITORING WELL
		PERC TEST
1		PHOTO LOCATION
		TREES AND BUSHES
		UTILITY POLE
		LIGHT POLES
		DRAIN MANHOLE
		SEWER MANHOLE
		HYDRANT
		WATER GATE
		WATER SHUT OFF
		REDUCER
		SINGLE GRATE CATCH BASIN
		DOUBLE GRATE CATCH BASIN
		TRANSFORMER
		CULVERT W/WINGWALLS
		CULVERT W/FLARED END SECTION
		CULVERT W/STRAIGHT HEADWALL
		STONE CHECK DAM
		DRAINAGE FLOW DIRECTION
		4K SEPTIC AREA
		WETLAND IMPACT
		VEGETATED FILTER STRIP
		RIPRAP
		OPEN WATER
		FRESHWATER WETLANDS
		TIDAL WETLANDS
		STABILIZED CONSTRUCTION ENTRANCE
		CONCRETE
		GRAVEL
		SNOW STORAGE
		RETAINING WALL



LOCUS MAP
SCALE 1" = 1000'

SHEET INDEX

CS	COVER SHEET
C1	EXISTING CONDITIONS PLAN
C1	DEMOLITION PLAN
C2	CONDOMINIUM SITE PLAN
C3	GRADING AND DRAINAGE PLAN
C4	OFFSITE IMPROVEMENTS PLAN
C5	UTILITY PLAN
P1	SEWER PLAN AND PROFILE
L1	LANDSCAPE PLAN
L2	LIGHTING PLAN
D1-D6	DETAIL SHEET
E1	EROSION AND SEDIMENT CONTROL DETAILS
T1-T4	TRUCK TURNING PLAN
H1	HIGHWAY ACCESS PLAN

CIVIL ENGINEER / SURVEYOR
JONES & BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
PO BOX 219
STRATHAM, NH 03885
(603) 772-4746
CONTACT: JOSEPH CORONATI
EMAIL: JCORONATI@JONESANDBEACH.COM

LIGHTING CONSULTANT
CHARRON, INC.
P.O BOX 4550
MANCHESTER, NH 03108
(603) 945-3500
CONTACT: KEN SWEENEY
EMAIL: KSWEENEY@CHARRONINC.COM

WETLAND CONSULTANT
GOVE ENVIRONMENTAL SERVICES, INC.
8 CONTINENTAL DR., BLDG 2, UNIT H
EXETER, NH 03833-7507
(603) 418-7260
CONTACT: JAMES GOVE
EMAIL: JGOVE@GESINC.BIZ

LANDSCAPE DESIGNER
LM LAND DESIGN, LLC
11 SOUTH ROAD
BRENTWOOD, NH 03833
(603) 770-7728
CONTACT: LISE MCNAUGHTON

WATER
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
WATER DIVISION
680 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
CONTACT: BRIAN GOETZ, P.E.
(603) 427-1530

SEWER
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
SEWER DIVISION
680 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
CONTACT: TERRY DESMARAIS, P.E.
(603) 766-1421

ELECTRIC
EVERSOURCE
74 OLD DOVER ROAD
ROCHESTER, NH 03867
(800) 555-5334
CONTACT: NICHOLAI KOSKO

TELEPHONE
FAIRPOINT COMMUNICATIONS
1575 GREENLAND ROAD
GREENLAND, NH 03840
(603) 427-5525
CONTACT: JOE CONSIDINE

CABLE TV
COMCAST COMMUNICATION CORPORATION
334-B CALEF HIGHWAY
EPPING, NH 03042-2325
(603) 679-5695

APPROVED – PORTSMOUTH, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM
Checked: JAC	Scale: AS NOTED
Drawing Name: 21047-PLAN.dwg	Date: 3/25/21 Project No.: 21047

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STATE OF NEW HAMPSHIRE – PAIGE S. LIBBEY No.16670 LICENSED PROFESSIONAL ENGINEER – 3/22/22

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
10	3/4/22	REVISED PER NHDOT COMMENTS	DJM
9	2/15/22	REVISED PER TEST PIT DATA; CITY COMMENTS; POWER COMPANY	DJM
8	1/20/22	REVISED PER ENGINEER REVIEW COMMENTS	DJM
7	12/28/21	REVISED PER ENGINEER REVIEW COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	COVER SHEET
Project:	SAGAMORE AVENUE CONDOMINIUMS 1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE
Owner of Record:	LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173 LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
CS
SHEET 1 OF 22
JBE PROJECT NO. 21047

"SAGAMORE AVENUE CONDOMINIUMS" - PORTSMOUTH, NH
JBE # 21047 REVISION 11, 3/22/22

PLAN REFERENCES:

1. "PLAN OF LAND ON SAGAMORE CREEK, PORTSMOUTH, N.H. OWNED BY JOSIAH F. ADAMS." DATED MARCH 1908. PREPARED BY E. M. HUNT. R.C.R.D. 00254
2. "BOUNDARY LINE CHANGE, LODGE 444 LOYAL ORDER OF MOOSE, ROBERT & STUART SHAINES, SAGAMORE AVENUE, PORTSMOUTH, NEW HAMPSHIRE." DATED MAY 1984. PREPARED BY K.E. MOORE & B.G. STAPLES. R.C.R.D. 13349.
3. "SUBDIVISION PLAN OF LAND, PORTSMOUTH & RYE, N.H. FOR R & S TRUST." DATED DECEMBER 13, 1984. PREPARED BY JOHN W. DURGIN ASSOCIATES. R.C.R.D. 13415.
4. "LOT LINE REVISION, KEVIN SLOVER & WESTWIND TOWNHOMES OF PORTSMOUTH." DATED SEPTEMBER 16, 2011. PREPARED BY EASTERLY SURVEYING. R.C.R.D. 39932.
5. "AS-BUILT CONDOMINIUM SITE PLAN, WESTWIND TOWNHOMES OF PORTSMOUTH." DATED JANUARY 2020. PREPARED BY AMBIT ENGINEERING. R.C.R.D. 42429.
6. "AMENDED EASEMENT PLAN, SEA STAR CONDOMINIUM." DATED DECEMBER 2020. PREPARED BY AMBIT ENGINEERING. R.C.R.D. 42567.

GENERAL LEGEND

- PROPERTY LINE
- ABUTTER PROPERTY LINE
- BUILDING SETBACK
- TREE LINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- OHE — OVERHEAD ELECTRIC LINES
- WETLAND
- STONE WALL
- MAJOR CONTOUR
- MINOR CONTOUR
- S — SEWER LINE
- UTILITY POLE

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 feet

MAP 224 LOT 16
SIMONE ROCCO
1167 SAGAMORE AVE.
PORTSMOUTH, NH 03801
BK 2253 PG 0986

MAP 224 LOT 17
SEA STAR COVE CONDOMINIUM
1163 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
PLAN 42567

MAP 224 LOT 15
JOHN & COLLEEN HEBERT
54 PIONEER RD
RYE, NH 03870
BK 5383 PG 219
46,096 SQ. FT.
1.06 AC

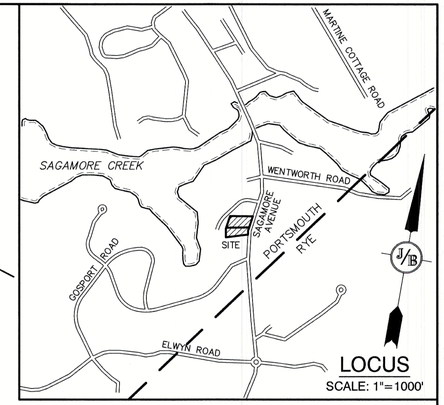
MAP 224 LOT 14
COLLEEN HEBERT
54 PIONEER RD
RYE, NH 03870
BK 2418 PG 173
33,196 SQ. FT.
0.76 AC.

MAP 224 LOT 10-1
KEVIN SLOVER
20 ODIORNE POINT RD
PORTSMOUTH, NH 03801
BK 4333 PG 1485
PLAN 39932

MAP 224 LOT 13
WESTWIND TOWNHOMES OF PORTSMOUTH
1177 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
PLAN 42429

MAP 201 LOT 26
CITY OF PORTSMOUTH
CONSERVATION COMM.
PO BOX 6697
PORTSMOUTH, NH 03802
BK 2299 PG 1707

520± SQ. FT. WETLAND
APPROXIMATE BURIED WETLAND LOCATION
100' BUFFER FROM OFFSITE WETLAND (TYP.)
OFFSITE WETLAND
FINE LAWN AREA
APPROXIMATE AREA OF OLD FILL AND BURIED TOPSOIL
GRAVEL DRIVE
GRAVEL DRIVEWAY
SINGLE-STORY RESIDENCE
SHED
ABOVE GROUND POOL
ELEVATED DECK
PAVED DRIVE
POSSIBLE SEPTIC TANK
LEDGE OUTCROP (TYP.)
STONE RETAINING WALLS
WOOD RETAINING WALL
PAVEMENT
NO EASEMENT FOUND AT THIS TIME FOR POLES OR OVERHEAD WIRES
EXISTING UTILITY POLE
EXISTING WATER SERVICE WITH SHUTOFF
EXISTING GATE VALVE AND FIRE HYDRANT
EXISTING 12" CAST IRON WATER MAIN
RIGHT OF WAY PER PLAN REF. 1
SAGAMORE AVENUE NH ROUTE 1A CLASS I
15' REAR SETBACK (TYP.)
5' FRONT SETBACK (TYP.)
10' SIDE SETBACK (TYP.)
321 BH
321 CH
261 BH
261 DH
224 BH
327 BH
561 BH
TP B1 TP B2 TP B3 TP B4 TP B5 TP B6 TP B7 TP B8
TP 1 TP 2 TP 3 TP 4 TP 5 TP 6 TP 7
TP X1 TP X2 TP X3 TP X4 TP X5 TP X6 TP X7 TP X8
1" IP FND 0.15' EXPOSED
4" IP FND FILLED WITH CONCRETE 0.3' DOWN TOP OF PIPE FOUND NEARBY MARKED "N S"
2" IP FND METAL CAP 0.15' EXPOSED ON LINE 1.65' INTO R.O.W.
1¼" IP FND FLUSH
IR FND EASTERLY FLUSH 0.63' OFF LINE
IR FND COLWELL FLUSH 0.93' OFF LINE
IR FND 0.2' DOWN AMES MSC ON LINE 1.11' TO R.O.W.
1" IRON PIN 0.2' DOWN DISTURBED
DH FND 0.8' DOWN IN LEDGE
SMH 2088 RIM=37.62 EX. 3" & 4" FM INV. IN UNKNOWN INVout=31.27 – 8" PVC
SMH 2048 RIM=34.98 INVin=25.83 – BOTTOM OF INSIDE DROP INVin=25.78 – 8" PVC (W) INVout=25.73 – 8" PVC (S)
S08°49'25"W 174.91' (164.91')
N79°16'50"E 305.92'
S09°46'29"E 117.31'
N08°17'40"W 97.74' (TIE)
S80°37'03"W 298.35'
N08°41'40"E 68.25'
N07°11'40"E 410.82'
N73°23'40"E 296.83'
N08°16'20"W 50.99'
N07°11'40"E 47.61'
S12°56'35"E 202.20' TIE TO TOWN BOUND



NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE BOUNDARY AND EXISTING CONDITIONS OF LOTS 14 AND 15 AS SHOWN ON PORTSMOUTH TAX MAP 224.
2. ZONING DISTRICT: MIXED RESIDENTIAL OFFICE
   LOT AREA MINIMUM = 7,500 SF
   LOT FRONTAGE MINIMUM = 100'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 5'
   SIDE SETBACK = 10'
   REAR SETBACK = 15'
   WETLAND BUFFER = 100' FROM WETLANDS > 10,000 S.F. IN AREA
   MAX. BUILDING HEIGHT = 35'
   MIN. OPEN SPACE = 25%
3. 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 IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO ANY EXCAVATION WORK OR CALL DIG-SAFE AT 1-888-DIG-SAFE.
4. THE SUBJECT PARCEL IS NOT LOCATED WITHIN AN AREA HAVING A SPECIAL FLOOD HAZARD ZONE DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, ON FLOOD INSURANCE RATE MAP NO. 33015C0286F, WITH EFFECTIVE DATE OF JANUARY 29, 2021.
5. BASIS OF BEARING:
   HORIZONTAL – NAD83 NH STATE PLANE.
   VERTICAL – NAVD88.
6. CERTAIN DATA HEREON MAY VARY FROM RECORDED DATA DUE TO DIFFERENCES IN DECLINATION, ORIENTATION, AND METHODS OF MEASUREMENT.
7. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
8. THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
9. RESEARCH WAS PERFORMED THROUGH THE CITY OF PORTSMOUTH GIS DATABASE AND AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
10. 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.
11. 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.
12. THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY COVE ENVIRONMENTAL SERVICES IN MARCH 2021 IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
    A. THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
    B. THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
13. THIS PLAN IS THE RESULT OF A CLOSED TRAVERSE WITH A RAW, UNADJUSTED LINEAR ERROR OF CLOSURE GREATER THAN 1 IN 15,000.
14. 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.

HISS SOIL NOTE

THIS SOIL MAP WAS PREPARED BY A PROFESSIONAL SOIL SCIENTIST AND MEETS THE TECHNICAL STANDARDS OF THE SSSNNE PUBLICATION NO. 1, HIGH INTENSITY SOIL MAPS FOR NH, DECEMBER 2017. SOIL MAP WAS PREPARED ON 4 APRIL 2021. SOIL MAP SITE WAS 1169 & 1171 SAGAMORE AVENUE, PORTSMOUTH, NH.

SOIL MAP UNITS WERE IDENTIFIED USING THE KEY TO SOIL TYPES. THE CONVERSION OF HIGH INTENSITY SOIL MAP UNIT TO NRCS SOIL MAP UNIT NAME WAS BASED UPON THE OBSERVED SOIL PROFILES, AS WAS HYDROLOGIC SOIL GROUP, AS TAKEN FROM SSSNNE SPECIAL PUBLICATION NO. 5.

SOIL MAPPING WAS PERFORMED BY JAMES GOVE, CSS # 004.

HISS SOIL MAP UNIT	SOIL MAP UNIT NAME	HYDROLOGIC SOIL GROUP
224 (SLOPE) H	HOLLIS-ROCK OUTCROP COMPLEX	D
261 (SLOPE) H	MADE LAND – SIMILAR TO CANTON	B
321 (SLOPE) H	NEWFIELDS	B
327 (SLOPE) H	CHATFIELD VARIANT	B
561 (SLOPE) H	MADE LAND– SIMILAR TO WALPOLE	C

B SLOPE = 0–8%, C SLOPE = 8–15%, D SLOPE = 15–25%

STATE OF NEW HAMPSHIRE JAMES P. GOVE 3-21-22 CERTIFIED WETLAND SCIENTIST No. 0051

STATE OF NEW HAMPSHIRE JAMES P GOVE 3-21-22 No. 004 CERTIFIED SOIL SCIENTIST

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 EXCEED 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.

STATE OF NEW HAMPSHIRE No. 1030 MATTHEW J. SALVUCCI LICENSED LAND SURVEYOR SIGNATURE

MATTHEW J. SALVUCCI, LLS 1030 DATE: 3/22/22
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21	
Checked: JAC	Scale: AS NOTED	Project No.: 21047	
Drawing Name: 21047-PLAN.dwg			

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STATE OF NEW HAMPSHIRE PAIGE S. LIBBEY No. 16670 LICENSED PROFESSIONAL ENGINEER 3/22/22

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
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9	2/15/22	REVISED PER TEST PIT DATA; CITY COMMENTS; POWER COMPANY	DJM
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7	12/28/21	REVISED PER ENGINEER REVIEW COMMENTS	DJM

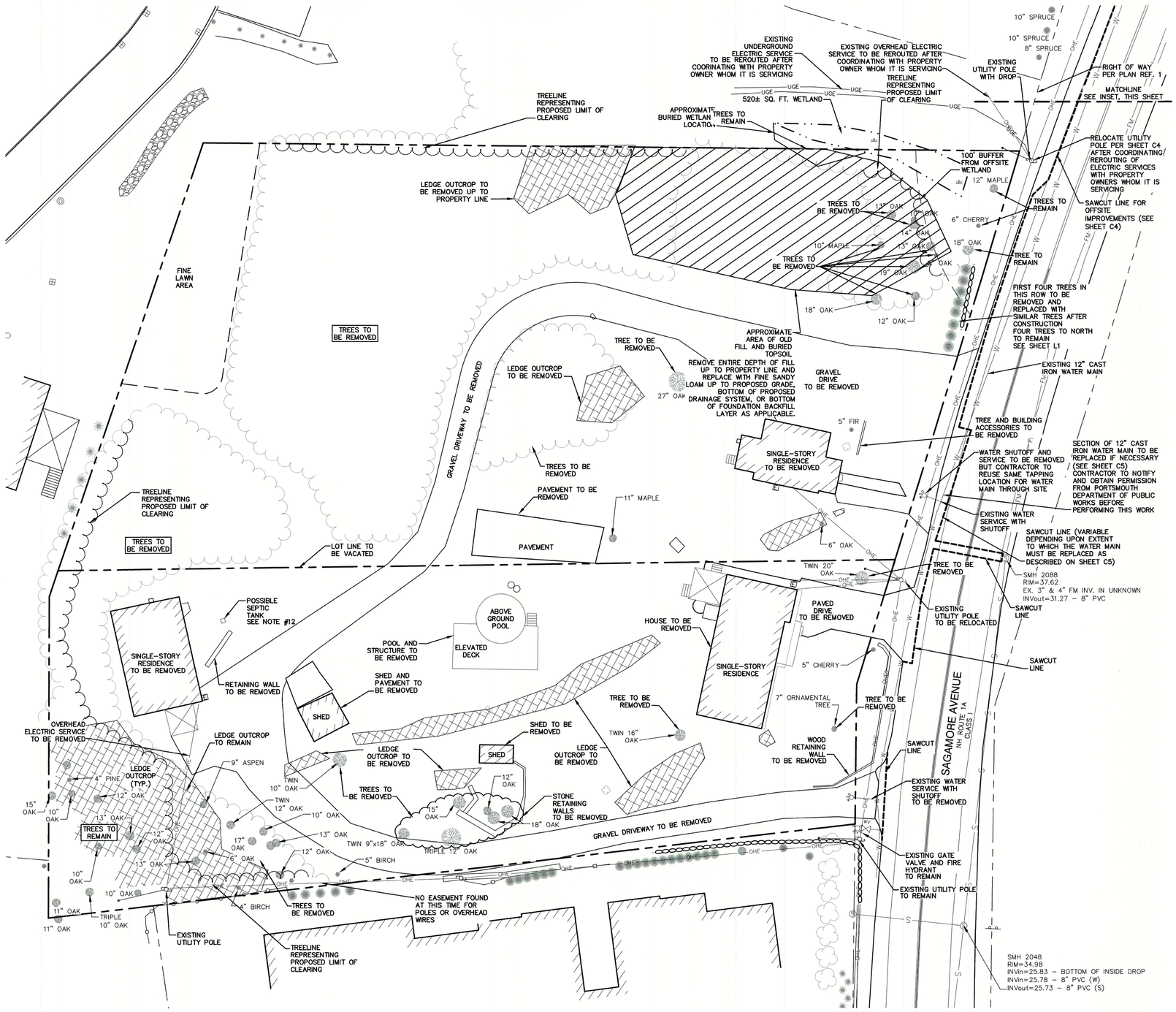
Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

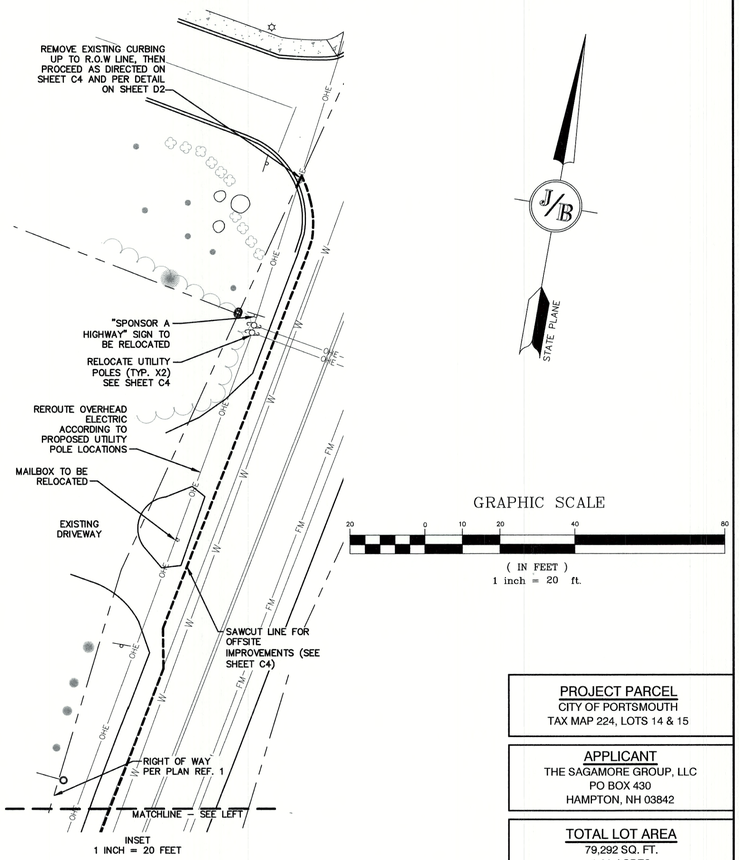
Plan Name: EXISTING CONDITIONS PLAN
Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE
Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
C1
SHEET 2 OF 22
JBE PROJECT NO. 21047

DEMOLITION NOTES:

1. THIS PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR SITE DEMOLITION. IT SHOULD BE NOTED THAT ALL MANMADE FEATURES, PAVEMENT, SIGNS, POLES, CURBING, CONCRETE WALKS, UTILITIES, ETC., SHALL BE REMOVED AS NECESSARY TO CONSTRUCT WORK, UNLESS OTHERWISE NOTED TO REMAIN. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCIES FROM DATA AS SHOWN ON DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
2. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED. CLEARING LIMITS ARE THE EDGE OF THE PROPERTY AND THE LIMITS OF WORK.
3. ALL EXISTING STRUCTURES WITHIN THE CONSTRUCTION AREA, UNLESS OTHERWISE NOTED TO REMAIN, SHALL BE REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL GUIDELINES. ANY BURNING ON-SITE SHALL BE SUBJECT TO LOCAL ORDINANCES.
4. ALL EXISTING UTILITIES SHALL BE TERMINATED AT THE PROPERTY LINE, UNLESS OTHERWISE NOTED ON THE PLANS, IN CONFORMANCE WITH LOCAL, STATE AND UTILITY COMPANY STANDARDS, SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES PRIOR TO THE START OF WORK.
5. EXISTING WATERLINES TO BE REMOVED SHALL BE CAPPED AT EXISTING WATERMAIN.
6. ALL CURBING, CONCRETE, PAVEMENT, BUILDINGS AND SUBBASE MATERIALS LOCATED WITHIN PROPOSED LANDSCAPED AREAS SHALL BE REMOVED AND REPLACED WITH LOAM MATERIALS SUITABLE FOR LANDSCAPING IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS. (SEE ALSO LANDSCAPE PLAN).
7. SEE LANDSCAPE PLAN FOR "TREES TO BE SAVED" AND DETAILS ASSOCIATED WITH LANDSCAPED AREAS.
8. THE CONTRACTOR SHALL OBTAIN TREE CLEARING PERMIT FROM LOCAL AND STATE AUTHORITIES PRIOR TO START OF CONSTRUCTION (IF REQUIRED).
9. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
10. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND ANY EARTH MOVING OPERATIONS. SILT FENCE SHALL BE INSTALLED AT THE LIMITS OF IMPACT AREAS ACCORDING TO THE DETAILS SHOWN ON SHEET E1.
11. EXCAVATED MATERIALS WILL BE PLACED WITHIN UPLAND AREAS AS FILL MATERIAL OR HAULED OFF-SITE FOR DISPOSAL IN AN APPROPRIATE UPLAND LOCATION.
12. SEPTIC LINES ARE TO BE CLEANED OUT AND REMOVED. SEPTIC TANK IS TO BE PUMPED, PUNCTURED, AND FILLED WITH SAND. CONTRACTOR TO LOCATE EXISTING LEACH FIELD AND ABANDON IN PLACE IN ACCORDANCE WITH NHDES STANDARDS. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL CONTAMINATED MATERIAL LOCATED IN THE AREA OF EXISTING LEACHFIELDS IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS





PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM
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STATE OF NEW HAMPSHIRE - PAIGE S. LIBBEY No.16670 LICENSED PROFESSIONAL ENGINEER

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Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **DEMOLITION PLAN**

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
DM-1
SHEET 3 OF 22
JBE PROJECT NO. 21047

PLAN REFERENCES:

1. "PLAN OF LAND ON SAGAMORE CREEK, PORTSMOUTH, N.H. OWNED BY JOSIAH F. ADAMS." DATED MARCH 1908. PREPARED BY E. M. HUNT. R.C.R.D. 00254
2. "BOUNDARY LINE CHANGE, LODGE 444 LOYAL ORDER OF MOOSE, ROBERT & STUART SHAINES, SAGAMORE AVENUE, PORTSMOUTH, NEW HAMPSHIRE." DATED MAY 1984. PREPARED BY K.E. MOORE & B.G. STAPLES. R.C.R.D. 13349.
3. "SUBDIVISION PLAN OF LAND, PORTSMOUTH & RYE, N.H. FOR R & S TRUST." DATED DECEMBER 13, 1984. PREPARED BY JOHN W. DURGIN ASSOCIATES. R.C.R.D. 13415.
4. "LOT LINE REVISION, KEVIN SLOVER & WESTWND TOWNHOMES OF PORTSMOUTH." DATED SEPTEMBER 16, 2011. PREPARED BY EASTERLY SURVEYING. R.C.R.D. 39932.
5. "AS-BUILT CONDOMINIUM SITE PLAN, WESTWND TOWNHOMES OF PORTSMOUTH." DATED JANUARY 2020. PREPARED BY AMBIT ENGINEERING. R.C.R.D. 42429.
6. "AMENDED EASEMENT PLAN, SEA STAR CONDOMINIUM." DATED DECEMBER 2020. PREPARED BY AMBIT ENGINEERING. R.C.R.D. 42567.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		CENTERLINE
		FRESHWATER WETLANDS LINE
		TREE LINE
		FENCE
		EDGE OF PAVEMENT
		TREES AND BUSHES
		UTILITY POLE
		FRESHWATER WETLANDS

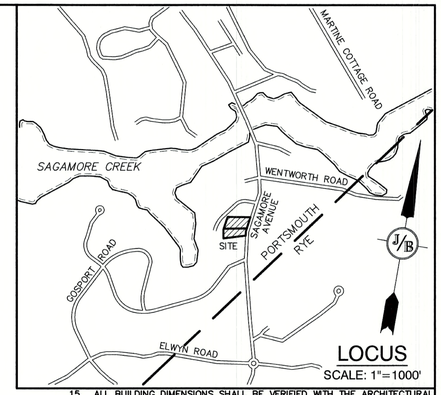
MAP 224 LOT 16
SIMONE ROCCO
1167 SAGAMORE AVE.
PORTSMOUTH, NH 03801
BK 2253 PG 0986

MAP 224 LOT 17
SEA STAR COVE CONDOMINIUM
1163 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
PLAN 42567

MAP 201 LOT 26
CITY OF PORTSMOUTH
CONSERVATION COMM.
PO BOX 6697
PORTSMOUTH, NH 03802
BK 2299 PG 1707

MAP 224 LOT 10-1
KEVIN SLOVER
20 ODIORNE POINT RD
PORTSMOUTH, NH 03801
BK 4333 PG 1485
PLAN 39932

MAP 224 LOT 13
WESTWND TOWNHOMES OF PORTSMOUTH
1177 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
PLAN 42429



SITE NOTES:

1. THE INTENT OF THIS PLAN IS TO REMOVE EXISTING STRUCTURES AS SHOWN ON SHT. C1 AND CONSTRUCT AN 10-UNIT CONDOMINIUM COMPLEX. PROJECT TO BE SERVED BY ELECTRIC, MUNICIPAL SEWER & PUBLIC WATER.
2. ZONING DISTRICT: MIXED RESIDENTIAL OFFICE
   LOT AREA MINIMUM = 7,500 SF
   LOT FRONTAGE MINIMUM = 100'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 5'
   SIDE SETBACK = 10'
   REAR SETBACK = 15'
   WETLAND BUFFER = 100' FROM WETLANDS > 10,000 S.F. IN AREA
   MAX. BUILDING HEIGHT = 35'
   MIN. OPEN SPACE = 25%
   MIN. LOT AREA PER DWELLING UNIT = 7,500 S.F.
   OPEN SPACE PROVIDED = 40,800 S.F. = 51.4%
3. DENSITY CALCULATION:
   LOT AREA = 79,292 S.F., 10 UNITS PROPOSED
   7,929 S.F. PER DWELLING UNIT PROVIDED > 7,500 S.F.
   PER DWELLING UNIT REQUIRED
4. PARKING CALCULATIONS:
   1.3 SPACES PER UNIT AND 1 VISITOR SPACE PER 5 UNITS REQUIRED
   1.3 SPACES * 10 UNITS + 1 SPACES * (10 UNITS / 5) =
   15 SPACES REQUIRED
   2 SPACES PROVIDED IN EACH GARAGE
   22 SPACES PROVIDED INCLUDING 2 VISITOR SPACES
5. NHDES SEWER CONNECTION PERMIT NO. , DATED .
   NHDOT DRIVEWAY PERMIT NO. , DATED .
6. 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.
7. ALL CONSTRUCTION SHALL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
8. THE SUBJECT PARCEL IS NOT LOCATED WITHIN AN AREA HAVING A SPECIAL FLOOD HAZARD ZONE DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, ON FLOOD INSURANCE RATE MAP NO. 33015C0286F, WITH EFFECTIVE DATE OF JANUARY 29, 2021.
9. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
10. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.P.). THIS DOCUMENT IS TO BE KEPT ONSITE AT ALL TIMES AND UPDATED AS REQUIRED.
    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.
11. ALL PROPOSED SIGNAGE SHALL CONFORM WITH THE TOWN ZONING REGULATIONS, UNLESS A VARIANCE IS OTHERWISE REQUESTED.
12. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND NHDOT STANDARDS AND SPECIFICATIONS (NON-REFLECTORIZED PAVEMENT MARKINGS), UNLESS OTHERWISE NOTED.
13. ALL STOP BARS SHALL BE 18" IN WIDTH IN A COLOR OF WHITE; ALL TRAFFIC ARROWS SHALL BE PAINTED IN A COLOR OF WHITE.
14. 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.
15. SNOW TO BE STORED AT EDGE OF PAVEMENT AND IN AREAS SHOWN ON THE PLANS, OR TRUCKED OFFSITE TO AN APPROVED SNOW DUMPING LOCATION.
16. ALL ARCHITECTURAL BLOCK RETAINING WALLS ARE TO BE DESIGNED AND STAMPED BY THE MANUFACTURER'S STRUCTURAL ENGINEER. CONTRACTOR TO COORDINATE WITH APPROVED MANUFACTURER PRIOR TO INSTALLATION.
17. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
18. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
19. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
20. 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 THE SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
21. THE OWNER OF EACH UNIT SHALL STORE TRASH IN THEIR GARAGE. TRASH WILL BE PICKED UP BY A PRIVATE HAULER.
22. 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 IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO ANY EXCAVATION WORK OR CALL DIG-SAFE AT 1-888-DIG-SAFE.
23. BASIS OF BEARING:
    HORIZONTAL - NH STATE PLANE. VERTICAL - NAVD88.
24. THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
25. 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.
26. THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES IN MARCH 2021 IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
    A. THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
    B. THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
27. 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.
32. AN ACCESS EASEMENT SHALL BE GRANTED TO THE CITY OF PORTSMOUTH FOR ACCESS AND LEAK DETECTION OF THE WATER MAIN, SHUTOFFS, AND METERS ON THE PROPERTY. EASEMENT DESCRIPTION MUST BE APPROVED BY THE CITY'S LEGAL DEPARTMENT AND ACCEPTED BY THE CITY COUNCIL.
33. THIS PLAN IS THE RESULT OF A CLOSED TRAVERSE WITH A RAW, UNADJUSTED LINEAR ERROR OF CLOSURE GREATER THAN 1 IN 15,000.
34. ON-SITE SALT STORAGE IS PROHIBITIED WITHIN 250' OF AN INLAND WETLAND UNLESS COMPLETELY COVERED AND CONTAINED IN A STRUCTURE.
35. [illegible]

CONDOMINIUM SITE PLAN CERTIFICATION:

I CERTIFY THAT THIS PLAN FULLY AND ACCURATELY DEPICTS THE LOCATION AND DIMENSIONS OF THE LAND AND EXISTING IMROVEMENTS SHOWN THEREON AND TO THE EXTEND FEASIBLE, ALL EASEMENTS APPURTENANT THERETO, THAT UNITS 1-10 ARE NOT YET BEGUN, AND THIS PLAN COMPLIES WITH NH RSA 356-B20 (1).

STATE OF NEW HAMPSHIRE No. 1030 MATTHEW J. SALVUCCI LICENSED LAND SURVEYOR SIGNATURE

MATTHEW J. SALVUCCI, LLS 1030 DATE: 3/22/22
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

APPROVED - PORTSMOUTH, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM
Checked: JAC	Scale: AS NOTED
Drawing Name: 21047-PLAN.dwg	Date: 3/25/21
	Project No.: 21047

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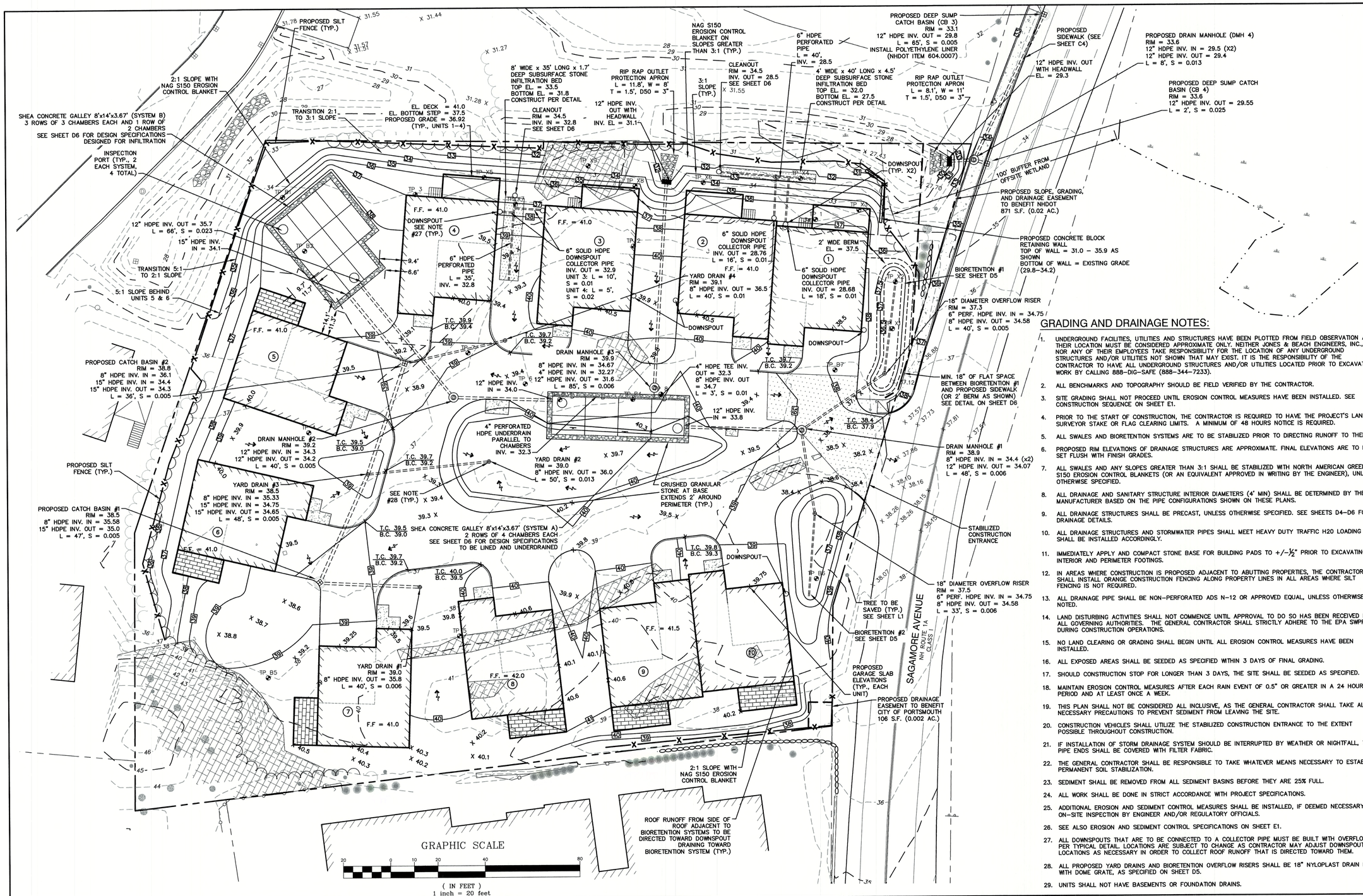
STATE OF NEW HAMPSHIRE PAIGE S. LIBBEY No.16670 LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
10	3/4/22	REVISED PER NHDOT COMMENTS	DJM
9	2/15/22	REVISED PER TEST PIT DATA; CITY COMMENTS; POWER COMPANY	DJM
8	1/20/22	REVISED PER ENGINEER REVIEW COMMENTS	DJM
7	12/28/21	REVISED PER ENGINEER REVIEW COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: CONDOMINIUM SITE PLAN
Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE
Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
C2
SHEET 4 OF 22
JBE PROJECT NO. 21047



GRADING AND DRAINAGE NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
3. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
5. ALL SWALES AND BIORETENTION SYSTEMS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
6. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
7. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S150 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
8. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
9. ALL DRAINAGE STRUCTURES SHALL BE PRECAST, UNLESS OTHERWISE SPECIFIED. SEE SHEETS D4–D6 FOR DRAINAGE DETAILS.
10. ALL DRAINAGE STRUCTURES AND STORMWATER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
11. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PADS TO +/–½" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
12. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
13. ALL DRAINAGE PIPE SHALL BE NON–PERFORATED ADS N–12 OR APPROVED EQUAL, UNLESS OTHERWISE NOTED.
14. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
15. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
16. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
17. SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
18. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
19. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
20. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
21. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
22. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
23. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
24. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
25. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON–SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
26. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1.
27. ALL DOWNSPOUTS THAT ARE TO BE CONNECTED TO A COLLECTOR PIPE MUST BE BUILT WITH OVERFLOWS PER TYPICAL DETAIL. LOCATIONS ARE SUBJECT TO CHANGE AS CONTRACTOR MAY ADJUST DOWNSPOUT LOCATIONS AS NECESSARY IN ORDER TO COLLECT ROOF RUNOFF THAT IS DIRECTED TOWARD THEM.
28. ALL PROPOSED YARD DRAINS AND BIORETENTION OVERFLOW RISERS SHALL BE 18" NYLOPLAST DRAIN BASIN WITH DOME GRATE, AS SPECIFIED ON SHEET D5.
29. UNITS SHALL NOT HAVE BASEMENTS OR FOUNDATION DRAINS.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – PAIGE S. LIBBEY No.16670 – LICENSED PROFESSIONAL ENGINEER – 3/25/21

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
10	3/4/22	REVISED PER NHDOT COMMENTS	DJM
9	2/15/22	REVISED PER TEST PIT DATA; CITY COMMENTS; POWER COMPANY	DJM
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Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **GRADING AND DRAINAGE PLAN**

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
C3
SHEET 5 OF 22
JBE PROJECT NO. 21047

MAP 224 LOT 17
SEA STAR COVE CONDOMINIUM
1163 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
PLAN 4256?

MAP 224 LOT 16
SIMONE ROCCO
1167 SAGAMORE AVE.
PORTSMOUTH, NH 03801
BK 2253 PG 0986

MAP 201 LOT 26
CITY OF PORTSMOUTH
CONSERVATION COMM.
PO BOX 6697
PORTSMOUTH, NH 03802
BK 2299 PG 1707

SAGAMORE AVENUE
NH ROUTE 1A
CLASS I

1163 SAGAMORE AVENUE
"SEA STAR COVE" PRIVATE ROAD

STATE PLANE

COORDINATE RELOCATION OF OVERHEAD AND UNDERGROUND ELECTRIC SERVICES WITH ASSOCIATED PROPERTY OWNERS BEFORE RELOCATING UTILITY POLE

APPROXIMATE ABUTTER PROPERTY LINE (TYP.)

PROPOSED RELOCATED UTILITY POLES (TYP. X2) REROUTE OVERHEAD ELECTRIC AS SHOWN

PROPOSED RELOCATED "SPONSOR A HIGHWAY" SIGN

TIP DOWN WITH TRUNCATED DOME AT STREET INTERSECTION

CURBING BEYOND PROPERTY LINE TO REMAIN (TYP.)

COORDINATE WITH "SEA STAR COVE" PROPERTY OWNER OR CONDOMINIUM ASSOCIATION PRIOR TO WORK ON THIS DRIVEWAY, INCLUDING RELOCATION OF OVERHEAD ELECTRIC

PROPOSED 5' WIDE PAINTED CROSSWALK

EXISTING CONCRETE SIDEWALK & TIP DOWNS

PROPOSED RELOCATED UTILITY POLE

CLEAR TREES IN RIGHT OF WAY AS NECESSARY FOR SIDEWALK (TYP.)

EXISTING UTILITY POLES AND OVERHEAD ELECTRIC FOR REFERENCE

TIP DOWN, NO TRUNCATED DOME (TYP.)

PROPOSED RELOCATED MAILBOX

PROPOSED DRAIN MANHOLE SEE SHEET C3

5.5' CONCRETE SIDEWALK WITH VERTICAL GRANITE CURB (6" WIDE INCLUDING CURB)

DEEP SUMP CATCH BASIN SEE SHEET C3

PROPOSED RELOCATED OVERHEAD ELECTRIC

TIP DOWN, NO TRUNCATED DOME

RECONFIGURE DRIVEWAY CURB CUTS FOR SPECIFIED WIDTHS

REGRADE DRIVEWAY CURB CUTS FOR NO MORE THAN 2% SLOPE IN FIRST 6', WHERE CONCURRENT WITH PROPOSED SIDEWALK

B.C. 33.7 ±
T.C. 34.2 ±

REMOVE EXISTING CURBING AT PROPOSED LANDING AND ADDITIONALLY ANOTHER 5' BEYOND LANDING, THEN INSTALL NEW CURBING BEYOND LANDING AS DEPICTED ON SHEET D2 IN ORDER TO TIP DOWN FROM TOP OF CURB TO FINISHED GRADE OF LANDING WITH TRUNCATED DOME.

PROPOSED DEEP SUMP CATCH BASIN SEE SHEET C3 (ALL PROPOSED STRUCTURES IN SAGAMORE AVE. RIGHT OF WAY SHALL MEET OR EXCEED NHDOT STANDARDS (TYP.)

SAWCUT LINE (TYP., VARIABLE DEPENDING UPON EXTENT TO WHICH WATER MAIN MUST BE REPLACED PER NOTE ON SHEET C5)

FACE OF CURB TO BE 16' OFF CENTERLINE (CENTERLINE BEING HALFWAY BETWEEN SOLID YELLOW LINES)

SIDEWALK SHALL BE AT TOP OF CURB, 6" ABOVE GRADE OF ROAD AND BE SLOPED 1% TO DRAIN AWAY FROM ROAD (TYP.)

EDGE OF WETLAND (TYP.)

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
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STATE OF NEW HAMPSHIRE
PAIGE S. LIBBEY
No. 16670
LICENSED
PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
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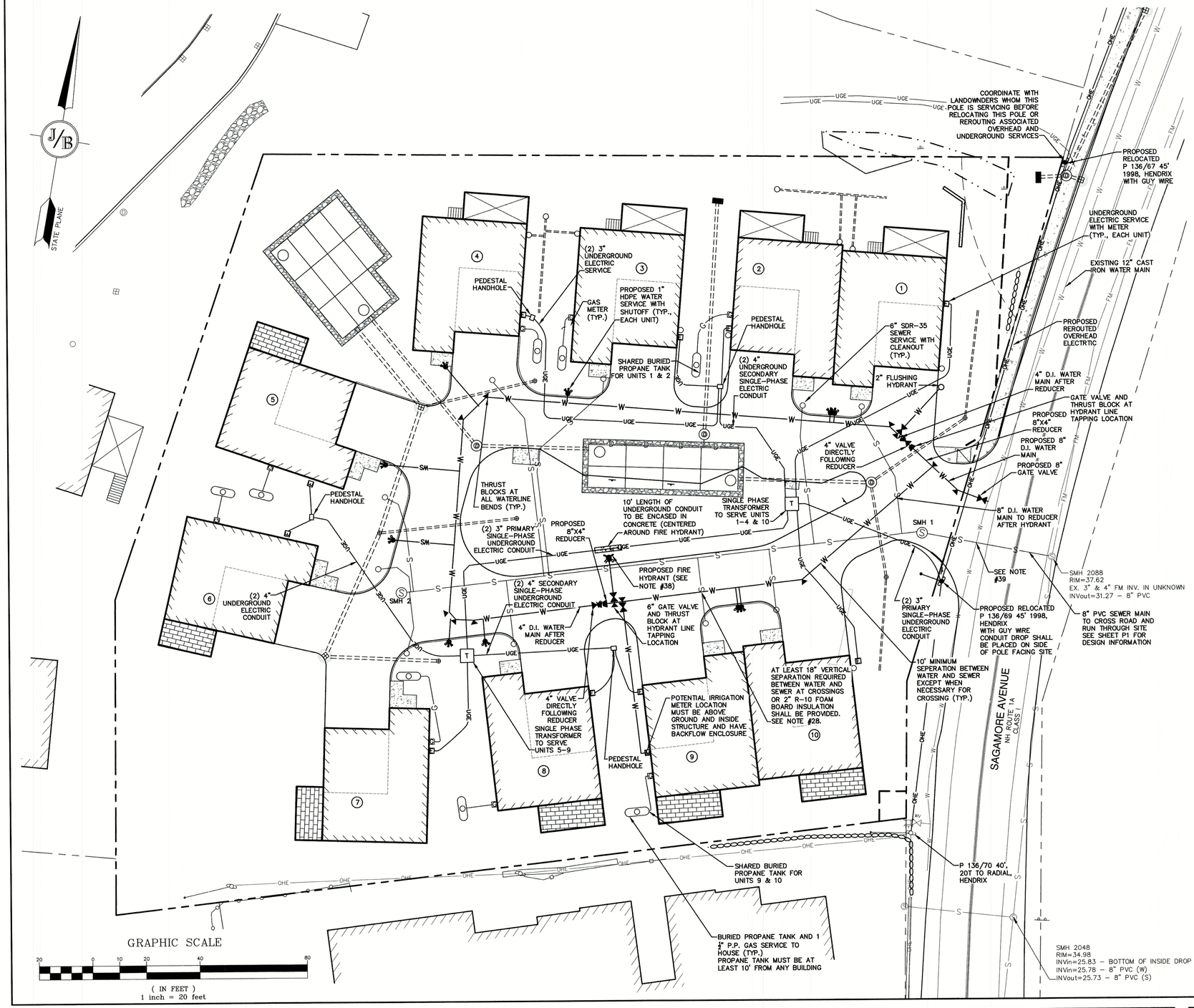
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **OFFSITE IMPROVEMENTS PLAN**

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record:
LOT 14: COLLEEN HEBERT
54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173
LOT 15: JOHN J. & COLLEEN HEBERT
54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
C4
SHEET 6 OF 22
JBE PROJECT NO. 21047



UTILITY NOTES:

1. 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, CONNECTION FEES AND BONDS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF FOURTEEN (14) DAYS TO ALL CORPORATIONS, COMPANIES AND/OR LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
3. THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY (ELECTRIC, TELEPHONE, CABLE TELEVISION, FIRE ALARM, GAS, WATER, AND SEWER).
4. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, ARCHITECT, CONTRACTOR, LOCAL OFFICIALS, AND ALL PROJECT-RELATED UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
5. ALL CONSTRUCTION SHALL CONFORM TO THE CITY STANDARDS AND REGULATIONS, AND NHDES STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE STRINGENT, UNLESS OTHERWISE SPECIFIED.
6. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
7. BUILDINGS TO BE SERVICED BY UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED.
8. THE CONTRACTOR IS TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITY STUBS PRIOR TO CONSTRUCTION AND DISCONNECT ALL EXISTING SERVICE CONNECTIONS AT THEIR RESPECTIVE MAINS IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY'S STANDARDS AND SPECIFICATIONS. ENGINEER TO BE NOTIFIED.
9. AS-BUILT PLANS SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
10. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE THROUGH CHANNEL UNDERLAYMENT OF INVERT, AND SHELF SHALL CONSIST OF BRICK MASONRY.
11. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30 INCH DIA, CLEAR OPENING. THE WORD "SEWER" OR "DRAIN" SHALL BE CAST INTO THE CENTER OF THE UPPER FACE OF EACH COVER WITH RAISED, 3" LETTERS.
12. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 8 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H20 LOADS.
13. CONTRACTOR SHALL PLACE 2" WIDE METAL WIRE IMPREGNATED RED PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS AND SERVICES.
14. SANITARY SEWER FLOW CALCULATIONS:
    10 - THREE BEDROOM UNITS @ 150 GPD/BEDROOM = 4,500 GPD
    IRRIGATION USE = 1,000 GPD ±
15. ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
16. PROPOSED RIM ELEVATIONS OF DRAINAGE AND SANITARY MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE AS SHOWN ON THE GRADING AND DRAINAGE PLAN.
17. ALL WATER MAINS AND SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL BOARD INSULATION FOR FREEZING PROTECTION.
18. WATER MAINS SHALL BE HYDROSTATICALLY PRESSURE TESTED FOR LEAKAGE PRIOR TO ACCEPTANCE. WATERMAINS SHALL BE TESTED AT 1.5 TIMES THE WORKING PRESSURE OR 150 PSI, WHICH EVER IS GREATER. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 4 OF AWWA STANDARD C 600. WATERMAINS SHALL BE DISINFECTED AFTER THE ACCEPTANCE OF THE PRESSURE AND LEAKAGE TESTS ACCORDING TO AWWA STANDARD C 651.
19. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
20. THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS, TEES, MECHANICAL JOINTS AND HYDRANTS.
21. DIMENSIONS ARE SHOWN TO CENTERLINE OF PIPE OR FITTING.
22. CONTRACTOR TO FURNISH SHOP DRAWINGS FOR UTILITY RELATED ITEMS TO ENSURE CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. SHOP DRAWINGS SHOULD BE SENT IN TRIPLICATE TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
23. EXISTING UTILITIES SHALL BE DIGSAFED BEFORE CONSTRUCTION.
24. ALL WATER LINES SHOULD HAVE TESTABLE BACKFLOW PREVENTERS AT THE ENTRANCE TO EACH BUILDING.
25. ALL GRAVITY SEWER PIPE, MANHOLES, AND FORCE MAINS SHALL BE TESTED ACCORDING TO NHDES STANDARDS OF DESIGN AND CONSTRUCTION FOR SEWAGE AND WASTEWATER TREATMENT FACILITIES, CHAPTER ENV-WQ 700. ADOPTED ON 10-15-14.
26. ENV-WQ 704.06 GRAVITY SEWER PIPE TESTING: GRAVITY SEWERS SHALL BE TESTED FOR WATER TIGHTNESS BY USE OF LOW-PRESSURE AIR TESTS CONFORMING WITH ASTM F1417-92(2005) OR UNI-BELL PVC PIPE ASSOCIATION UNI-B-6. LINES SHALL BE CLEANED AND VISUALLY INSPECTED AND TRUE TO LINE AND GRADE. DEFLECTION TESTS SHALL TAKE PLACE AFTER 30 DAYS FOLLOWING INSTALLATION AND THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5% OF AVERAGE INSIDE DIAMETER. A ROD BALL OR MANDREL WITH A DIAMETER OF AT LEAST 95% OF THE AVERAGE INSIDE PIPE DIAMETER SHALL BE USED FOR TESTING PIPE DEFLECTION. THE DEFLECTION TEST SHALL BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES.
27. ENV-WQ 704.17 SEWER MANHOLE TESTING: SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST PRIOR TO BACKFILLING AND PLACEMENT OF SHELVES AND INVERTS.
28. SANITARY SEWER LINES SHALL BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM AN EXISTING OR PROPOSED WATER LINE. WHEN A SEWER LINE CROSSES UNDER A WATER LINE, THE SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATERMAIN. THE SEWER LINE SHALL ALSO MAINTAIN A VERTICAL SEPARATION OF NOT LESS THAN 18 INCHES FROM AN EXISTING OR PROPOSED WATER LINE, EXCEPT THAT WHERE 18" VERTICAL SEPARATION CANNOT BE ACHIEVED (AS DEPICTED ON SHEET P1), PROVIDE TWO INCHES R-10 FOAM BOARD INSULATION ABOVE THE SEWER AND BELOW THE WATER LINE.
29. SEWERS SHALL BE BURIED TO A MINIMUM DEPTH OF 6 FEET BELOW GRADE IN ALL ROADWAY LOCATIONS, AND TO A MINIMUM DEPTH OF 4 FEET BELOW GRADE IN ALL CROSS-COUNTRY LOCATIONS. PROVIDE TWO-INCHES OF R-10 FOAM BOARD INSULATION 2-FOOT WIDE TO BE INSTALLED 6-INCHES OVER SEWER PIPE IN AREAS WHERE DEPTH IS NOT ACHIEVED. A WAIVER FROM THE DEPARTMENT OF ENVIRONMENTAL SERVICES WASTEWATER ENGINEERING BUREAU IS REQUIRED PRIOR TO INSTALLING SEWER AT LESS THAN MINIMUM COVER.
30. THE CONTRACTOR SHALL MINIMIZE THE DISRUPTIONS TO THE EXISTING SEWER FLOWS AND THOSE INTERRUPTIONS SHALL BE LIMITED TO FOUR (4) HOURS OR LESS AS DESIGNATED BY THE CITY SEWER DEPARTMENT.
31. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRIC CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
32. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
33. AN AS-BUILT PLAN OF THE WATER LINE IS TO BE PREPARED AND SUBMITTED TO THE CITY OF PORTSMOUTH WATER DEPARTMENT.
34. WATER LINE TO BE CONSTRUCTED PER CITY OF PORTSMOUTH SPECIFICATIONS.
35. SHOP DRAWINGS TO BE SUBMITTED TO CITY OF PORTSMOUTH FOR REVIEW AND APPROVAL.
36. NEW DUCTILE IRON WATER LINE SHALL BE WRAPPED WITH A WATER TIGHT POLYETHYLENE WRAPPING FOR THE FULL LENGTH. ALL WATER LINE JOINTS SHALL HAVE THREE (3) BRASS WEDGES PER JOINT. CONTRACTOR SHALL CONTACT CITY OF PORTSMOUTH WATER DEPARTMENT (JIM TOW AT 603-766-1439) PRIOR TO WATER LINE INSTALLATION.
37. IF IRRIGATION IS TO BE USED, THE PIPING SYSTEM SHALL BE REVIEWED AND APPROVED BY THE PORTSMOUTH CITY PLANNER, CITY ENGINEER, AND THE WATER DEPARTMENT PRIOR TO INSTALLATION.
38. LAY WATER MAIN WITH FIRE HYDRANT AT HIGH SPOT TO ALLOW FOR AIR TO BE RELEASED DURING FILLING OF THE WATER MAIN.
39. CONTRACTOR TO DIG TEST PIT AT CROSSING OF PROPOSED SEWER AND EXISTING WATER MAIN. IF THE EXISTING WATER MAIN IS IN CONFLICT WITH THE PROPOSED SEWER, NOTIFY PROJECT ENGINEER AND PORTSMOUTH DEPARTMENT OF PUBLIC WORKS AND OBTAIN PERMISSION FROM PORTSMOUTH DPW AND REPLACE SECTION OF 12" CAST IRON WATER MAIN AS NECESSARY TO AVOID DIRECT CONFLICT BETWEEN WATER AND SEWER.
40. AN EASEMENT SHALL BE GRANTED TO THE CITY OF PORTSMOUTH FOR VALVE ACCESS AND LEAK DETECTION OF THE WATER MAIN, SHUTOFFS, AND METERS ON THE PROPERTY. EASEMENT DESCRIPTION MUST BE APPROVED BY THE CITY'S LEGAL DEPARTMENT AND ACCEPTED BY THE CITY COUNCIL.

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — PAIGE S. LIBBEY No.16670 — LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
10	3/4/22	REVISED PER NHDOT COMMENTS	DJM
9	2/15/22	REVISED PER TEST PIT DATA; CITY COMMENTS; POWER COMPANY	DJM
8	1/20/22	REVISED PER ENGINEER REVIEW COMMENTS	DJM
7	12/28/21	REVISED PER ENGINEER REVIEW COMMENTS	DJM

Designed and Produced in NH
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Stratham, NH 03885
Civil Engineering Services
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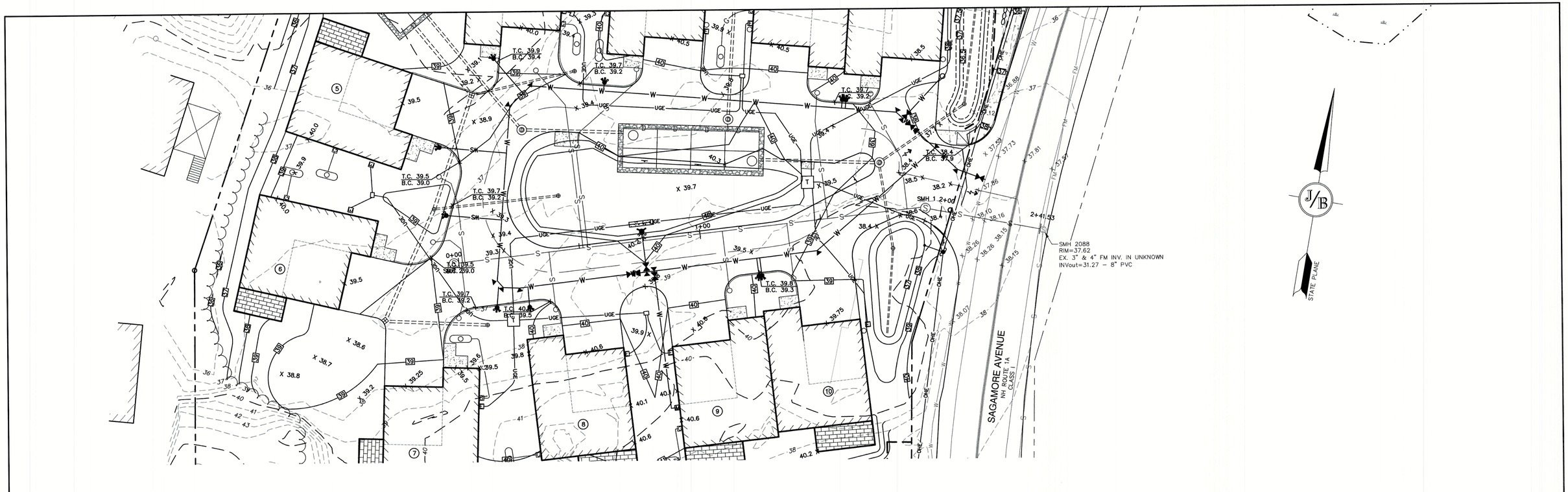
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

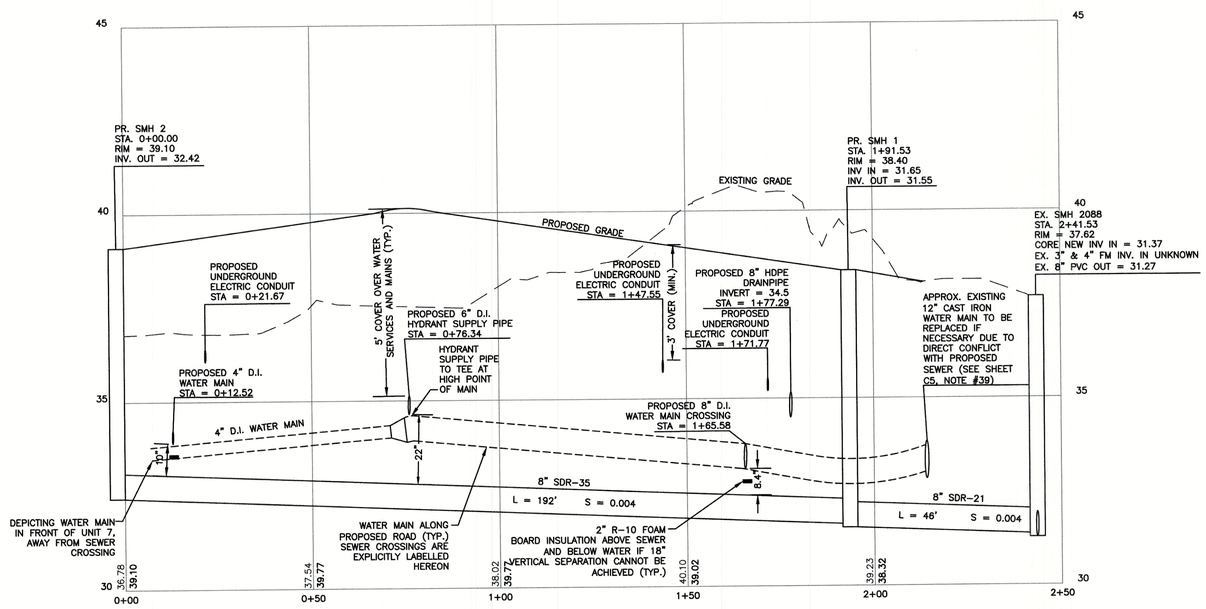
Plan Name: UTILITY PLAN

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
C5
SHEET 7 OF 22
JBE PROJECT NO. 21047





GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft Horiz.
1 inch = 2 ft Vert.
0 20 40
0 2 4

Design: JAC	Draft: DJM	Date: 3/25/21	
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Drawing Name: 21047-PLAN.dwg			

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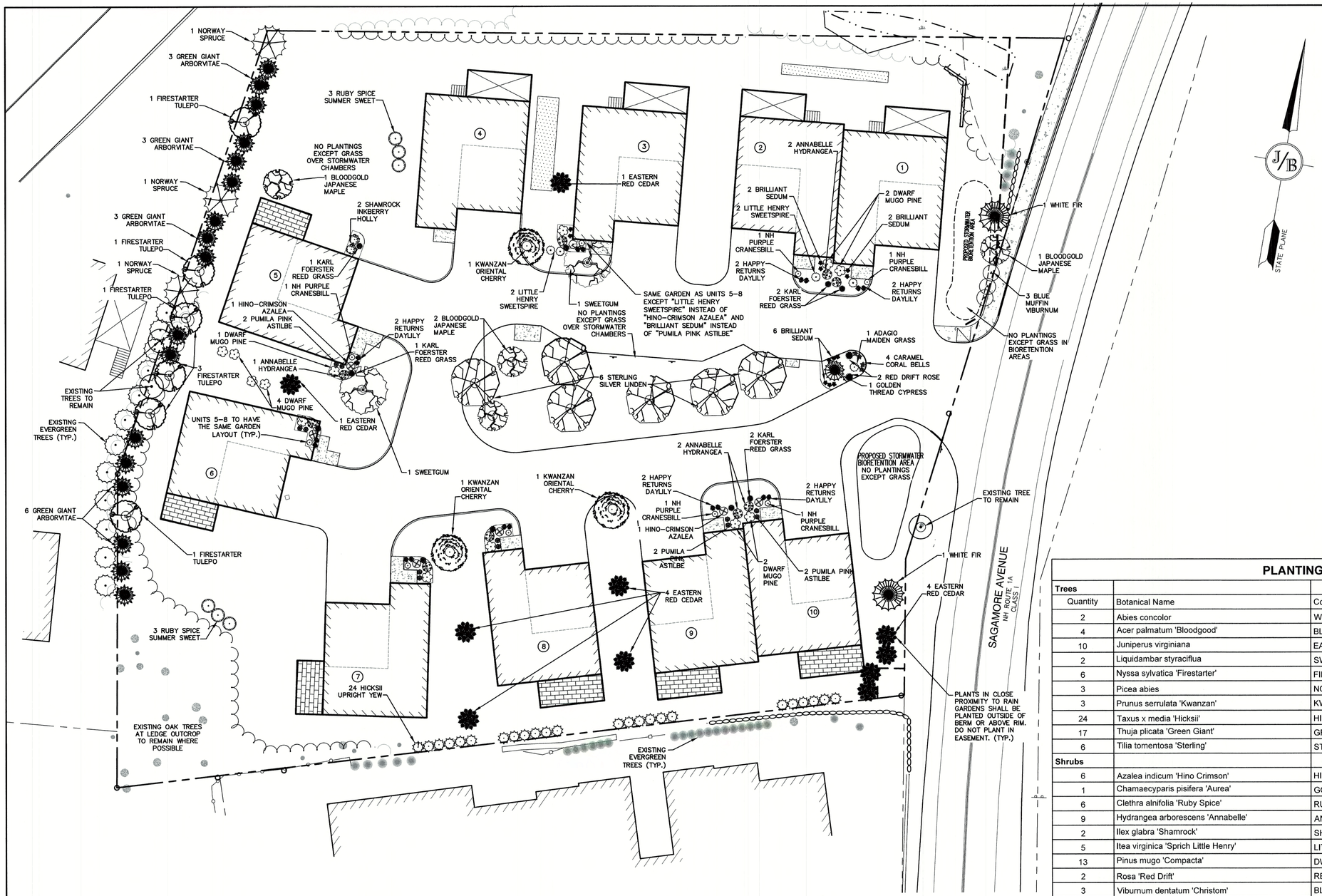
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: PLAN AND SEWER PROFILE

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
P1
SHEET 8 OF 22
JBE PROJECT NO. 21047



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING FOR CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
5. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
6. ALL WORK AND PLANTS SHALL BE DONE, INSTALLED AND DETAILED IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
7. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
8. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION, EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS SPECIFIED.
9. ALL TREES AND SHRUBS SHALL BE PLANTED IN MULCH BEDS WITH EDGE STRIPS TO SEPARATE TURF GRASS AREAS.
10. THE CONTRACTOR SHALL REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC. FROM ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE. GRASS SEED OR PINE BARK MULCH SHALL BE APPLIED AS DEPICTED ON PLANS.
11. FINISHED GRADES IN LANDSCAPED ISLANDS SHALL BE INSTALLED SO THAT THEY ARE 1" HIGHER THAN THE TOP OF THE SURROUNDING CURB.
12. ALL LANDSCAPING SHALL MEET THE CITY OF PORTSMOUTH STANDARDS AND REGULATIONS.
13. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE DRIPLINE OF THE TREE. THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
14. ALL MULCH AREAS SHALL RECEIVE A 3" LAYER OF SHREDDED PINE BARK MULCH OVER A 10 MIL WEED MAT EQUAL TO 'WEEDBLOCK' BY EASY GARDENER OR DEWITT WEED BARRIER.
15. ALL LANDSCAPED AREAS SHALL HAVE SELECT MATERIALS REMOVED TO A DEPTH OF AT LEAST 9" BELOW FINISH GRADE. THE RESULTING VOID IS TO BE FILLED WITH A MINIMUM OF 9" HIGH-QUALITY SCREENED LOAM AMENDED WITH 3" OF AGED ORGANIC COMPOST.
16. THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO CIVIL/SITE DRAWINGS FOR OTHER SITE CONSTRUCTION INFORMATION.
17. IRRIGATION PIPING SYSTEM SHALL BE REVIEWED AND APPROVED BY OWNER AND ENGINEER PRIOR TO INSTALLATION.
18. THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS SHALL BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR, AND REPLACEMENT OF ALL REQUIRED SCREENING AND LANDSCAPE MATERIALS.
19. ALL REQUIRED PLANT MATERIALS SHALL BE TENDED AND MAINTAINED IN A HEALTHY GROWING CONDITION, REPLACED WHEN NECESSARY, AND KEPT FREE OF REFUSE AND DEBRIS. ALL REQUIRED FENCES AND WALLS SHALL BE MAINTAINED IN GOOD REPAIR.
20. THE PROPERTY OWNER SHALL BE RESPONSIBLE TO REMOVE AND REPLACE DEAD OR DISEASED PLANT MATERIALS IMMEDIATELY WITH THE SAME TYPE, SIZE, AND QUANTITY OF PLANT MATERIALS AS ORIGINALLY INSTALLED, UNLESS ALTERNATIVE PLANTINGS ARE REQUESTED, JUSTIFIED, AND APPROVED BY THE PLANNING BOARD OR PLANNING DIRECTOR.
21. SEE TYPICAL PLANTING DETAILS ON SHEET D4.

PLANTING LIST

Trees			
Quantity	Botanical Name	Common Name	Size
2	Abies concolor	WHITE FIR	7-8 ft. ht.
4	Acer palmatum 'Bloodgood'	BLOODGOOD JAPANESE MAPLE	15 Gallon
10	Juniperus virginiana	EASTERN RED CEDAR	7-8 ft. ht.
2	Liquidambar styraciflua	SWEETGUM	2.5" Caliper
6	Nyssa sylvatica 'Firestarter'	FIRESTARTER TUPELO	4.5" Caliper
3	Picea abies	NORWAY SPRUCE	10-12 ft. ht.
3	Prunus serrulata 'Kwanzan'	KWANZAN ORIENTAL CHERRY	2" Caliper
24	Taxus x media 'Hicksii'	HICKSII UPRIGHT YEW	6-7 ft. ht.
17	Thuja plicata 'Green Giant'	GREEN GIANT ARBORVITAE	10-12 ft. ht.
6	Tilia tomentosa 'Sterling'	STERLING SILVER LINDEN	3" Caliper
Shrubs			
6	Azalea indicum 'Hino Crimson'	HINO CRIMSON AZALEA	3 Gallon
1	Chamaecyparis pisifera 'Aurea'	GOLDEN THREAD CYPRESS	7 Gallon
6	Clethra alnifolia 'Ruby Spice'	RUBY SPICE SUMMER SWEET	5 Gallon
9	Hydrangea arborescens 'Annabelle'	ANNABELLE HYDRANGEA	5 Gallon
2	Ilex glabra 'Shamrock'	SHAMROCK INKBERRY HOLLY	5 Gallon
5	Itea virginica 'Sprich Little Henry'	LITTLE HENRY SWEETSPIRE	3 Gallon
13	Pinus mugo 'Compacta'	DWARF MUGO PINE	5 Gallon
2	Rosa 'Red Drift'	RED DRIFT ROSE	3 Gallon
3	Viburnum dentatum 'Christom'	BLUE MUFFIN VIBURNUM	5 Gallon
Perennials			
12	Astilbe chinensis pumila	PUMILA PINK ASTILBE	1 Gallon
10	Calamagrostis x acutiflora 'Karl Foerster'	KARL FOERSTER REED GRASS	2 Gallon
9	Geranium sanguineum 'New Hampshire Purple'	NH PURPLE CRANESBILL	1 Gallon
18	Hemerocallis 'Happy Returns'	HAPPY RETURNS DAYLILY	1 Gallon
4	Heuchera micrantha 'Caramel'	CARAMEL CORALBELLS	1 Gallon
1	Miscanthus sinensis 'Adagio'	ADAGIO MAIDEN GRASS	2 Gallon
12	Sedum spectabile 'Brilliant'	BRILLIANT SEDUM	1 Gallon

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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

Plan Name: LANDSCAPE PLAN

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

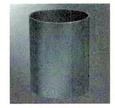
Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
L1
SHEET 9 OF 22
JBE PROJECT NO. 21047



Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
●	1	P5	Single	EMM-E02-LED-E1-5WQ-SO-FL-BK-7030 / VA6105 / ARP5L416ABK
⊕	10	W	SINGLE	66411/ WALL MTD 9' AFG

Invue



Catalog #		Type
Project		
Comments		Date
Prepared by		

ARP ALUMINUM ROUND TAPERED DECORATIVE

FEATURES
- Tapered aluminum shaft spun from seamless 6063 alloy aluminum
- T6 four-bolt anchorage configuration provided
- Anchor bolt per ASTM F1554 Grade 55 with (2) hex nuts, (2) flat washers
- Cast 356 alloy aluminum base with access door
- 10' - 22' mounting heights
- Tenon mount only

DESIGN CONSIDERATIONS

Wind induced vibrations resulting from steady, unidirectional winds and other aerodynamic forces, as well as vibration and coefficient of height factors for nongrounded mounted installations. Any installations on bridges or buildings are not included in this document. The information contained herein is for general guidance only and is not a replacement for professional judgement. Consult with a professional, and local and federal standards, before ordering to ensure product is appropriate for the intended purpose and installation location. Also, please review Cooper Lighting Solutions' Light Pole White Paper for risk factors and design considerations. Learn more.

Specifications and dimensions subject to change without notice. Consult your lighting representative at Cooper Lighting Solutions or visit www.cooperlighting.com for available options, accessories and ordering information.

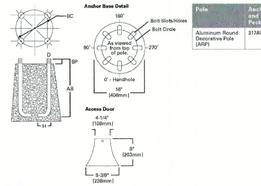
ORDERING INFORMATION

SAMPLE NUMBER: ARP5L316ABZ2

Product Family	Shaft Size (inches)*	Wall Thickness (inches)	Pole Top Diameter (inches)	Mounting Height (Feet)	Base Type	Finish	Mounting Type	Number and Location of Arms	Options (Add as Suffix)
ARP=Aluminum Round Tapered Decorative	5=5"	L=0.156" M=0.188"	3=3" O.D. † 4=4 1/2" O.D. 6=4" O.D. †	10=10' 12=12' 14=14' 16=16' 18=18' † 22=22' †	A=Aluminum (Round 4-Bolt Pole)	AP=Grey BA=Anodized Bronze BK=Black BZ=Bronze CA=Anodized Clear DA=Anodized Black DP=Dark Platinum GM=Graphite Metallic GN=Hartford Green WH=White	2=2-3/8" O.D. Tenon (4" Long) 4=3" O.D. Tenon (4" Long)	X=None	C=Convenience Outlet † E=GFCI Convenience Outlet † G=Ground Lug V=Vibration Dampener †

NOTES 1. All shaft sizes nominal; 2. Vibration damper recommended over 18 feet add suffix "V" to catalog number; 3. Specify outlet location. Receptacle not included, provisions only. 4. Provides 3"O.D. pole top suited for Arbor Post Top. 5. Provides 4" OD pole top suited for LuxeScape post tops.

ANCHORAGE DATA



Pole	Anchor Bolt and Template Package	Shaft Diameter (inches)	Bolt Circle (inches)	Number of Bolts	Bolt Size (inches)	Template Only
Aluminum Round Decorative Pole (ARP)	313AVE30	4 x 5	9	4	3/4 x 17	407040D



TDS130116EN
August 26, 2018 10:23 AM

LIGHTING AND ELECTRICAL NOTES:

1. ALL OUTDOOR LIGHTING SYSTEMS SHALL BE EQUIPPED WITH TIMERS TO REDUCE ILLUMINATION LEVELS TO NON-OPERATIONAL VALUES PER TOWN REGULATIONS.
2. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
3. ILLUMINATION READINGS SHOWN ARE BASED ON A TOTAL LLF OF 0.75 AT GRADE. ILLUMINATION READINGS SHOWN ARE IN UNITS OF FOOT-CANDLES.
4. LIGHTING CALCULATIONS SHOWN ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM AND SAFETY.
5. ALL LIGHTING FIXTURES SHALL BE FULL CUT-OFF DARK-SKY COMPLIANT, UNLESS OTHERWISE NOTED.
6. THE PROPOSED LIGHTING CALCULATIONS AND DESIGN WAS PERFORMED BY CHARRON, INC., P.O. BOX 4550, MANCHESTER, NH 03108, ATTENTION KEN SWEENEY. ALL LIGHTS SHOULD BE PURCHASED FROM THIS COMPANY, OR AN EQUAL LIGHTING DESIGN SHOULD BE SUBMITTED FOR REVIEW IF EQUAL SUBSTITUTIONS ARE PROPOSED BY THE CONTRACTOR OR OWNER.

LED wall luminaire - partially shielded — **BEGA**

Application
The LED wall luminaire has a partially shielded light source and is designed for the down lighting of interior and exterior locations with glare-free illumination.

Materials
Luminaire housing constructed of die-cast and spun marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy
Three-ply opal glass
High temperature silicone gasket

NRTL listed to North American Standards, suitable for wet locations
Protection class IP44
Weight: 4.0 lbs

Electrical
Operating voltage 120-277VAC
Min. room start temperature -20° C
Luminaire wattage 8.9 W
System wattage 12 W
Controllability 0-10V dimmable
Color rendering index Ra > 82
Luminaire lumens 724 lumens (3000K)
Lifetime at Ta = 15° C 500,000 h (L70)
Lifetime at Ta = 40° C 268,000 h (L70)

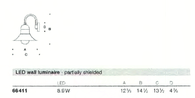
LED color temperature
☐ 4000K - Product number = **K4**
☐ 3500K - Product number = **K35**
☐ 3000K - Product number = **K3**
☐ 2700K - Product number = **K27**

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish
All BEGA standard finishes are matte, textured polyester powder coat with minimum 3 mil thickness.
Available colors: ☐ Black (BLK) ☐ White (WHT) ☐ RAL: ☐ Bronze (BRZ) ☐ Silver (SLV) ☐ CUS:

Type:
BEGA Product:
Project:
Modified:





BEGA · 1000 BEGA Way, Carpinteria, CA 93013 (805)684-0533 info@bega-us.com
Due to the dynamic nature of lighting products and the associated technologies, luminaire data on this sheet is subject to change at the discretion of BEGA North America. For the most current technical data, please refer to bega-us.com
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Updated 08/14/19

Invue

Catalog #		Type
Project		
Comments		Date
Prepared by		

DESCRIPTION

The EPIC Collection delivers custom luminaire flexibility with high quality, yet availability expectations of standard specification grade product. The EPIC Collection can be dressed to suit any application. Recognizing evolving environmental and legislative trends, the EPIC Collection delivers world class LED optical and performance solutions to the decorative luminaire marketplace.

SPECIFICATION FEATURES

Construction
TOP: Cast aluminum top housing attaches to cast aluminum mounting arm hub with four stainless steel fasteners. One-piece silicone gasket between mounting hub and top casting seals out moisture and contaminants. (See the mounting accessories section for a full selection of mounting arms. (Only these arms are compatible with the Epic luminaire). MIDSECTION: Continuous silicone gaskets seal lens to top casting and shade. The mid-section features cast aluminum construction and stainless steel assembly. SHADES: Heavy gauge precision spun aluminum shades offer superior surface finish and consistency in form. DOORFRAME: Die-cast aluminum 1/8" thick door and doorframe seal to underside of shade with a thick wall continuous silicone gasket. Mounting hub ships attached to mounting arm.

Optics
Choice of twelve patented, high-efficiency AccuLED Optic™ technology manufactured from injection-molded acrylic. Optics are precisely designed to shape the optics, maximizing efficiency and application spacing. AccuLED Optic technology, creates consistent distributions with the scalability to meet customized application requirements. Offered Standard in 4000K (+/- 275K) CCT and nominal 70 CRI. Optional 3000K CCT and 5000K CC. For the ultimate level of spill light control, an optional house-side shield accessory can be field or factory installed. The house-side shield is designed to seamlessly integrate with the SL2, SL3 or SL4 optics.

Electrical
LED drivers mount to die-cast aluminum back housing for optimal heat sinking, operation efficacy, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation, greater than 0.9 power factor, less that 20% harmonic distortion, and is suitable for operation in -40°C to 40°C ambient environments. All fixtures are shipped standard with 10kV/10kA common – and differential – mode surge protection. LightBARs feature and IP66 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per IESNA TM-21. Occupancy sensor and dimming options available.

Finish
Housing is finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. LightBAR™ cover plates are standard white and may be specified to match finish of luminaire housing. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult Outdoor Architectural Color brochure for a complete selection.Options to meet Buy American Act requirements

Warranty
Five-year warranty.



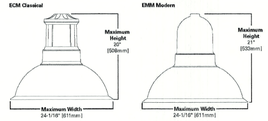


ECM/EMM
EPIC MEDIUM LED

1 - 4 LightBARs
Solid State LED

DECORATIVE AREA LUMINAIRE

DIMENSIONS



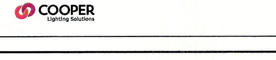
See configurations for more detailed information.

CERTIFICATION DATA
UL/cUL Listed
DesignLights Consortium® Qualified*
IP66 LightBARs
LM79 / LM80 Compliant
3G Vibration Tested
ISO 9001

ENERGY DATA
Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120-277V 50/60Hz, 347V/60Hz, 480V/60Hz
-40°C Minimum Temperature
40°C Ambient Temperature Rating

EPA
Effective Projected Area: (Sq. Ft.) 0.94

SHIPPING DATA
Approximate Net Weight:
45 lbs. (20 kgs.)



*www.designlights.org

TD500016EN
December 8, 2021 2:28 PM

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — PAIGE S. LIBBEY No.16670 — LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
10	3/4/22	REVISED PER NHDOT COMMENTS	DJM
9	2/15/22	REVISED PER TEST PIT DATA; CITY COMMENTS; POWER COMPANY	DJM
8	1/20/22	REVISED PER ENGINEER REVIEW COMMENTS	DJM
7	12/28/21	REVISED PER ENGINEER REVIEW COMMENTS	DJM

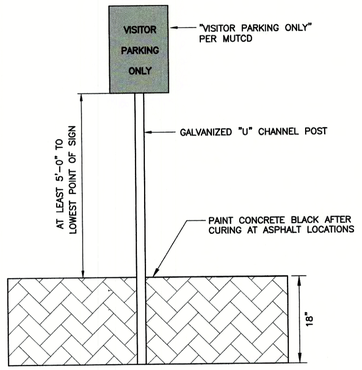
Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: LIGHTING PLAN

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

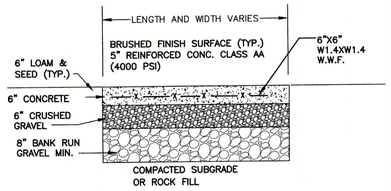
Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
L2
SHEET 10 OF 22
JBE PROJECT NO. 21047



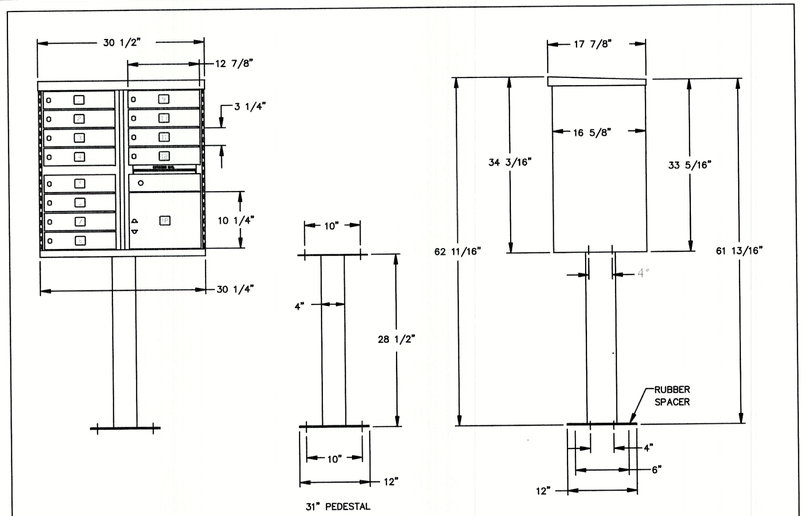
VISITOR PARKING SIGN

NOT TO SCALE



CONCRETE PAD DETAIL

NOT TO SCALE

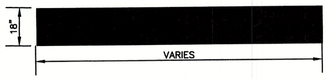


POSTAL PRODUCTS UNLIMITED, INC.™
A Division of American Postal Manufacturing, Inc.
Phone. 1-800-229-4500
800 W. Chicksaw Ave.
Milwaukee, WI 53207-5940

Product: Type II CBU with Pedestal – Front Loading – N1027675			
Distribution: USPS Approved		Finish: Powder Coat	
Mounting: Pedestal		Total Mailboxes: 12 Doors – 1 Locker	
Date: 02/02/06	Scale: NONE	Drawn By: CDO	Checked By: AJK

CLUSTER MAILBOX UNIT DETAIL

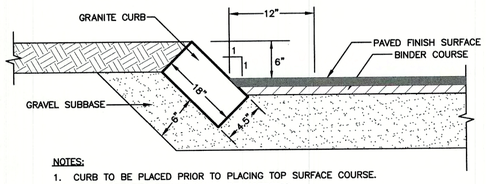
NOT TO SCALE



NOTES:
1. ALL STOP BARS TO BE SOLID WHITE REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE.

STOP BAR

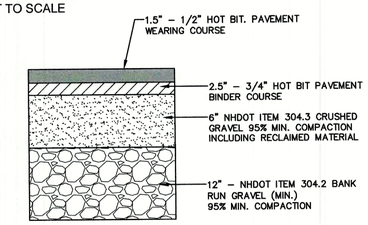
NOT TO SCALE



NOTES:
1. CURB TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

SLOPED GRANITE CURB

NOT TO SCALE

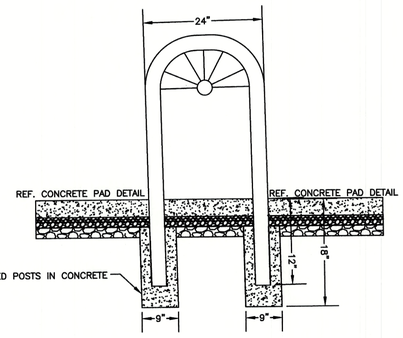


TYPICAL BITUMINOUS PAVEMENT

NOT TO SCALE

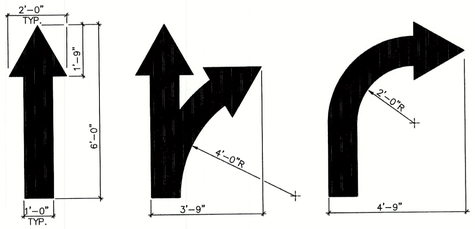
KEYWAY DETAIL FOR CONNECTION TO EXISTING PAVEMENT

NOT TO SCALE



BICYCLE RACK

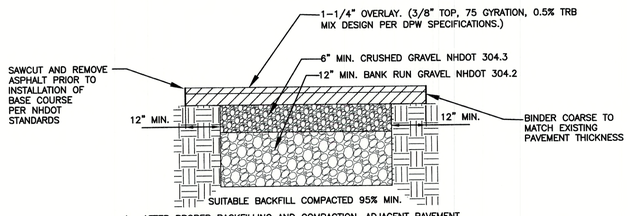
NOT TO SCALE



NOTES:
1. ALL FLOW ARROWS TO BE SOLID YELLOW REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE.
2. REVERSE ARROWS FOR OPPOSITE DIRECTION OF FLOW.

PAINTED TRAFFIC ARROWS

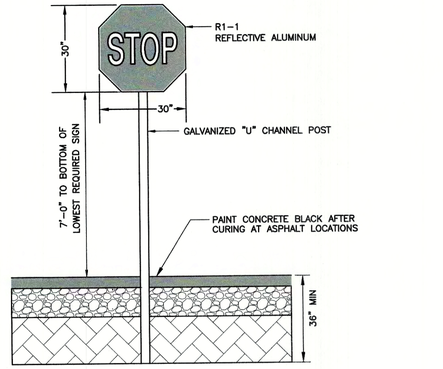
NOT TO SCALE



1. AFTER PROPER BACKFILLING AND COMPACTION, ADJACENT PAVEMENT MUST BE "SAW CUT" (STRAIGHT CUTS) A MINIMUM OF ONE FOOT (1') AROUND THE PERIMETER OF THE EXCAVATION. PAVEMENT MUST BE REMOVED.
2. INSTALL BASE COURSE LEAVING A REVEAL FOR SURFACE COURSE.
3. INSTALL SURFACE COURSE OF ASPHALT PAVING.
4. APPLY EMULSION SEALANT AT PERIMETER OF JOINT OVERLAPPING BASE COURSE. INSTALL WEARING COURSE OF ASPHALT TO GRADE. APPLY LIGHT SAND TO ABSORB EXCESS JOINT SEALANT.
5. GRAVEL COMPACTIONS TO MEET 95% MINIMUM.
6. PAVEMENT REPAIRS IN SAGAMORE AVE. RIGHT OF WAY TO MEET NHDOT STANDARDS.

TYPICAL PAVEMENT REPAIR DETAIL

NOT TO SCALE



STOP SIGN (R1-1)

NOT TO SCALE

NOTES:
1. ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND NHDOT STANDARDS.
2. SIGN, HARDWARE, AND INSTALLATION TO CONFORM TO 2016 NHDOT STANDARD SPECIFICATION, SECTION 615 – TRAFFIC SIGNS.
3. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/CATALOG CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.
4. THE LOCATION OF THE SIGNS SHALL BE AS INDICATED ON THE DRAWINGS AND/OR AS DIRECTED BY THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.

Design: JAC	Draft: DJM
Checked: JAC	Scale: AS NOTED
Drawing Name: 21047-PLAN.dwg	

Date: 3/25/21
Project No.: 21047

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STATE OF NEW HAMPSHIRE – PAIGE S. LIBBEY No.16670 – LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
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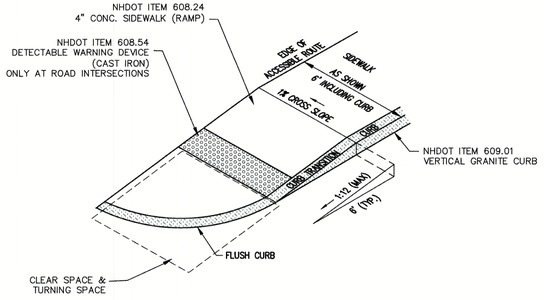
Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: DETAIL SHEET

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

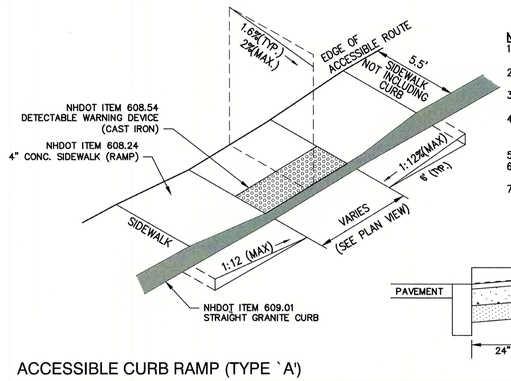
DRAWING No.
D1
SHEET 11 OF 22
JBE PROJECT NO. 21047



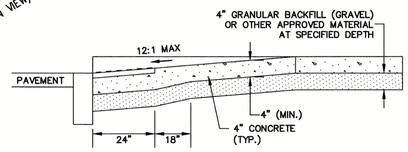
NOTES:
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8.3%.
4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.
8. WHERE A CHANGE IN DIRECTION IS REQUIRED TO UTILIZE A CURB RAMP, A TURNING SPACE SHALL BE PROVIDED AT THE BASE AND/OR THE TOP OF THE CURB RAMP. TURNING SPACES SHALL BE PERMITTED TO OVERLAP CLEAR SPACES.
9. TURNING SPACE MAXIMUM CROSS SLOPE IS 2% IN ANY DIRECTION.
10. BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE OF 4'X4' MINIMUM SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN CROSSWALK, AND OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE. THE CLEAR SPACE MAY OVERLAP TURNING SPACES, DETECTABLE WARNING SURFACES AND DROP CURBS.

ACCESSIBLE CURB RAMP (NHDOT TYPE 1)

NOT TO SCALE

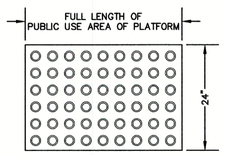


NOTES:
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8%.
4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.



ACCESSIBLE CURB RAMP (TYPE `A')

NOT TO SCALE

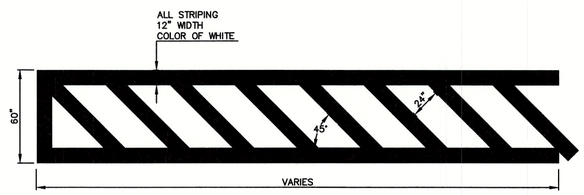


DETECTABLE WARNINGS SHALL CONSIST OF A SURFACE OF TRUNCATED DOMES AND SHALL COMPLY WITH THE FOLLOWING:
A. TRUNCATED DOMES SHALL HAVE A BASE DIAMETER OF 0.9" (MIN.) AND 1.4" (MAX.), A TOP DIAMETER OF 50% OF THE BASE DIAMETER MINIMUM TO 65% OF THE BASE DIAMETER MAXIMUM, AND A HEIGHT OF 0.2".
B. TRUNCATED DOMES SHALL HAVE A CENTER-TO-CENTER SPACING OF 1.6" MINIMUM AND 2.4" MAXIMUM, AND A BASE-TO-BASE SPACING OF .65" MINIMUM, MEASURED BETWEEN THE MOST ADJACENT DOMES ON A SQUARE GRID.
C. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT.

TRUNCATED DOMES TO BE PLACED IN SIDEWALK BASE IN PUBLIC TRAFFIC AREAS.

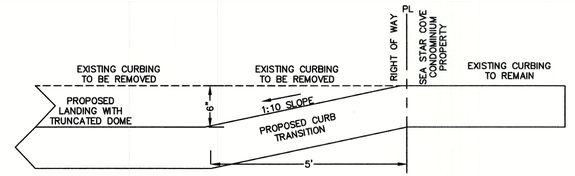
ACCESSIBLE CURB RAMP TRUNCATED DOMES

NOT TO SCALE



PAINTED CROSSWALK DETAIL

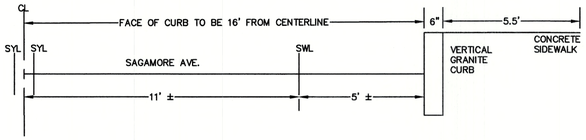
NOT TO SCALE



CONTRACTOR SHALL NOT REMOVE ANY CURBING BEYOND SEA STAR COVE CONDOMINIUM PROPERTY LINE. THE CURBING AT THE PROPOSED TIP DOWN LANDING AND 5' BEYOND IT IN THE DIRECTION OF THE SEA STAR COVE PROPERTY LINE SHALL BE REMOVED. THEN 5' OF NEW CURBING SHALL BE SET IMMEDIATELY FOLLOWING THE TIP DOWN LANDING AT A 1:10 SLOPE IN ORDER TO TRANSITION FROM THE GRADE OF THE EXISTING CURBING TO THE GRADE OF THE PROPOSED TIP DOWN LANDING.

CURB TRANSITION AT SEA STAR COVE R.O.W LINE

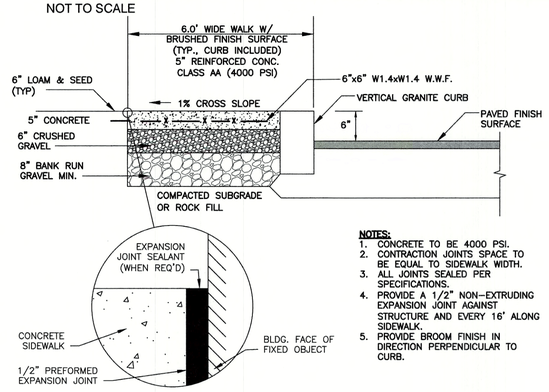
NOT TO SCALE



THE INTENT OF THIS DETAIL IS TO ILLUSTRATE THE LOCATION OF THE PROPOSED SIDEWALK IN RELATION TO THE CROSS SECTION OF SAGAMORE AVE. SEE BELOW CONCRETE SIDEWALK WITH VERTICAL GRANITE CURB DETAIL AS WELL

SAGAMORE AVE AND CONCRETE SIDEWALK CROSS SECTION

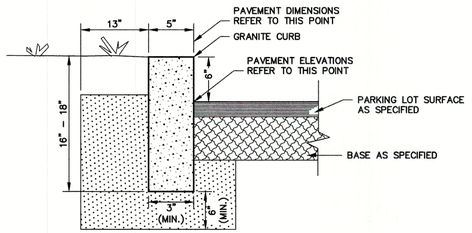
NOT TO SCALE



NOTES:
1. CONCRETE TO BE 4000 PSI.
2. CONTRACTION JOINTS SPACE TO BE EQUAL TO SIDEWALK WIDTH.
3. ALL JOINTS SEALED PER SPECIFICATIONS.
4. PROVIDE A 1/2" NON-EXTRUDING EXPANSION JOINT AGAINST STRUCTURE AND EVERY 16' ALONG SIDEWALK.
5. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.

CONCRETE SIDEWALK W/ VERTICAL GRANITE CURB

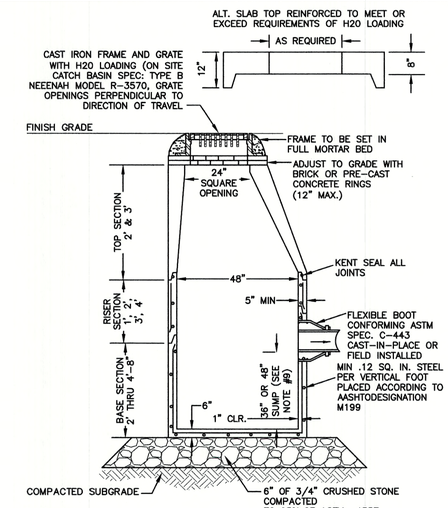
NOT TO SCALE



NOTES:
1. EDGING TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

VERTICAL GRANITE CURB

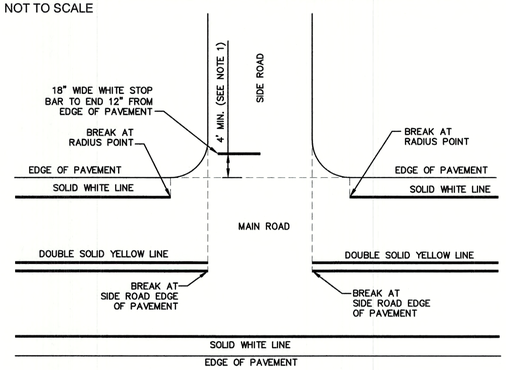
NOT TO SCALE



NOTES:
1. BASE SECTION SHALL BE MONOLITHIC WITH 48" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H20 LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H20 LOADING
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL CATCH BASIN FRAMES AND GRATES SHALL BE NHDOT CATCH BASIN TYPE ALTERNATE 1 OR NEENAH R-3570 OR APPROVED EQUAL (24"x24" TYPICAL).
8. STANDARD CATCH BASIN FRAME AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.
9. CATCH BASINS CALLED OUT AS A "DEEP SUMP CATCH BASIN" SHALL HAVE A 48" SUMP; ALL OTHER CATCH BASINS SHALL HAVE A 36" SUMP.
10. INSTALL POLYETHYLENE LINER (NHDOT ITEM 604.0007) IN PROPOSED CATCH BASINS IN SAGAMORE AVE. RIGHT OF WAY.

CATCH BASIN

NOT TO SCALE



NOTES:
1. LOCATION OF STOP BAR MAY VARY DUE TO INTERSECTION SIGHT DISTANCE AND VEHICLE TURNING RADIUS AND MAY NOT ALWAYS COINCIDE WITH THE LOCATION OF THE STOP SIGN.
2. END STOP BAR 12" FROM EDGE OF PAVEMENT.
3. STOP BARS, WORDS, LANE LINES, SYMBOLS AND ARROWS SHALL BE THERMOPLASTIC.

NHDOT PAVEMENT MARKINGS STANDARD

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — PAIGE A. LIBBEY No.16670 — LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
10	3/4/22	REVISED PER NHDOT COMMENTS	DJM
9	2/15/22	REVISED PER TEST PIT DATA; CITY COMMENTS; POWER COMPANY	DJM
8	1/20/22	REVISED PER ENGINEER REVIEW COMMENTS	DJM
7	12/28/21	REVISED PER ENGINEER REVIEW COMMENTS	DJM

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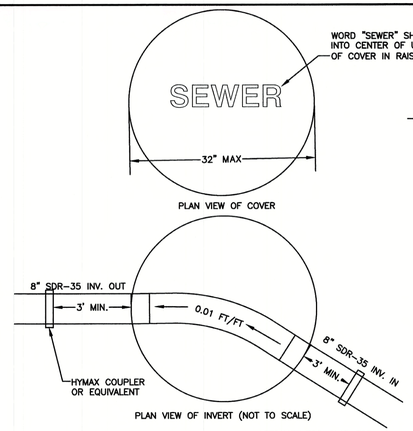
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

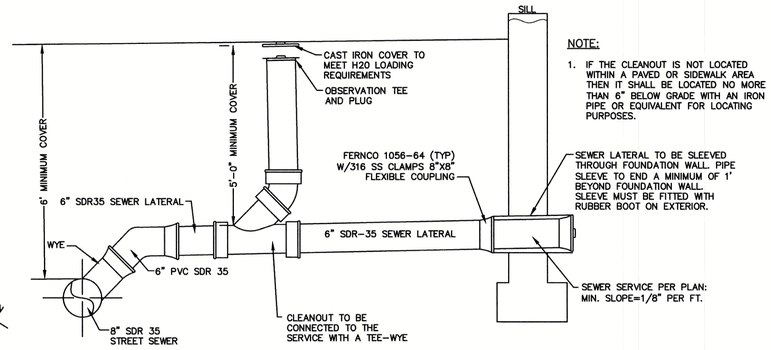
Plan Name: DETAIL SHEET

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
D2
SHEET 12 OF 22
JBE PROJECT NO. 21047



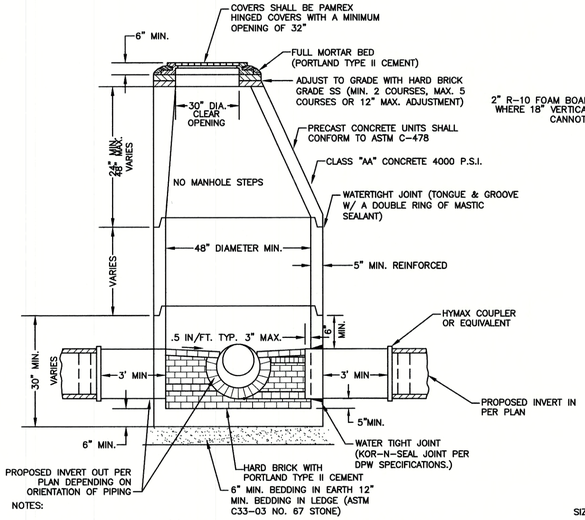


NOTE:

1. IF THE CLEANOUT IS NOT LOCATED WITHIN A PAVED OR SIDEWALK AREA THEN IT SHALL BE LOCATED NO MORE THAN 6" BELOW GRADE WITH AN IRON PIPE OR EQUIVALENT FOR LOCATING PURPOSES.

HOUSE SEWER SERVICE

NOT TO SCALE

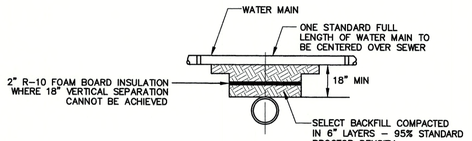


NOTES:

1. PER NHDES ENV-WQ 704.13(C), THE MORTAR SPECIFICATION SHALL BE AS FOLLOWS:
   1. MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT AND SAND WITH OR WITHOUT HYDRATED LIME ADDITION;
   2. PROPORTIONS IN MORTAR OF PARTS BY VOLUMES SHALL BE:
      A. 4.5 PARTS SAND AND 1.5 PARTS CEMENT; OR
      B. 4.5 PARTS SAND, ONE PART CEMENT AND 0.5 PART HYDRATED LIME;
   3. CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150-05;
   4. HYDRATED LIME SHALL BE TYPE S CONFORMING TO THE ASTM C207-06 'STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES';
   5. SAND SHALL CONSIST OF INERT NATURAL SAND CONFORMING TO THE ASTM C33-03 'STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES';
2. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPED TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL IN ACCORDANCE WITH ENV-WQ 704.12 (K).
3. ALL MANHOLES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH ENV-WQ 704.17 (a) THROUGH (e).
4. SEWER MANHOLE COVERS SHALL CONFORM TO ASTM A48 WITH A CASTING EQUAL TO CLASS 30 IN ACCORDANCE WITH ENV-WQ 704.13 (a).
5. ALL ASBESTOS CONTAINING WASTE MATERIALS MUST BE PROPERLY IDENTIFIED, PACKAGED AND DELIVERED TO A LANDFILL LICENCED BY THE NHDES SOLID WASTE MANAGEMENT PROGRAM FOR DISPOSAL. CALL (603) 271-2925 FOR MORE INFORMATION.
6. PORTSMOUTH STANDARD SEWER MANHOLE SHALL BE USED.
7. CONTRACTOR TO PURCHASE SEWER MANHOLE COVERS FROM THE CITY OF PORTSMOUTH DIRECTLY.
8. MANHOLE BASE SECTIONS SHALL BE MONOLITHIC TO A POINT AT LEAST 6" ABOVE THE HIGHEST INCOMING SEWER PIPE PER ENV-WQ 704.12 (e).
9. MANHOLE CASTINGS SHALL CONFORM TO ASTM A48 PER ENV-WQ 704.13 (a) (8).
10. ON-SITE SEWER MANHOLE COVERS WILL NEED TO BE PURCHASED BY THE APPLICANT. THE CITY OF PORTSMOUTH WILL NOT BE PROVIDING THESE.

PORTSMOUTH SEWER MANHOLE

NOT TO SCALE

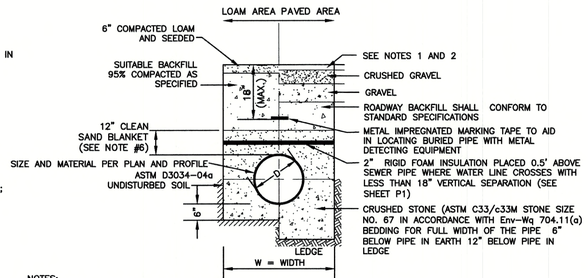


SEPARATION NOTES:

1. WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED SEWERS. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE.
2. WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN PIPES. SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLLY FROM THE WATER MAIN.

TYPICAL WATER / SEWER SEPARATION

NOT TO SCALE

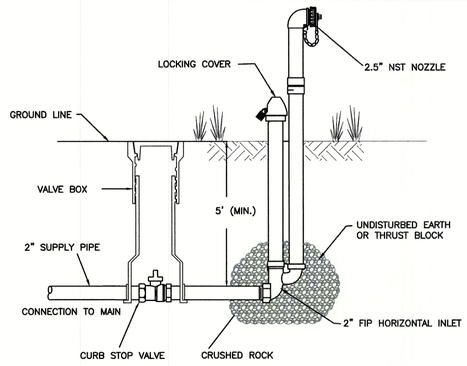


NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO PAVEMENT DETAILS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPECIFICATIONS.
3. TRENCH BACKFILL SHALL CONFORM WITH ENV. Wq 704.11(h) AND BE FREE OF DEBRIS, PAVEMENT, ORGANIC MATTER, TOP SOIL, WET OR SOFT MUCK, PEAT OR CLAY, EXCAVATED LEDGE OR ROCKS OVER SIX INCHES.
4. W= MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12" INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, WIDTH SHALL BE NO MORE THAN 36"; FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, WIDTH SHALL BE 24 INCHES PLUS PIPE O.D. WIDTH SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
5. RIGID FOAM INSULATION TO BE PROVIDED WHERE COVER IN THE ROADWAY IS LESS THAN 6' AND CROSS COUNTRY IS LESS THAN 4', PURSUANT TO DES WAIVER BEING ISSUED.
6. PIPE SAND BLANKET MATERIAL SHALL BE GRADED SAND, FREE FROM ORGANIC MATERIALS, GRADED SUCH THAT 100% PASSES A 1/2 " SIEVE AND A MAXIMUM OF 15% PASSES A #200 SIEVE IN ACCORDANCE WITH Env-Wq 704.11(b).
7. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL AND CERTIFIED BY THE MANUFACTURER AS CONFORMING TO THE ASTM D3212 STANDARD IN EFFECT WHEN THE JOINT SEALS WERE MANUFACTURED, AND SHALL BE PUSH-ON, BELL-AND-SPIGOT TYPE PER Env-Wq 704.05 (e).

SEWER TRENCH

NOT TO SCALE

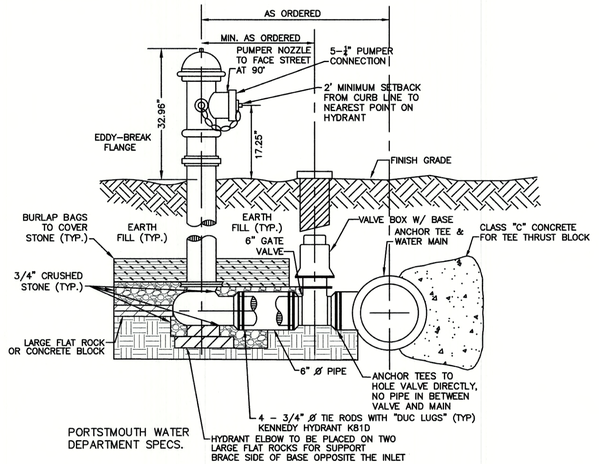


POST HYDRANTS SHALL BE NON-FREEZING, SELF DRAINING TYPE WITH A 5' BURY. THESE HYDRANTS WILL BE FURNISHED WITH A 2" FIP HORIZONTAL INLET, A NON-TURNING OPERATING ROD, AND SHALL OPEN LEFT. BRONZE OPERATING MECHANISM AND ALUMINUM PLUNGER. DESIGN, AND BE SERVICABLE FROM ABOVE GRADE WITH NO DIGGING. THE OUTLET SHALL ALSO BE BRONZE AND BE 2-1/2" NST. HYDRANTS SHALL BE LOCKABLE TO PREVENT UNAUTHORIZED USE AS MANUFACTURED BY KUPFERLE FOUNDRY CO., ST. LOUIS, MO, OR APPROVED EQUAL.

INLET PRESSURE (PSI)	FLOW RATE (GPM)
75	675
100	742
125	800
150	856

FLUSHING HYDRANT DETAIL

NOT TO SCALE



PORTSTMOUTH WATER DEPARTMENT SPECS.

NOTES

1. ALL PIPE FITTINGS TO BE D.I. PRESSURE CLASS 350, THICKNESS CLASS 52.
2. HYDRANT TO BE PAINTED RED WITH WHITE "REFLECTOR" PAINT ON BONNET.
3. MECHANICAL JOINTS SHALL HAVE MEGALUG RETAINING GLANDS AS MADE BY EBBA OR APPROVED EQUAL.
4. NATIONAL STANDARD THREAD.
5. HYDRANT AND ALL VALVES SHALL OPEN RIGHT
6. ANCHOR TEES SHALL HOLD VALVE DIRECTLY WITH NO PIPE IN BETWEEN VALVE AND MAIN.

HYDRANT INSTALLATION

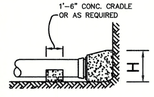
NOT TO SCALE



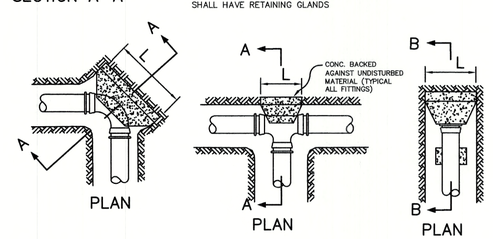
SECTION A-A

CONCRETE THRUST BLOCK DIMENSIONS								
PIPE DIA. (IN.)	TEE		90° BEND OR STUB		45° BEND		22.5° BEND	
	H	L	H	L	H	L	H	L
4"/6"	1'-6"	1'-6"	1'-6"	2'-0"	1'-6"	1'-6"	1'-6"	1'-6"
8"	2'-0"	2'-0"	2'-0"	3'-0"	1'-6"	2'-0"	1'-6"	1'-6"
10"	2'-0"	3'-0"	2'-6"	3'-6"	2'-0"	2'-6"	1'-6"	2'-0"
12"	2'-6"	3'-6"	3'-0"	4'-0"	2'-0"	3'-6"	1'-6"	2'-6"
15"	3'-0"	4'-6"	3'-6"	5'-6"	3'-0"	3'-6"	2'-0"	2'-6"
18"	4'-0"	5'-0"	4'-6"	6'-0"	3'-6"	4'-0"	2'-6"	3'-0"
24"	5'-0"	7'-0"	6'-0"	8'-0"	4'-0"	6'-0"	3'-0"	4'-6"

PIPING W/ MECHANICAL JOINT FITTINGS SHALL HAVE RETAINING GLANDS

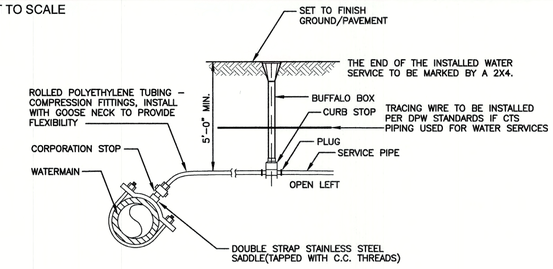


SECTION B-B



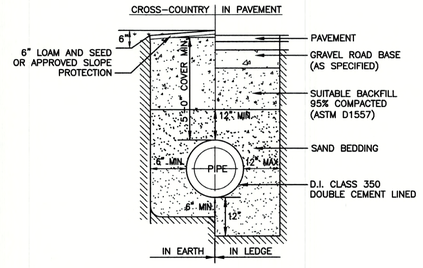
THRUST BLOCK DETAILS

NOT TO SCALE



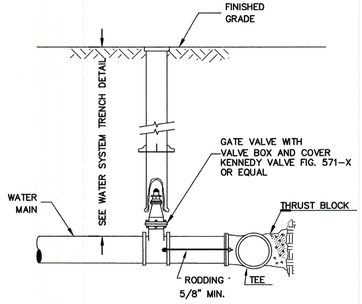
WATER SERVICE CONNECTION-POLYETHYLENE

NOT TO SCALE



WATER SYSTEM TRENCH

NOT TO SCALE



BURIED GATE VALVE DETAIL

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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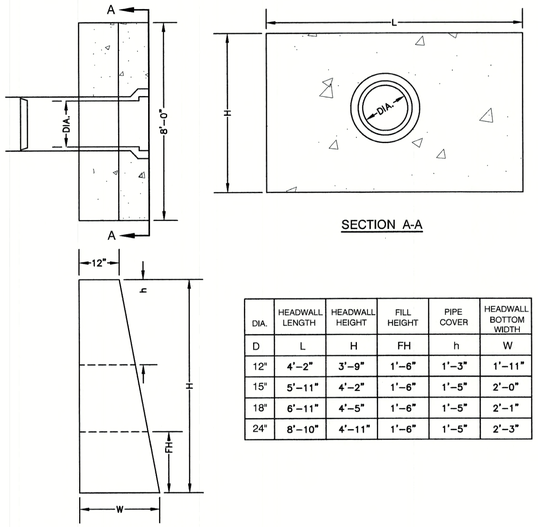
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: DETAIL SHEET

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
D3
SHEET 13 OF 22
JBE PROJECT NO. 21047



SECTION A-A

LONGITUDINAL SECTION

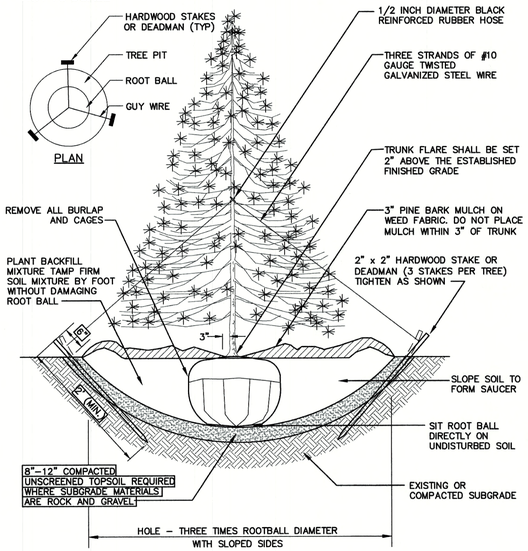
DIA.	HEADWALL LENGTH	HEADWALL HEIGHT	FILL HEIGHT	PIPE COVER	HEADWALL BOTTOM WIDTH
D	L	H	FH	h	W
12"	4'-2"	3'-9"	1'-6"	1'-3"	1'-11"
15"	5'-11"	4'-2"	1'-6"	1'-5"	2'-0"
18"	6'-11"	4'-5"	1'-6"	1'-5"	2'-1"
24"	8'-10"	4'-11"	1'-6"	1'-5"	2'-3"

NOTES:

1. ALL DIMENSIONS GIVEN IN FEET & INCHES.
2. PROVIDE BELL END AT INLET HEADWALL, AND SPIGOT END AT OUTLET END HEADWALL.
3. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS. CEMENT TO BE TYPE III PER ASTM C-150. REINFORCING TO MEET OR EXCEED ASTM A-615 GRADE 60 DEFORMED BARS.
4. 1" THREADED INSERTS PROVED FOR FINAL ATTACHMENT IN FIELD BY OTHERS.

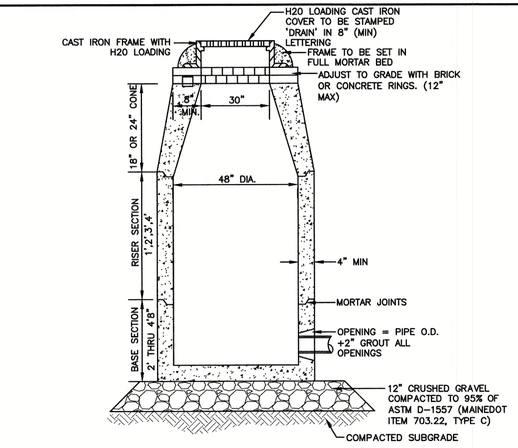
PRECAST CONCRETE HEADWALL

NOT TO SCALE



EVERGREEN PLANTING

NOT TO SCALE

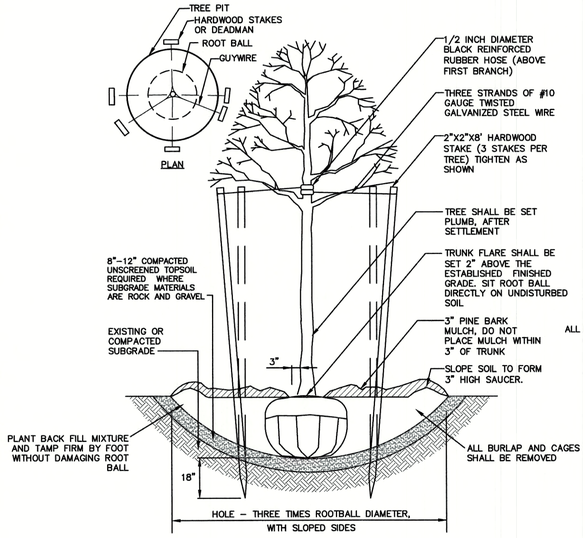


NOTES:

1. BASE SECTION SHALL BE MONOLITHIC WITH 48" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H20 LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H20 LOADING.
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL DRAIN MANHOLE FRAMES AND GRATES SHALL BE NEENAH R-1798 OR APPROVED EQUAL (30" DIA. TYPICAL).
8. STANDARD FRAME(S) AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.

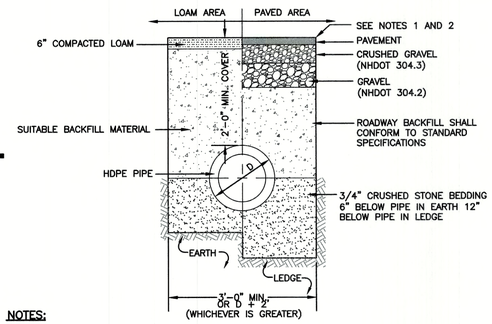
DRAIN MANHOLE (4' DIAM.)

NOT TO SCALE



TREE PLANTING (FOR TREES UNDER 4" CALIPER)

NOT TO SCALE

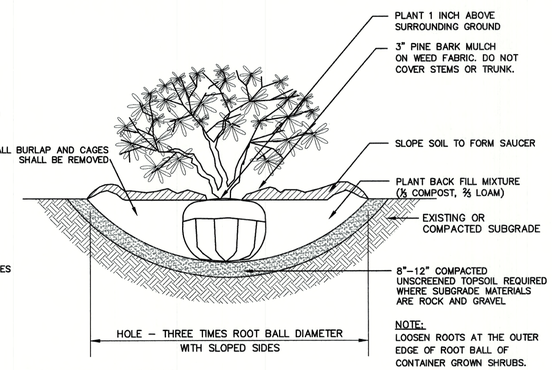


NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM WITH PROJECT AND TOWN SPECIFICATIONS.
3. ALL MATERIALS ARE TO BE COMPACTED TO 95% OF ASTM D-1557.

DRAINAGE TRENCH

NOT TO SCALE



SHRUB PLANTING

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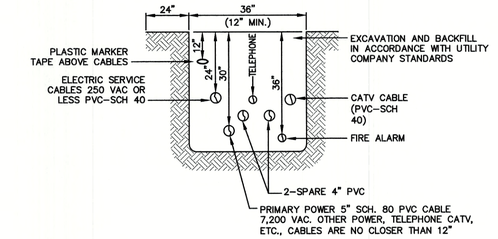

NOTE: ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.

UTILITY TRENCH

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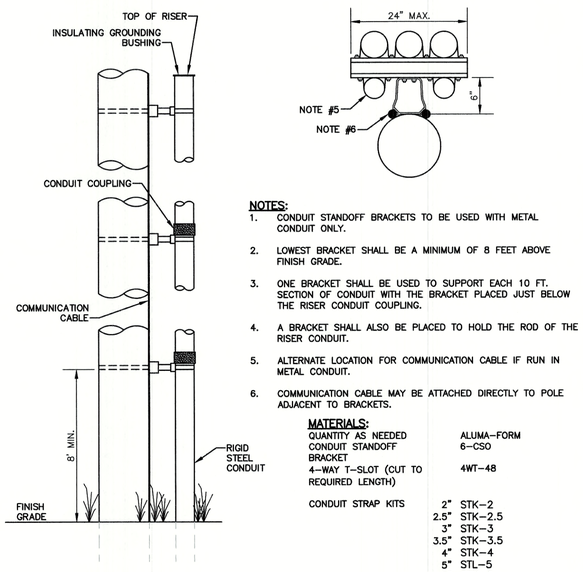

NOTES:

1. CONDUIT STANDOFF BRACKETS TO BE USED WITH METAL CONDUIT ONLY.
2. LOWEST BRACKET SHALL BE A MINIMUM OF 8 FEET ABOVE FINISH GRADE.
3. ONE BRACKET SHALL BE USED TO SUPPORT EACH 10 FT. SECTION OF CONDUIT WITH THE BRACKET PLACED JUST BELOW THE RISER CONDUIT COUPLING.
4. A BRACKET SHALL ALSO BE PLACED TO HOLD THE ROD OF THE RISER CONDUIT.
5. ALTERNATE LOCATION FOR COMMUNICATION CABLE IF RUN IN METAL CONDUIT.
6. COMMUNICATION CABLE MAY BE ATTACHED DIRECTLY TO POLE ADJACENT TO BRACKETS.

MATERIALS:

QUANTITY AS NEEDED	ALUMA-FORM
CONDUIT STANDOFF BRACKET	6-CSO
4-WAY T-SLOT (CUT TO REQUIRED LENGTH)	4WT-48

CONDUIT STRAP KITS

2"	STK-2
2.5"	STK-2.5
3"	STK-3
3.5"	STK-3.5
4"	STK-4
5"	STL-5
6"	STK-6

UTILITY POLE RISER DETAIL

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Drawing Name: 21047-PLAN.dwg	

Date: 3/25/21
Project No.: 21047

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STATE OF NEW HAMPSHIRE – PAIGE S. LIBBEY No.16670 – PROFESSIONAL ENGINEER – LICENSED

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
10	3/4/22	REVISED PER NHDOT COMMENTS	DJM
9	2/15/22	REVISED PER TEST PIT DATA; CITY COMMENTS; POWER COMPANY	DJM
8	1/20/22	REVISED PER ENGINEER REVIEW COMMENTS	DJM
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Plan Name:	DETAIL SHEET
Project:	SAGAMORE AVENUE CONDOMINIUMS 1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE
Owner of Record:	LOT 14: COLLEEN HEBERT 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173 LOT 15: JOHN J. & COLLEEN HEBERT 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
D4
SHEET 14 OF 22
JBE PROJECT NO. 21047

BIORETENTION SYSTEM ELEVATIONS

BIORETENTION	SIZE OF BOTTOM (S.F.)	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	SHWT	LEDGE
1	322	37.50	37.30	36.50	35.00	34.75	34.25	34.00	NONE	35.7 *
2	520	38.00	37.70	37.00	35.50	35.25	34.75	34.50	NONE	36.8 *

* SEE NOTES #4&5 UNDER DESIGN CONSIDERATIONS

SAND SPECIFICATION

SIEVE SIZE	% BY WEIGHT
⅜"	100
#4	95–100
#8	80–100
#16	50–85
#30	25–60
#60	10–30
#100	2–10
#200	0–5

TOPSOIL SPECIFICATION

LOAMY SAND TOPSOIL WITH MINIMAL CLAY CONTENT AND BETWEEN 15 TO 25% FINES PASSING THE #200 SIEVE.

MULCH SPECIFICATION

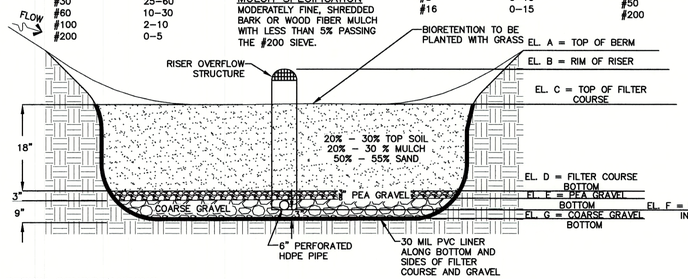
MODERATELY FINE, SHREDDED BARK OR WOOD FIBER MULCH WITH LESS THAN 5% PASSING THE #200 SIEVE.

PEA GRAVEL SPECIFICATION

SIEVE SIZE	% BY WEIGHT
½"	100
⅜"	85–100
#4	10–30
#8	0–10
#16	0–15

COARSE GRAVEL SPECIFICATION

SIEVE SIZE	% BY WEIGHT
1"	90–100
½"	75–100
#4	50–100
#20	15–80
#50	0–15
#200	0–5



DESIGN CONSIDERATIONS

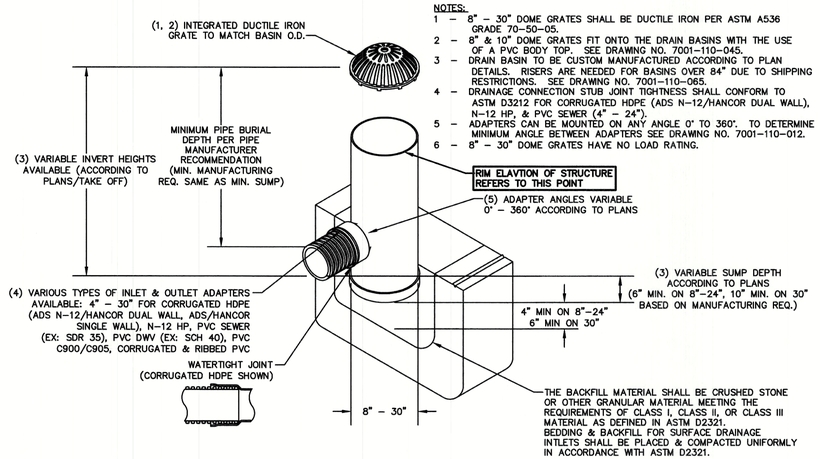
1. DO NOT PLACE BIORETENTION SYSTEMS INTO SERVICE UNTIL THE BMP HAS BEEN SEEDED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT–LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUN–OFF, WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
4. REMOVE LEDGE TO AT LEAST 6" BELOW BOTTOM OF COARSE GRAVEL LAYER IF ENCOUNTERED.

MAINTENANCE REQUIREMENTS:

1. SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
2. PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.
3. TRASH AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION.
4. AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72 HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
5. VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.
6. COMPACTION AND MATERIALS TESTING SERVICES SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE OWNER.

BIORETENTION SYSTEM WITH UNDERDRAIN

NOT TO SCALE



NOTES:

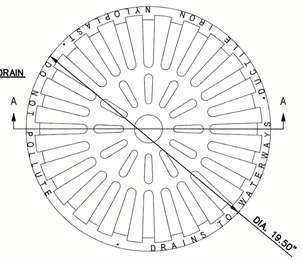
1 – 8" – 30" DOME GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70–50–05.
2 – 8" & 10" DOME GRATES FIT ONTO THE DRAIN BASINS WITH THE USE OF A PVC BODY TOP. SEE DRAWING NO. 7001–110–045.
3 – DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001–110–065.
4 – DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N–12/HANCOR DUAL WALL), N–12 HP, & PVC SEWER (4" – 24").
5 – ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001–110–012.
6 – 8" – 30" DOME GRATES HAVE NO LOAD RATING.

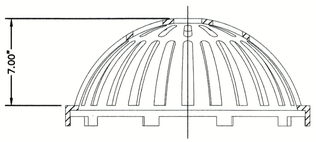
NYLOPLAST DRAIN BASIN (W/ DOME GRATE) (YARD DRAIN SPECIFICATION)

NOT TO SCALE

1899CGD

APPROX. DRAIN AREA = 175.59 SQ IN
APPROX. WEIGHT = 32.00 LBS



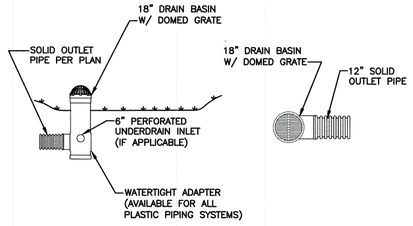


SECTION A-A

NOTES:
1. DIMENSIONS ARE FOR REFERENCE ONLY
2. ACTUAL DIMENSIONS MAY VARY
3. DIMENSIONS ARE IN INCHES
4. QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70–50–05
5. PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT
6. LOCKING DEVICE AVAILABLE UPON REQUEST

18" NYLOPLAST DOME GRATE

NOT TO SCALE



NYOPLAST DRAIN BASIN AND INLINE DRAIN (BIORETENTION RISER SPECIFICATION)

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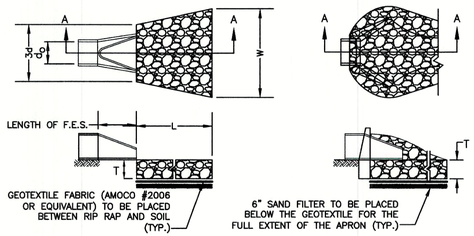

SECTION A–A

PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL

SECTION A–A

PIPE OUTLET TO WELL–DEFINED CHANNEL

TABLE 7–24––RECOMMENDED RIP RAP GRADATION RANGES		
THICKNESS OF RIP RAP = 1.5 FEET		
d50 SIZE= 0.25 FEET 3 INCHES		
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM	TO
100%	5	6
85%	4	5
50%	3	5
15%	1	2

NOTES:

1. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. OUTLETS TO A DEFINED CHANNEL SHALL HAVE 2:1 OR FLATTER SIDE SLOPES AND SHOULD BEGIN AT THE TOP OF THE CULVERT AND TAPER DOWN TO THE CHANNEL BOTTOM THROUGH THE LENGTH OF THE APRON.
6. MAINTENANCE: THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO OUTLET PROTECTION.

RIP RAP OUTLET PROTECTION APRON

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STATE OF NEW HAMPSHIRE – PAIGE S. LIBBEY No.16670 – LICENSED PROFESSIONAL ENGINEER

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Plan Name:	DETAIL SHEET
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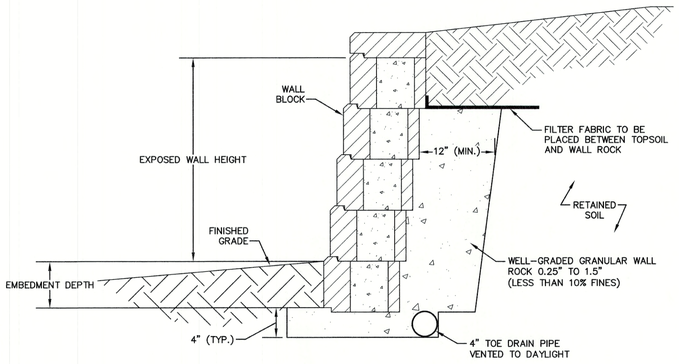
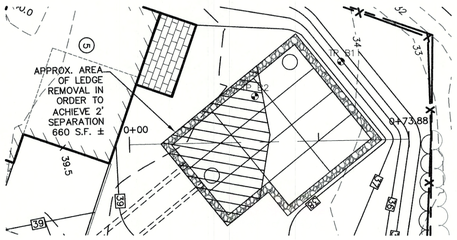
DRAWING No.
D5
SHEET 15 OF 22
JBE PROJECT NO. 21047

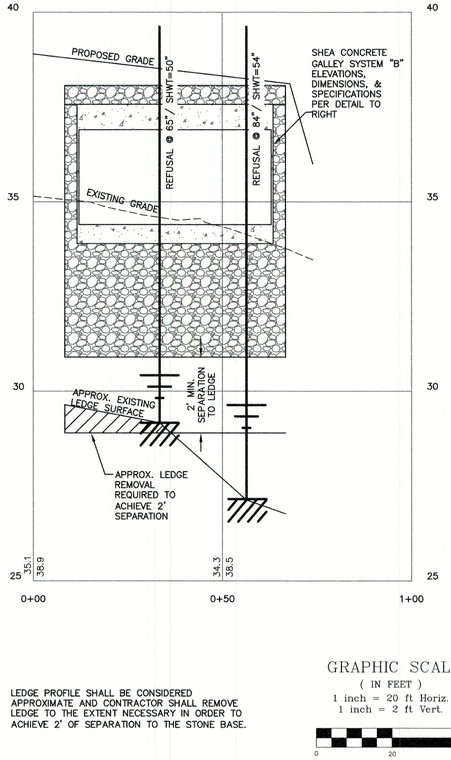


THE CONTRACTOR IS RESPONSIBLE FOR RETAINING THE SERVICES OF A STRUCTURAL ENGINEER LISENCED IN THE STATE OF NEW HAMPSHIRE TO DESIGN ANY WALL THAT HAS A HEIGHT OVER 4.0'. JONES & BEACH ENGINEERS, INC. DOES NOT ACCEPT ANY LIABILITY FOR THE STRUCTURAL DESIGN AND/OR INSTALLATION OF ANY RETAINING WALL OF ANY TYPE ABOVE THIS HEIGHT. THIS DETAIL IS INTENDED TO PROVIDE AN EXAMPLE OF THE RETAINING WALL FOR PLANNING PURPOSES ONLY AND IS SPECIFICALLY NOT INTENDED FOR USE BY THE CONTRACTOR IN ANY CONSTRUCTION-RELATED ACTIVITY FOR A WALL GREATER THAN 4.0' IN HEIGHT.

TYPICAL GRAVITY WALL DETAIL

NOT TO SCALE



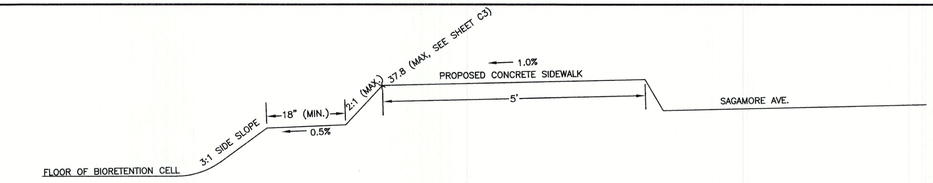


LEDGE PROFILE SHALL BE CONSIDERED APPROXIMATE AND CONTRACTOR SHALL REMOVE LEDGE TO THE EXTENT NECESSARY IN ORDER TO ACHIEVE 2' OF SEPARATION TO THE STONE BASE.

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft Horiz.
1 inch = 2 ft Vert.

SHEA CONCRETE GALLEY 8X14 SYSTEM "B" LEDGE PROFILE

SCALE AS SHOWN



1. AT LEAST 18" OF "FLAT" SPACE (0.5% SLOPED TOWARD THE BIORETENTION CELL) SHALL BE PROVIDED BETWEEN THE RIM OF THE BIORETENTION CELL AND THE SIDE SLOPE OF THE SIDEWALK.
2. THIS DETAIL IS INTENDED TO DEPICT SITUATIONS IN WHICH THE PROPOSED GRADE OF THE SIDEWALK IS HIGHER THAN THE TOP OF THE BIORETENTION CELL. WHERE THE PROPOSED GRADE OF THE SIDEWALK IS LOWER THAN THE TOP OF THE BIORETENTION CELL, A STANDARD 2' BERM SHALL BE PROVIDED.

BIORETENTION #1 / SIDEWALK INTERFACE

NOT TO SCALE

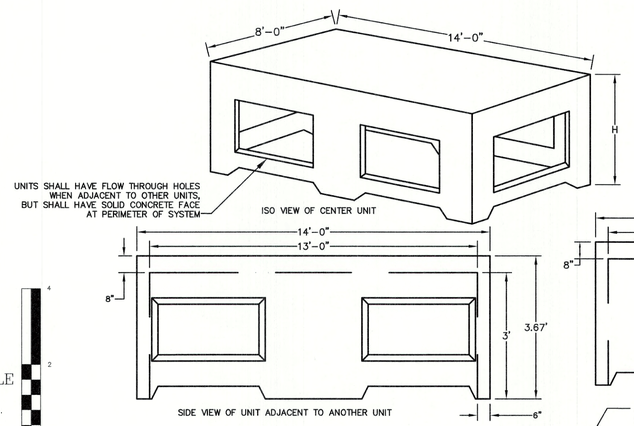
CONTRACTOR ORDER SCHEDULE				
	FLOW-THROUGH HOLES ON ALL SIDES	NO FLOW-THROUGH HOLES ON ONE 8' SIDE	NO FLOW-THROUGH HOLES ON ONE 14' SIDE	NO FLOW-THROUGH HOLES ON ONE 8' AND ONE 14' SIDE
SYSTEM A	0	0	4	4
SYSTEM B	2	3	1	5

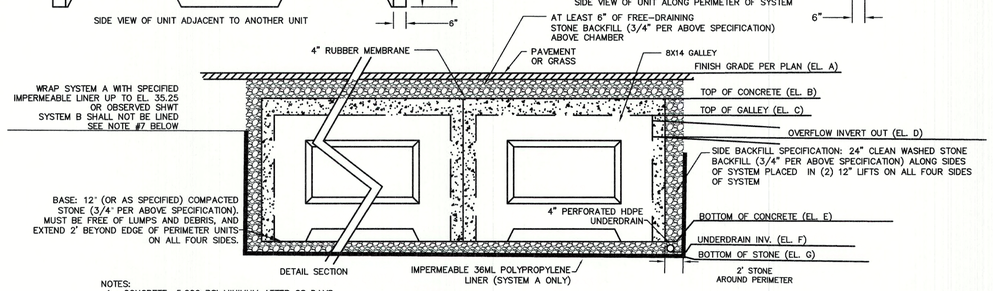
ELEVATION SCHEDULE							
	EL. A	EL. B	EL. C	EL. D	EL. E	EL.F	EL.G
SYSTEM A	> 39.0	36.97	36.3	34.7	33.3	32.3	32.3
SYSTEM B	> 38.2	37.57	36.9	35.8	33.9	N/A	30.9

STONE BACKFILL SPECIFICATION

SIEVE SIZE	% BY WEIGHT
1"	100
¾"	90-100
½"	40-90
#8	23-49
#200	2-8

HEIGHT(H)	VOLUME(EA)	WEIGHT
3'-0"	300CF	16,600#

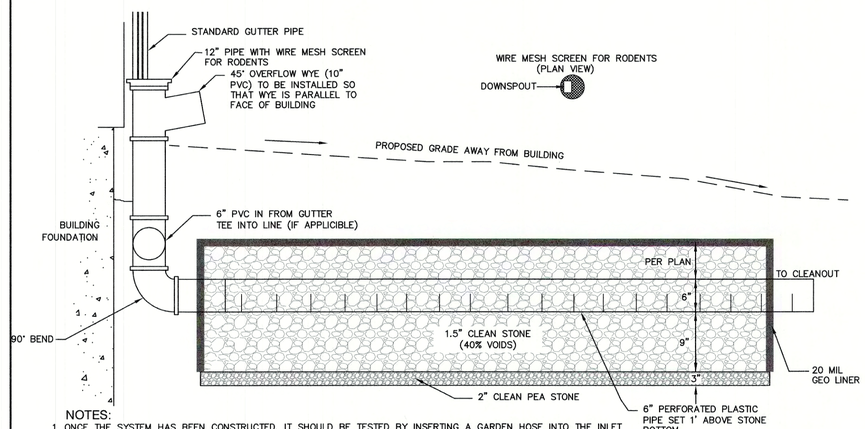




NOTES:
1. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGNED FOR AASHTO HS-20 LOAD, 0 TO 5FT COVER. CAN BE DESIGNED FOR ADDITIONAL COVER IF REQUIRED.
3. STANDARD SLAB DESIGN WITHSTANDS 40KIP OUTRIGGER LOAD ON A 24" SQUARE PAD WITH 24" COVER OVER SLAB.
4. CORE HOLE FOR MORTAR JOINT AT INVERT IN LOCATION(S). PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT
5. COMPACT SUBGRADE TO A BEARING CAPACITY OF AT LEAST 2000 PSF PRIOR TO PLACEMENT OF SYSTEM.
6. SYSTEM "A" IS PROPOSED IN THE MIDDLE OF THE SITE AND DESIGNED FOR DETENTION ONLY. SYSTEM "B" IS PROPOSED IN THE NORTHWEST CORNER OF THE SITE AND DESIGNED FOR DETENTION AND INFILTRATION. SEE SHEET C3 FOR OUTLINE. USE 3' MODEL FOR BOTH SYSTEMS.
7. CONTRACTOR TO PLACE SYSTEM "A" AND EXTEND ABOVE-SPECIFIED IMPERMEABLE LINER ON SYSTEM "A" UP TO SEASONAL HIGH WATER TABLE AT ELEVATION NOTED ABOVE. CITY STAFF OR REVIEW ENGINEER SHALL WITNESS INSTALLATION OF LINER.
8. GALLEY 8X14 UNITS THAT ARE ADJACENT TO OTHER GALLEY 8X14 UNITS ON ALL SIDES SHALL HAVE FLOW THROUGH HOLES ON ALL SIDES. UNITS THAT ARE NOT ADJACENT TO OTHER UNITS ON AT LEAST ONE SIDE SHALL HAVE A SOLID CONCRETE FACE ON THE SIDES ON THE UNIT THAT ARE NOT ADJACENT TO OTHER UNITS (ALONG PERIMETER OF SYSTEM).
9. LEDGE SHALL BE REMOVED TO AN ELEVATION AT LEAST 2-FEET BELOW BOTTOM OF STONE BASE AND REPLACED WITH GRANULAR MATERIAL.

SHEA CONCRETE PRODUCTS "GALLEY 8x14"

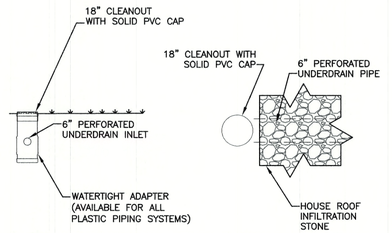
NOT TO SCALE



NOTES:
1. ONCE THE SYSTEM HAS BEEN CONSTRUCTED, IT SHOULD BE TESTED BY INSERTING A GARDEN HOSE INTO THE INLET AND ALLOWING THE WATER TO RUN FOR A MINIMUM OF ONE (1) HOUR. THE WATER SHOULD STAY UNDERGROUND WITHIN THE GRAVEL. IF WATER COMES OUT OF THE OVERFLOW, THE SYSTEM SHOULD BE FURTHER INSPECTED AND POSSIBLY REPLACED. THIS PROCEDURE SHOULD BE PERFORMED EVERY YEAR DURING THE FALL INSPECTION.
2. IN THE SPRING AND FALL, VISUALLY INSPECT THE AREA AROUND THE SYSTEM AND REPAIR ANY EROSION. USE SMALL STONES TO STABILIZE EROSION ALONG DRAINAGE PATHS. RE-MULCH ANY VOID AREAS BY HAND AS NEEDED. ALSO INSPECT THE ROOF COLLECTION AND PIPING AND CLEAN AND REPAIR AS NECESSARY.
3. DO NOT PLANT DEEP ROOTED TREES AND SHRUBS WITHIN 5' OF THE SYSTEM.
4. KEEP HEAVY VEHICLES FROM DRIVING OR PARKING OVER THE SYSTEM.
5. FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, FLEXIBLE PIPE MAY BE USED. REFER TO SPECIFICATIONS FOR ALLOWABLE PIPE TYPES.
6. A WATERTIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.
7. THE DOWNSPOUT DRAIN LEADING INTO THE INFILTRATION PRACTICE AS WELL AS THE PERFORATED PVC UNDERDRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDINGS. SITEWORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK INCLUDING THE RODENT SCREEN. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THE POINT OF THE RODENT SCREEN.
8. OVERFLOWS ARE TO BE INSTALLED ON EXTERIOR DOWNSPOUT LEADERS ONLY.
9. LEDGE SHALL BE REMOVED TO AT LEAST 2' BELOW BOTTOM OF INFILTRATION PRACTICE.

HOUSE ROOF INFILTRATION DETAIL

NOT TO SCALE



PERFORATED UNDERDRAIN CLEANOUT DETAIL

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Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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STATE OF NEW HAMPSHIRE PAIGE S LIBBEY No.16670 LICENSED PROFESSIONAL ENGINEER 3/25/22

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
10	3/4/22	REVISED PER NHDOT COMMENTS	DJM
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7	12/28/21	REVISED PER ENGINEER REVIEW COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: DETAIL SHEET

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

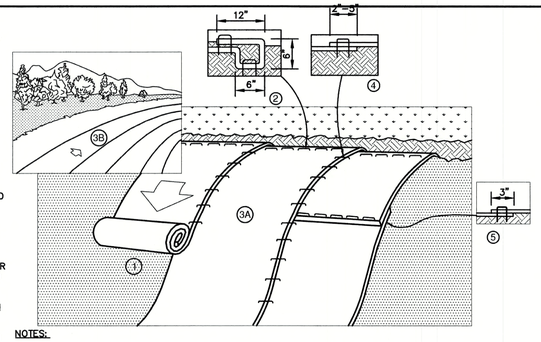
Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No. D6

SHEET 16 OF 22
JBE PROJECT NO. 21047

TEMPORARY EROSION CONTROL NOTES

1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF 5 ACRES BE EXPOSED AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS (INCLUDING POND AREAS BELOW THE PROPOSED WATERLINE) SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE 'C' AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
4. SILT FENCES AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.5" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
5. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
6. AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
7. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING NORTH AMERICAN GREEN S150 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
8. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
9. AFTER OCTOBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
10. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    a. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
    b. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    c. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH STONE OR RIPRAP HAS BEEN INSTALLED; OR
    d. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
11. FUGITIVE DUST CONTROL IS REQUIRED TO BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000, AND THE PROJECT IS TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.



NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM™ STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

NORTH AMERICAN GREEN
14649 HIGHWAY 41 NORTH
EVANSVILLE, INDIANA 47725
1-800-772-2040

EROSION CONTROL BLANKET SLOPE INSTALLATION
NORTH AMERICAN GREEN (800) 772-2040

NOT TO SCALE

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (3:1 SLOPES OR FLATTER ARE PREFERRED).
   B. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. TYPES AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
      AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ.FT.
      NITROGEN(N), 50 LBS. PER ACRE OR 1.1 LBS. PER 1,000 SQ.FT.
      PHOSPHATE(P205), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      POTASH(K20), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      (NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10.)
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. REFER TO THE 'SEEDING GUIDE' AND 'SEEDING RATES' TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT, TREFOIL AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 S.F.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

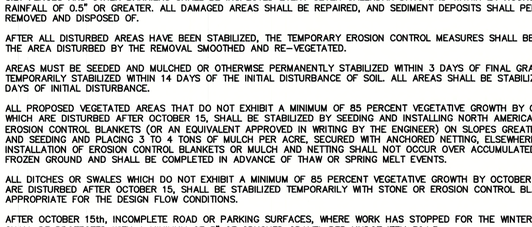
NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

SEEDING GUIDE

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
* C. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
BIRDS FOOT TREFOIL	8	0.20
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING RATES



CONSTRUCTION SPECIFICATIONS:

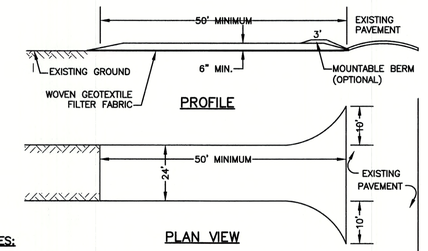
1. WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
2. THE FENCE POSTS SHALL BE A MINIMUM OF 48" LONG, SPACED A MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
5. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
6. SILT FENCE SHALL REMAIN IN PLACE FOR 24 MONTHS.
7. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND REVEGETATED.

MAINTENANCE:

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE DONE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
4. SEDIMENT DEPOSITS THAT ARE REMOVED, OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED, SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

SILT FENCE

NOT TO SCALE



NOTES:

1. STONE FOR STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS, OR 10 FEET, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER FABRIC IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENTIAL LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A STONE BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

CONSTRUCTION SEQUENCE

1. PRIOR TO THE START OF ANY ACTIVITY, IT IS THE RESPONSIBILITY OF THE SITE'S SITE DEVELOPER (OR OWNER) TO FILE A NOTICE OF INTENT (NOI) FORM WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) IN ORDER TO GAIN COVERAGE UNDER THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES. A PRE CONSTRUCTION MEETING IS TO BE HELD WITH ALL DEPARTMENT HEADS PRIOR TO THE START OF CONSTRUCTION.
2. WETLAND BOUNDARIES ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.
3. CUT AND REMOVE TREES IN CONSTRUCTION AREA AS REQUIRED OR DIRECTED.
4. INSTALL SILT FENCING, HAY BALES AND CONSTRUCTION ENTRANCES PRIOR TO THE START OF CONSTRUCTION. THESE ARE TO BE MAINTAINED UNTIL THE FINAL PAVEMENT SURFACING AND LANDSCAPING AREAS ARE ESTABLISHED.
5. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. THIS INCLUDES ANY REQUIRED DEMOLITION OF EXISTING STRUCTURES, UTILITIES, ETC.
6. CONSTRUCT AND/OR INSTALL TEMPORARY OR PERMANENT SEDIMENT AND/OR DETENTION BASIN(S) (INCLUDING RAIN GARDENS AND UNDERGROUND DETENTION SYSTEM) AS REQUIRED. THESE FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING RUN-OFF TO THEM.
7. STRIP LOAM AND PAVEMENT PER THE RECOMMENDATIONS OF THE PROJECT ENGINEER AND STOCKPILE EXCESS MATERIAL. STABILIZE STOCKPILE AS NECESSARY.
8. PERFORM PRELIMINARY SITE GRADING IN ACCORDANCE WITH THE PLANS.
9. PREPARE BUILDING PADS TO ENABLE BUILDING CONSTRUCTION TO BEGIN.
10. INSTALL THE SEWER AND DRAINAGE SYSTEMS FIRST, THEN ANY OTHER UTILITIES IN ACCORDANCE WITH THE PLAN AND DETAILS. ANY CONFLICTS BETWEEN UTILITIES ARE TO BE RESOLVED WITH THE INVOLVEMENT AND APPROVAL OF THE ENGINEER.
11. ALL SWALES AND DRAINAGE STRUCTURES ARE TO BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
12. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE DITCHES, CHECK DAMS, SEDIMENT TRAPS, ETC., TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS AND/OR PROPERTY.
13. PERFORM FINAL FINE GRADING, INCLUDING PLACEMENT OF 'SELECT' SUBGRADE MATERIALS.
14. PAVE DRIVEWAYS AND ROADWAY WITH INITIAL 'BASE COURSE'.
15. PERFORM ALL REMAINING SITE CONSTRUCTION (i.e. BUILDING, CURBING, UTILITY CONNECTIONS, ETC.).
16. LOAM AND SEED ALL DISTURBED AREAS AND INSTALL ANY REQUIRED SEDIMENT AND EROSION CONTROL FACILITIES (i.e. RIP RAP, EROSION CONTROL BLANKETS, ETC.).
17. FINISH PAVING ALL DRIVEWAYS AND ROADWAY WITH 'FINISH' COURSE.
18. DRIVEWAYS AND ROADWAY SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
19. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
20. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
21. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE BEEN 75%-85% ESTABLISHED AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND RE-VEGETATE ALL DISTURBED AREAS.
22. CLEAN SITE AND ALL DRAINAGE STRUCTURES, PIPES AND SUMPS OF ALL SILT AND DEBRIS.
23. INSTALL ALL PAINTED PAVEMENT MARKINGS AND SIGNAGE PER THE PLANS AND DETAILS.
24. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
25. UPON COMPLETION OF CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ANY RELEVANT PERMITTING AGENCIES THAT THE CONSTRUCTION HAS BEEN FINISHED IN A SATISFACTORY MANNER.

Design: JAC	Draft: DJM
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STATE OF NEW HAMPSHIRE - PAIGE S. LIBBEY No.16670 - LICENSED PROFESSIONAL ENGINEER - 3/25/22

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PO Box 219
Stratham, NH 03885
Civil Engineering Services
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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EROSION AND SEDIMENT CONTROL DETAILS

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

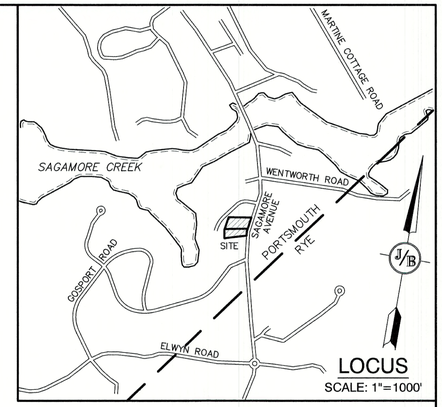
Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

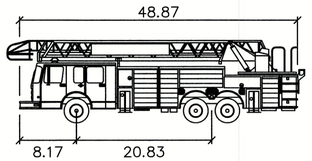
DRAWING No.
E1
SHEET 17 OF 22
JBE PROJECT NO. 21047

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet





Portsmouth Fire Truck

	feet
Width	: 8.50
Track	: 6.91
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

LEGEND:

- VEHICLE BODY
- FRONT WHEELS
- REAR WHEELS

Portsmouth Fire Truck

Portsmouth Fire Truck

SAGAMORE AVENUE
NH ROUTE 1A
CLASS I

STATE PLANE

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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STATE OF NEW HAMPSHIRE
PAIGE S. LIBBEY
No.16670
LICENSED PROFESSIONAL ENGINEER
2022

REV.	DATE	REVISION	BY
11	3/22/22	REVISED PER CITY COMMENTS	DJM
10	3/4/22	REVISED PER NHDOT COMMENTS	DJM
9	2/15/22	REVISED PER TEST PIT DATA; CITY COMMENTS; POWER COMPANY	DJM
8	1/20/22	REVISED PER ENGINEER REVIEW COMMENTS	DJM
7	12/28/21	REVISED PER ENGINEER REVIEW COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	TRUCK TURNING PLAN
Project:	SAGAMORE AVENUE CONDOMINIUMS 1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE
Owner of Record:	LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173 LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
T1
SHEET 18 OF 22
JBE PROJECT NO. 21047

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet



Portsmouth Fire Truck

	feet
Width	: 8.50
Track	: 6.91
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

LEGEND:

- VEHICLE BODY
- FRONT WHEELS
- REAR WHEELS

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

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LICENSED
PROFESSIONAL ENGINEER

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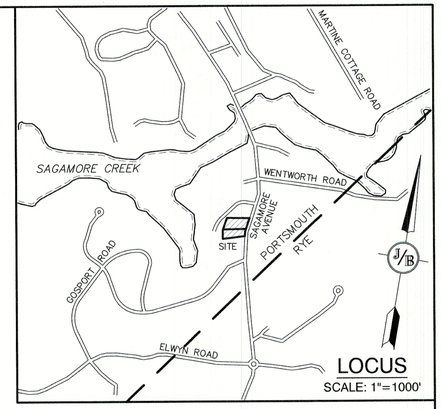
DRAWING No.
T2
SHEET 19 OF 22
JBE PROJECT NO. 21047

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet



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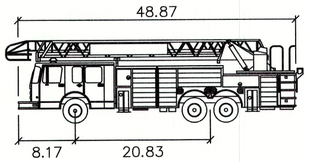

Portsmouth Fire Truck

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Lock to Lock Time	: 6.0
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LEGEND:

= VEHICLE BODY
= FRONT WHEELS
= REAR WHEELS

SAGAMORE AVENUE
NH ROUTE 1A
CLASS I

STATE PLANE

J/B

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

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1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
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Drawing Name: 21047-PLAN.dwg		

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PAIGE S. LIBBEY No.16670 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

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Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: TRUCK TURNING PLAN

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

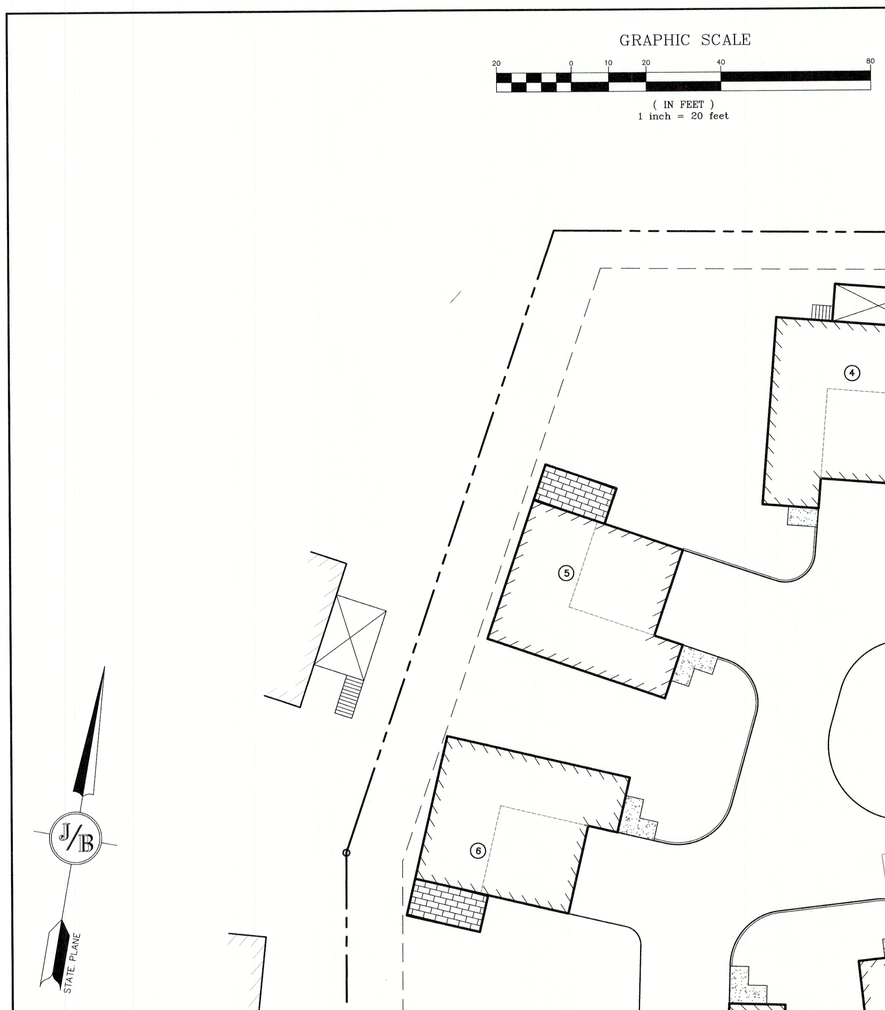
Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

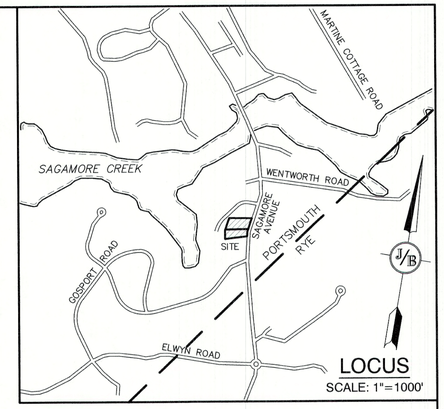
DRAWING No.
T3
SHEET 20 OF 22
JBE PROJECT NO. 21047

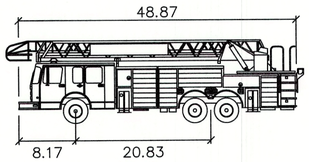
GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet







Portsmouth Fire Truck

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- = REAR WHEELS

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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STATE OF NEW HAMPSHIRE · PAIGE S. LIBBEY No.16670 · LICENSED PROFESSIONAL ENGINEER

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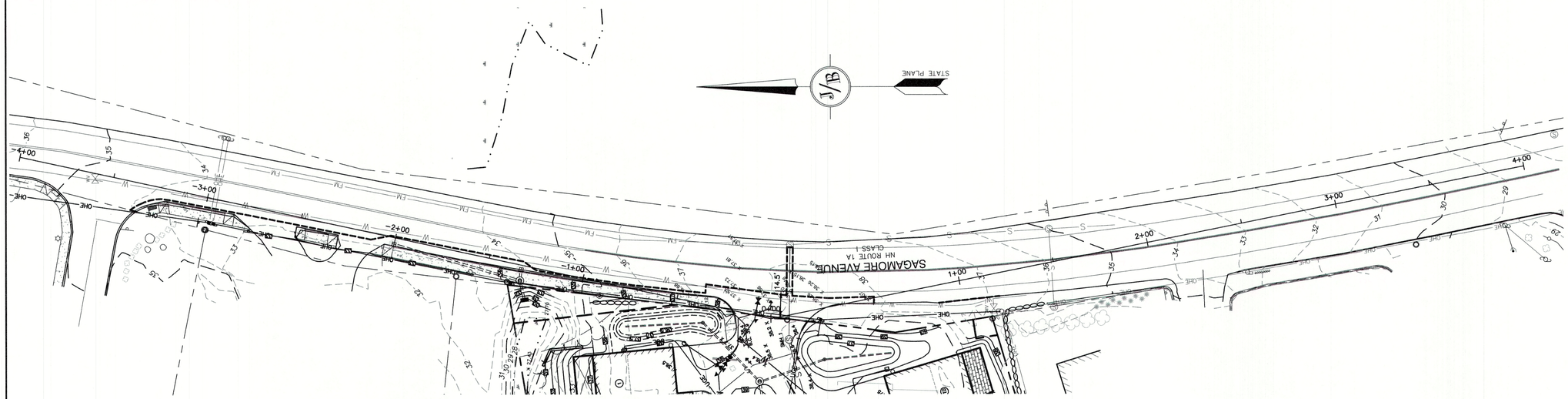
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

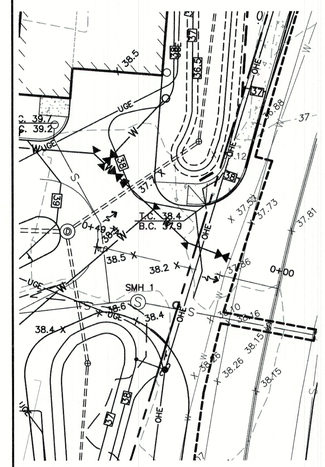
Plan Name: TRUCK TURNING PLAN

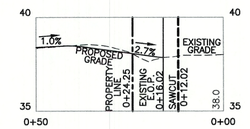
Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

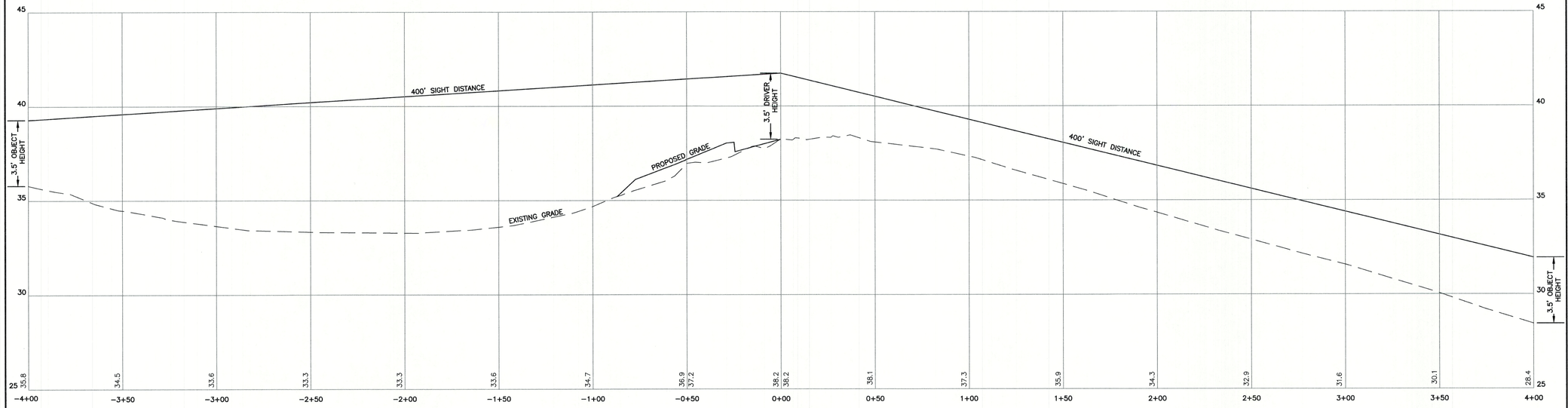
Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
T4
SHEET 21 OF 22
JBE PROJECT NO. 21047

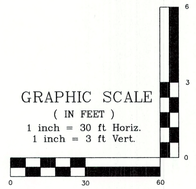


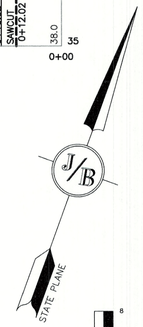


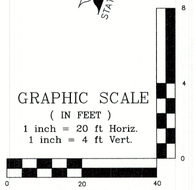




SIGHT DISTANCE PLAN AND PROFILE (SCALE AS SHOWN)







DRIVEWAY PLAN AND PROFILE (SCALE AS SHOWN)

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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PAIGE S. LIBBEY No.16670 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

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PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	HIGHWAY ACCESS PLAN
Project:	SAGAMORE AVENUE CONDOMINIUMS 1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE
Owner of Record:	LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173 LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.

H1

SHEET 22 OF 22
JBE PROJECT NO. 21047

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

March 22, 2022

Portsmouth Technical Advisory Committee
Attn: Peter Stith
1 Junkins Avenue, Suite 3rd Floor
Portsmouth, NH 03801

RE: Response Letter 3
668 Middle Street, Portsmouth, NH
Tax Map 147, Lot 18
JBE Project No. 20686

Dear Mr. Stith,

We are in receipt of comments from Stefanie Casella, City Planner, dated February 28, 2022. Review comments are listed below with our responses in bold.

PLANNER COMMENTS:

1. *Mill and Overlay on Chevrolet Ave needs to be 1.5" thick to match the thickness of the existing pavement.*
   RESPONSE: This comment has been updated on sheet C2.

2. *MSDOS structure to enter existing pipe via insert a tee, not DMH*
   RESPONSE: This has been revised and shown as a tee on sheet C3.

3. *Crown in driveway should dissipate as it approaches Chevrolet Ave so that all water reaches rain garden. Remove curb and put sidewalk if required on the uphill side so the stormwater can actually get into the stormwater pond.*
   RESPONSE: The driveway slope has been updated and the curb has been removed to allow water to reach the rain garden.

4. *TBM is still in wrong datum*
   RESPONSE: The TBM has been updated on sheets C1 and C2.

5. *Please change Coordinate system to State Plane NAD83.*
   RESPONSE: This has been updated as note 4 on C1 and C2

6. *The proposed ROW easement is larger than necessary and should not include the rain garden. 5' off edge of pavement is sufficient. Please make sure no part of the rain garden is in the easement.*
   RESPONSE: The ROW easement has been revised and is now shown at approximately 5' off the edge of pavement.

7. *Rework of the existing invert inside SMH 2395 will be required to allow the new pipe to enter at the proposed elevation required to cross the existing drain. Installer to work with Portsmouth DPW to make connections to their satisfaction.*
   RESPONSE: This has been added as note 30 on sheet C4.

8. *The sewer profile should include the private portion.*
   RESPONSE: The sewer profile has been extended to show the private portion of the sewer main.

9. *Keep the City portion of the sewer main under the roadway.*
   RESPONSE: The sewer manhole has been relocated to the driveway apron within the proposed easement.

10. *2" water lines don't use gate valves. Please relocate main shutoff on 2" line to the driveway apron. 2" waterlines don't use thrust blocks as the pipe bends, there are usually no fittings. It must be clear that the common 2" water line is owned in common between both lots*
    RESPONSE: The gate valves have been removed, water shutoff has been added within the driveway apron, and a note has been added to sheet A1 as note 13.

11. *If CTS pipe is being proposed for water services, tracing wires need to be installed to DPW standards*
    RESPONSE: A note has been added to the detail on sheet D2.

12. *There is landscaping proposed along Chevrolet Ave that would block sight distance. Please remove from the plan*
    RESPONSE: The landscaping plan has been revised.

13. *The hydrant detail shown is not correct for a blow off hydrant*
    RESPONSE: The hydrant detail has been corrected.

14. *An agreement with Portsmouth water will be required for water system flushing*
    RESPONSE: Note 31 has been added to sheet C4.

15. *An easement in the private ROW area will be required for valve access and leak detection*
    RESPONSE: Note 13 has been added on sheet A1 and was moved from sheet C2.

16. *Acquiring the portion of the easement in the portion off site is required for approval*
    RESPONSE: The easement has been accepted by the abutters and we are currently finalizing them. The draft easement documents are included in this submission.

17. *The carriage house structure must be a condo in the remaining mother parcel in order to allow it to have a separate water service*
    RESPONSE: See note 11 on sheet CS1.

18. *Please provide architectural plans and all associated data as identified on application checklist.*
    RESPONSE: Architectural plans have been added to the plan set.

19. *Please Identify where the proposed snow storage will be located*
    RESPONSE: Proposed snow storage is depicted on sheet C2.

20. *Please correct address on the Drainage Analysis Sediment and Erosion Control Plan*
    RESPONSE: This has been corrected and a new cover page will be submitted.

21. *Please update checklist throughout process to properly identify where information is in application and plan set.*
    RESPONSE: The checklist has been updated.

Included with this response letter are the following:

1. One (1) Full Size Plan Set.
2. One (1) Drainage Report.
3. One (1) 11x 17 Architectural Plan Set
4. Draft Easement Documents

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Erica Eames

Erica Eames
Project Engineer

cc: Michael Garrepy, Tuck Realty Corporation (via email)
Tim Phoenix, Attorney (via email)
Wendy Welton, Art From Architecture (via email)

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: Tuck Realty Corp. Date Submitted: 12/20/21

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

Site Address: 668 Middle Street, Portsmouth, NH Map: 147 Lot: 18

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☒	Complete application form submitted via the City's web-based permitting program (2.5.2.1**(2.5.2.3A)**		N/A
☒	All application documents, plans, supporting documentation and other materials uploaded to the application form in viewpoint in digital Portable Document Format (PDF). One hard copy of all plans and materials shall be submitted to the Planning Department by the published deadline. **(2.5.2.8)**		N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Statement that lists and describes "green" building components and systems. **(2.5.3.1B)**	Drainage Report & C3	
☒	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)**	Architectural Plans	N/A
☒	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	C2, Note 2	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1E)**	LOA or Title Block	N/A
☒	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. **(2.5.3.1F)**	C1	N/A
☒	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Cover Sheet	N/A
☒	List of reference plans. **(2.5.3.1H)**	C1 Plan Reference Note	N/A
☒	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	Cover Sheet	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. **(2.5.4.1A)**	Required on all plan sheets	N/A
☒	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. **(2.5.4.1B)**	Required on all plan sheets	N/A
☒	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. **(2.5.4.1C)**	C1 Note 4	N/A
☒	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. **(2.5.4.1D)**	Required on all plan sheets	N/A
☒	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. **(2.5.4.1E)**	N/A	N/A
☒	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	Cover Sheet & C2	N/A
☒	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	Revision Block, All Sheets	N/A
☒	Individual plan sheet title that clearly describes the information that is displayed. **(2.5.4.2C)**	Required on all plan sheets	N/A
☒	Source and date of data displayed on the plan. **(2.5.4.2D)**	Plan Reference C1, A1 & C2	N/A

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	**1. Existing Conditions: (2.5.4.3A)** • Surveyed plan of site showing existing natural and built features; • Existing building footprints and gross floor area; • Existing parking areas and number of parking spaces provided; • Zoning district boundaries; • Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre; • Existing impervious and disturbed areas; • Limits and type of existing vegetation; • Wetland delineation, wetland function and value assessment (including vernal pools); • SFHA, 100-year flood elevation line and BFE data, as required.	Architectural Plans & C1	
☒	**2. Buildings and Structures: (2.5.4.3B)** • Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation; • Elevations: Height, massing, placement, materials, lighting, façade treatments; • Total Floor Area; • Number of Usable Floors; • Gross floor area by floor and use.	Architectural Plans & C1	
☒	**3. Access and Circulation: (2.5.4.3C)** • Location/width of access ways within site; • Location of curbing, right of ways, edge of pavement and sidewalks; • Location, type, size and design of traffic signing (pavement markings); • Names/layout of existing abutting streets; • Driveway curb cuts for abutting prop. and public roads; • If subdivision; Names of all roads, right of way lines and easements noted; • AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	C2	
☒	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	C2	
☒	**5. Water Infrastructure: (2.5.4.3E)** • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii).	C1 & C4	
☒	**6. Sewer Infrastructure: (2.5.4.3F)** • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period.	C1 & C4	

☒	**7. Utilities: (2.5.4.3G)** • The size, type and location of all above & below ground utilities; • Size type and location of generator pads, transformers and other fixtures.	C4	
☒	**8. Solid Waste Facilities: (2.5.4.3H)**	N/A	
	• The size, type and location of solid waste facilities.		
☒	**9. Storm water Management: (2.5.4.3I)** • The location, elevation and layout of all storm-water drainage. • The location of onsite snow storage areas and/or proposed off-site snow removal provisions. • Location and containment measures for any salt storage facilities • Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.	C3 & Drainage report	
☒	**10. Outdoor Lighting: (2.5.4.3J)** • Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.	L1	
☒	**11. Indicate where dark sky friendly lighting measures have been implemented. (10.1)**	L1	
☒	**12. Landscaping: (2.5.4.3K)** • Identify all undisturbed area, existing vegetation and that which is to be retained; • Location of any irrigation system and water source.	L2	
☒	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	C3	
☒	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	C1 Note 2/	
☒	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	A1	
☒	**16. Character/Civic District (All following information shall be included): (2.5.4.3P)** • Applicable Building Height (10.5A21.20 & 10.5A43.30); • Applicable Special Requirements (10.5A21.30); • Proposed building form/type (10.5A43); • Proposed community space (10.5A46).	C2	
☒	**17. Special Flood Hazard Areas (2.5.4.3Q)** • The proposed development is consistent with the need to minimize flood damage; • All public utilities and facilities are located and construction to minimize or eliminate flood damage; • Adequate drainage is provided so as to reduce exposure to flood hazards.	C1 Note 3	

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Traffic Impact Study or Trip Generation Report, as required. **(3.2.1-2)**	N/A	
☒	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	C3 & Drainage Report	
☒	Indicate whether the proposed development is located in a wellhead protection or aquifer protection area. Such determination shall be approved by the Director of the Dept. of Public Works. **(7.3.1)**	N/A	
☒	Stormwater Management and Erosion Control Plan. **(7.4)**	Attached	
☒	Inspection and Maintenance Plan **(7.6.5)**	N/A	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	All local approvals, permits, easements and licenses required, including but not limited to: • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. **(2.5.3.2A)**		
☐	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: • Calculations relating to stormwater runoff; • Information on composition and quantity of water demand and wastewater generated; • Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; • Estimates of traffic generation and counts pre- and post-construction; • Estimates of noise generation; • A Stormwater Management and Erosion Control Plan; • Endangered species and archaeological / historical studies; • Wetland and water body (coastal and inland) delineations; • Environmental impact studies. **(2.5.3.2B)**		
☐	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)**		

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**		
☒	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
☐	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)**		
☒	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: Joseph Coronati **Date:** 12/20/21

dotloop signature verification: dtlp.us/aJuM-5NEk-LNmM

AUTHORIZATION

The undersigned, Elizabeth B. Larsen, Trustee of the Elizabeth B. Larsen Trust of 2012("Trust"), owner of the property located at 668Middle Street, Portsmouth, New Hampshire and further identified as Portsmouth Tax Map 147, Lot 18 (the "Property"), hereby authorize Tuck Realty Corporation ("Tuck") and its advisors Jones & Beach Engineers, Inc. and Hoefle, Phoenix, Gormley and Roberts, P.A., to file documents and appear before the Portsmouth Zoning Board of Adjustment, Planning Board, Technical Advisory Committee and/or Conservation Commission in all matters relating to applications by Tuck to the City of Portsmouth to permit the subdivision of and up to eight townhouses or similar structureson the Property.

Dated: January 27, 2021

By: Elizabeth B. Larsen dotloop verified 01/27/21 2:40 PM EST TGOV-SMJF-LFZY-ERRP

Elizabeth B. Larsen, Trustee
Elizabeth B. Larsen Trust of 2012

Letter of Authorization

I, W. Turner Porter, Tuck Realty Corporation, PO Box 190, Exeter, NH 03833, developer of property located in Portsmouth, NH, known as Tax Map 147, Lot 18, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously-mentioned property. The parcel is located on 668 Middle Street in Portsmouth, NH.

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

Witness

W. Turner Porter
Tuck Realty Corporation

8/23/21
Date





065834

2012 DEC 20 PM 12: 04

ROCKINGHAM COUNTY
REGISTRY OF DEEDS

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS that I, **Elizabeth B. Larsen**, unmarried, of 668 Middle Street, Portsmouth, Rockingham County, New Hampshire, 03801,

for consideration paid, grant to **Elizabeth B. Larsen, Trustee of The Elizabeth B. Larsen Trust of 2012** u/d/t dated December 11, 2012, of 668 Middle Street, Portsmouth, Rockingham County, New Hampshire, 03801,

with ***WARRANTY COVENANTS*** the following described real estate:

PARCEL I. A certain parcel of land with the buildings thereon, situate on Middle Street, in said Portsmouth, bounded and described as follows:

BEGINNING on Middle Street at land now or formerly of Blanche B. Lovell and running northwesterly by said Lovell's land seven (7) feet to an angle in the division line; thence turning and running North Eighty (80) degrees West by said Lovell's land, land now or formerly of William Conlon and Annie F. Pierce, land now or formerly of the Heirs of Ellen G. Walsh, land now or formerly of the Heirs of Victor Goss, and land now or formerly of Maurice J. and Elizabeth T. Ham, four hundred sixty-two (462) feet to the center of a stone post; thence turning and running North twenty-six (26) degrees West by land of the City of Portsmouth, formerly of the Frank Jones Brewing Company, one hundred six feet and six inches (106.6") to the center of a stone post; thence turning and running North fifty-nine (59) degrees East by land now or formerly of Coleman and Taccetta, formerly of the Frank Jones Brewing Company, two hundred twenty-seven and one half (227 ½) feet to land now or formerly of Florence Laighton; thence turning and running Southeasterly in a direct line by said Laighton's land four hundred forty-two and one half (442 ½) feet, more or less, to Middle Street; thence turning and running Southwesterly by said Street sixty-nine feet and ten inches (69 ft. 10 in.) more or less, to the place of beginning.

Together with a right of way thirty (30) feet wide across the northwesterly side of land now or formerly of said Laighton, adjoining the land now or formerly of said Coleman and Taccetta, formerly of said Brewing Company, and subject to similar right of way in said Laighton, her heirs and assigns, thirty (30) feet wide across the northwesterly side of the land herein conveyed, adjoining land now or formerly of said Coleman and Taccetta. Said rights of way are more fully

limited and defined in deed of William J. Moat to G. Ralph Laighton, dated 10 May, 1980, recorded in Rockingham Registry of Deeds, Book 512, Page 429, and an agreement of G. Ralph Laighton and Harry E. Boynton, dated May 31, 1913 and recorded in said Rockingham Registry of Deeds, Book 674, Page 341, to which reference is hereby made for a more complete description.

Also, those certain parcels of land located on Forest, Central and Elm Streets, Portsmouth, County of Rockingham, State of New Hampshire, bounded and described as follows:

PARCEL 1. BEGINNING at a point in the northeasterly sideline of Forest Street at the northwesterly corner of land now or formerly of DeCoff, being Lot No. 263 on Plan of Jackson Farm and Buckminster Field drawn by John W. Durgin, CE dated February 1955, recorded in Rockingham County Registry of Deeds and running northwesterly by the northeasterly sideline of Forest Street about 256 feet to the southerly corner of Lot No. 267 on said plan; thence turning and running southwesterly about one hundred feet to the point where the southeasterly sideline of Lot 216 on said plan is intersected by the easterly sideline of the property now or formerly of the State of New Hampshire and being the approach to the high level Piscataqua River Bridge; thence turning and running northerly along the easterly sideline of the said bridge approach land now or formerly of the State of New Hampshire to land now or formerly of the Boston & Maine Railroad; thence turning and running easterly by the right of way of the Boston & Maine Railroad to the northwesterly corner of Lot No. 263; thence turning and running southerly by the westerly line of Lot 263 to the point of beginning, said parcel comprising those portions of Lots 216 and 267 not taken by the State of New Hampshire for the approach to the Piscataqua Bridge, together with Lots 264, 265 and 266, and the stub of land on Forest Street westerly of the westerly sideline of Central Street and the stub of Central Street northerly of the northerly sideline of forest.

PARCEL 2. BEGINNING at a point in the northwesterly sideline of Elm Street at the southwesterly corner of Lot No. 237, the property now or formerly of Zamarchi, being the northeasterly corner of the parcel herein described and running southwesterly by said Elm Street 130 feet to a corner at Lot 234, the property now or formerly of the City of Portsmouth; thence turning and running northwesterly by said Lot 234 and Lot 221, the property now or formerly of the City of Portsmouth, 160 feet to the southeasterly side of Central Street; thence turning and running northeasterly by Central Street 101 feet to a corner at Lot No. 218, the property now or formerly of the City of Portsmouth, thence turning and running southeasterly by Lot 218 and Lot 237 to Elm Street and the point of beginning. Comprising Lots 219, 220, 235 and 236 on said Plan of Jackson Farm and Buckminster Field.

PARCEL 3. All my right, title and interest in and to the following streets or portions of streets, namely:

Central Street from the easterly sideline of the Piscataqua River Bridge approach to the southerly sideline of Forest Street.

That portion of Elm Street bounded northerly by Forest Street, southwesterly by land now or formerly of Zamarchi 200 feet, westerly by Elm Street, and northwesterly by Parcel 2 and land of Zamarchi 190 feet.

Forest Street from the westerly side of Cutts Street westerly to a line between the easterly corner of Lot 216 and the southeasterly corner of Lot 217.

These parcels are subject to such rights as the abutting owners and others may have the use thereof for access to their respective properties.

These parcels are also subject to an Easement to Northern Utilities, Inc. dated March 4, 2004, and recorded at Rockingham County Registry of Deeds in Book 4470, Page 2003.

Included in this conveyance is any and all personal property contents of the real estate.

Being the same premises conveyed to the Grantor by deed of The Wyman P. Boynton Revocable Trust of 1994 u/d/t dated September 1, 1994, recorded at Rockingham County Superior Court at Book 3980, Page 0209.

Dated this 11th day of December, 2012.

Witness

Elizabeth B. Larsen

State of New Hampshire
Rockingham, SS.

December 11, 2012

Personally appeared, before me, the above-named Elizabeth B. Larsen, known to me, or satisfactorily proven, to be the person whose name is subscribed to the foregoing instrument and acknowledged that she executed the same for the purposes therein contained.

Notary Public/Justice of the Peace

RALPH R. WOODMAN, JR. JUSTICE MY COMMISSION EXPIRES JUNE 9, 2015 OF THE PEACE NEW HAMPSHIRE

Return To:
Legal Department
City Hall
1 Junkins Ave.
Portsmouth, NH 03801

ACCESS, UTILITY AND DRAINAGE EASEMENT DEED

PUBLIC LAND HOLDINGS LLC, a New Hampshire limited liability company with a mailing address of P.O. Box 190, Exeter, New Hampshire 03833 ("Grantor"), for due consideration, hereby grants to the CITY OF PORTSMOUTH, a municipal body politic, having a mailing address of 1 Junkins Avenue, Portsmouth, New Hampshire 30801 ("Grantee"), with QUITCLAIM COVENANTS, the following easements with respect to Grantor's real property situate on Chevrolet Avenue, Portsmouth, Rockingham County, New Hampshire, also identified as Portsmouth Tax Assessor's Map 147, Lot 18 (the "Premises"):

1. **Easement Area**: to construct, use, repair and replace a roadway for ingress and egress by foot and by vehicle by Grantee and members of the public, together with the right to install underground utilities, and storm water flowage under, over and across that area shown as "Proposed Right of Way and Sewer Easement to Benefit the City of Portsmouth and Proposed Lots 1 and 2" (the "Easement Area") on a plan entitled "Subdivision and Lot Line Adjustment Plan, 668 Middle Street, Portsmouth, NH, Sheet A1, dated November 11, 2020 and revised through _____, 2022, by Jones & Beach Engineers, Inc., recorded in the Rockingham County Registry of Deeds (the "Registry") as Plan #_____ (the "Plan"), which Easement Area is more particularly described as follows:

   Beginning at a proposed railroad spike on the easterly side of Chevrolet Ave. and the northeasterly corner of Lot 18 as shown on the above-referenced plan; thence running S 70° 24' 38" E a distance of 22.43 feet to a point; thence turning and running along a curve with a radius of 519.00 feet, S 45° 24' 52" W with an Arc Length of 22.21 feet; thence turning and running along a curve with a radius of 519.00 feet, S 51° 08' 07" W with an Arc Length of 81.43 feet to a point; thence turning and running S 55° 37' 48" W a distance of 0.87 feet to a point; thence turning and running S 55° 37' 42" W a distance of 19.70 feet to a point; thence continuing S 55° 37' 42" W a distance of 5.30 feet to a point; thence turning and running along a curve with a radius of 481.00 feet, S 54° 06' 57" W an Arc Length of 23.79 feet to a point; thence turning and running N 43° 50' 49" E a distance of 118.10 feet to a proposed railroad spike at the point of beginning.

2. **Purpose and Rights:** The Grantee shall have a permanent and non-exclusive easement and right of way in, under, across and over the Easement Area for the purpose of installing, maintaining, inspecting, removing, repairing, and replacing the roadway and

any utility and/or drainage lines and pipes, together with any associated infrastructure, equipment, outfall, swales and storm water flow. The Grantee shall have the right to remove trees, bushes, undergrowth and other obstructions interfering with the activities authorized herein and to take such other actions as may be necessary, useful or convenient for the enjoyment of the easement rights herein granted.

3. **Grantee's Responsibility to Restore:** Disturbed areas within the Easement Area and they shall be restored at the Grantee's expense.

4. **Grantor's Retained Rights:** Grantor retains the right to freely use and enjoy its interest in the Easement Area insofar as the exercise thereof does not endanger or interfere with the purpose of this instrument, including without limitation any rights of the public to safely utilize Chevrolet Avenue as a public way. Grantor shall not, however, erect any fence or other structure within the Easement Area, substantially change the grade or slope, install any pipes, or pave or asphalt the Permanent Easement Area without prior written consent of the Grantee.

5. **Personal Property.** It is agreed that all utility and drainage infrastructure and related facilities installed within the Easement Area, whether fixed to the realty or not, shall be and remain the property of the Grantee.

6. **Easement to Run with Land:** All rights and privileges, obligations and liabilities created by this instrument shall inure to the benefit of, and be binding upon, the heirs, devises, administrators, executor, successors and assignees of the Grantee and of the Grantor, the parties hereto and all subsequent owners of the Premises and shall run with the land.

MEANING AND INTENDING to describe and convey and easement over a portion of the premises conveyed to Grantor by Elizabeth B. Larsen, Trustee of the Elizabeth B. Larsen Trust of 2012 by deed dated December 21, 2021 and recorded at the Registry at Book 6367, Page 1660.

This is an exempt transfer per RSA 78-B:2(I).

Dated this ____ day of _____, 2022.

PUBLIC LAND HOLDINGS LLC

_____ By:_____

Witness Name:

Title

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

This instrument was acknowledged before me on _____, 2022, by _____, duly authorized _____ of Public Land Holdings LLC, on behalf of said limited liability company.

_____
Notary Public/Justice of the Peace
My Commission Expires:

NO-BUILD AND ACCESS EASEMENT DEED

KNOW ALL MEN BY THESE PRESENTS THAT PUBLIC LAND HOLDINGS LLC, a New Hampshire limited liability company with a mailing address of P.O. Box 190, Exeter, New Hampshire 03833 ("GRANTOR"), for consideration paid, grants to DAVID MARKOVSKY AND TAMARA LEIBOWITZ, individuals with a mailing address of 30 Aldrich Court, Portsmouth, New Hampshire 03801 and TRYGG ENGEN AND KAITLIN A. KOFFINK, individuals with a mailing address of 39 Aldrich Court, Portsmouth, New Hampshire 03801 (collectively, "GRANTEE"), with QUITCLAIM COVENANTS, the following:

A perpetual and permanent No Build and Access Easement on, across and over a portion of that certain tract or parcel of land situate on Chevrolet Avenue, Portsmouth, Rockingham County, New Hampshire, also identified as Portsmouth Tax Assessor's Map 147, Lot 19-1 (the "Premises"), identified as "Proposed 10' Wide Exclusive Use Easement Area in Favor of Lot 40 and 41" (the "Easement Area") on a plan entitled "Subdivision and Lot Line Adjustment Plan, 668 Middle Street, Portsmouth. NH, Sheet A1, dated November 11, 2020 and revised through _____, 2022, by Jones & Beach Engineers, Inc., recorded in the Rockingham County Registry of Deeds (the "Registry") as Plan #_____ (the "Plan"), which Easement Area is more particularly described as follows:

Beginning at an iron rod found on the southeasterly corner of Tax Map 147, Lot 18-1 as shown on the above-referenced plan; thence running S 84° 48' 30" W a distance of 119.28 feet to an 8"x8" bound; thence turning and running N 40° 00' 38" W a distance of 12.18 feet to a point; thence turning and running S 78° 55' 48" E a distance of 149.29 feet to a point; thence turning and running S 34° 15' 48" W a distance of 12.95 feet to an iron rod found at the point of beginning.

Grantee shall have the right to access, from Grantee's abutting properties and not via the Premises, and to use the Easement Area for any and all residential uses. Grantee shall bear all costs and liabilities of any kind related to the use, upkeep and maintenance of the Easement Area and shall keep the Easement Area free from any and all liens arising out of any work performed for, materials furnished or obligations incurred by Grantee.

Grantor shall not construct, install, place, plant or store anything whatsoever in the above-described Easement Area that would violate the purpose of the easement. Grantor further agrees that is shall not construct any buildings on the Premises within that area extending twenty (20) feet along the shared property boundary with Grantee, shown as "20' Voluntary Building Setback" on the Plan.

Said easement is perpetual, is binding on successors and assigns of the parties and shall run with the land.

Homestead rights do not apply to this conveyance.

Meaning and intending to describe and convey and easement over a portion of the premises conveyed to Grantor by Elizabeth B. Larsen, Trustee of the Elizabeth B. Larsen Trust of 2012 by deed dated December 21, 2021 and recorded at the Registry at Book 6367, Page 1660.

Executed this _____ day of _____, 2022.

PUBLIC LAND HOLDINGS LLC

_____ By:_____
Witness Name:
Title

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

This instrument was acknowledged before me on _____, 2022, by _____, duly authorized _____ of Public Land Holdings LLC, on behalf of said limited liability company.

_____
Notary Public/Justice of the Peace
My Commission Expires:

Return To:
Legal Department
City Hall
1 Junkins Ave.
Portsmouth, NH 03801

ACCESS, UTILITY AND DRAINAGE EASEMENT DEED

CATHERINE R. WHELAN, an individual with a mailing address of P.O. Box 235, New Castle, New Hampshire 03801 ("Grantor"), for due consideration, hereby grants to the CITY OF PORTSMOUTH, a municipal body politic, having a mailing address of 1 Junkins Avenue, Portsmouth, New Hampshire 30801 (the "Grantee"), with QUITCLAIM COVENANTS, the following easement with respect to Grantor's real property situate on Chevrolet Avenue, Portsmouth, Rockingham County, New Hampshire, also identified as Portsmouth Tax Assessor's Map 147, Lot 19-1, (the "Premises"):

1. **Easement Area**: to construct, use, repair and replace a roadway for ingress and egress by foot and by vehicle by Grantee and members of the public, together with the right to install underground utilities, and storm water flowage under, over and across that area shown as "Proposed Sewer, Drainage, and Roadwork Easement Upon Tax Map 147, Lot 19-1 to Benefit the City of Portsmouth and Tax Map 147 Lots 18-1 & 19-2" (the "Easement Area") on a plan entitled "Utility Plan, 668 Middle Street, Portsmouth. NH, Sheet C4, dated November 11, 2020 and revised through _____, 2022, by Jones & Beach Engineers, Inc., recorded in the Rockingham County Registry of Deeds (the "Registry") as Plan #_____ (the "Plan"), which Easement Area is more particularly described as follows:

   Beginning at a point on the easterly side of Chevrolet Ave. at a proposed railroad spike at the northwesterly corner of Lot 19-1 as shown on the above-referenced plan; thence running N 43° 50' 49" E a distance of _____ feet to a point; thence turning and running S 47° 13' 37" E a distance of 19.33 feet to a point; thence turning and running S 42° 30' 03" W a distance of 51.13 feet to a point; thence turning and running N 70° 24' 38" W a distance of 22.43 feet to a proposed railroad spike at the point of beginning.

2. **Purpose and Rights:** The Grantee shall have a permanent and non-exclusive easement and right of way in, under, across and over the Easement Area for the purpose of installing, maintaining, inspecting, removing, repairing, and replacing the roadway and any utility and/or drainage lines and pipes, together with any associated infrastructure, equipment, outfall, swales and storm water flow. The Grantee shall have the right to remove trees, bushes, undergrowth and other obstructions interfering with the activities authorized herein and to take such other actions as may be necessary, useful or convenient for the enjoyment of the easement rights herein granted.

3. **Grantee's Responsibility to Restore:** Disturbed areas within the Easement Area and they shall be restored at the Grantee's expense.

4. **Grantor's Retained Rights:** Grantor retains the right to freely use and enjoy its interest in the Easement Area insofar as the exercise thereof does not endanger or interfere with the purpose of this instrument, including without limitation any rights of the public to safely utilize Chevrolet Avenue as a public way. Grantor shall not, however, erect any fence or other structure within the Easement Area, substantially change the grade or slope, install any pipes, or pave or asphalt the Permanent Easement Area without prior written consent of the Grantee.

5. **Personal Property.** It is agreed that all utility and drainage infrastructure and related facilities installed within the Easement Area, whether fixed to the realty or not, shall be and remain the property of the Grantee.

6. **Easement to Run with Land:** All rights and privileges, obligations and liabilities created by this instrument shall inure to the benefit of, and be binding upon, the heirs, devises, administrators, executor, successors and assignees of the Grantee and of the Grantor, the parties hereto and all subsequent owners of the Premises and shall run with the land.

MEANING AND INTENDING to convey an easement over a portion of the premises conveyed to the within Grantor by deed of Charles J. Gaudet dated May 8, 2007, and recorded at the Rockingham County Registry of Deeds (the "Registry") at Book 4798, Page 125.

This is an exempt transfer per RSA 78-B:2(I).

Dated this ____ day of _____, 2022.

Witness:_____ _____
Catherine R. Whelan

STATE OF NEW HAMPSHIRE
COUNTY OF_____

Personally appeared the above-named Catherine R. Whelan and acknowledged the foregoing instrument to be her free act and deed executed for the purposes contained therein.

_____
Notary Public/Justice of the Peace
My commission expires: _____

RETURN TO:

RECIPROCAL DRIVEWAY EASEMENT

This Reciprocal Driveway Easement made as of this ___ day of _____, 2022 between [TAX MAP 147, LOT 18-1 OWNER] (the "Lot 18-1 Owner") and [TAX MAP 147, LOT 18-2 OWNER] (the "Lot 18-2 Owner") (each an "Owner" and collectively, the "Owners").

RECITALS:

WHEREAS, the Lot 18-1 Owner is the owner of that certain property situated in the City of Portsmouth, County of Rockingham and State of New Hampshire, identified as Map 147, Lot 18-1 ("Lot 18-1") on plan entitled "Subdivision and Lot Line Adjustment Plan, 668 Middle Street, Portsmouth. NH, Sheet A1, dated November 11, 2020 and revised through _____, 2022, by Jones & Beach Engineers, Inc., recorded in the Rockingham County Registry of Deeds (the "Registry") as Plan #_____ (the "Plan");

WHEREAS, the Lot 18-2 Owner is the owner of that certain property situated in the City of Portsmouth, County of Rockingham and State of New Hampshire, identified as Map 147, Lot 18-2 ("Lot 18-2") on the Plan; and

WHEREAS, the Owners desire to grant certain easements upon Lot 18-1 and Lot 18-2 (collectively the "Lots"), which easements are intended to run to the benefit of and bind their respective lots indicated, and the owners from time to time of such lots or any portion thereof.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the Owners hereby covenant and agree that the Lots, and all present and future owners and occupants of the Lots shall be and hereby are subject to the terms, easements and conditions hereinafter set forth in this Agreement, so that said Lots shall be maintained, kept, sold and used in full compliance with and subject to this Agreement,

and, in connection therewith, the parties hereto on behalf of themselves and their respective successors and assigns covenant and agree as follows:

1. The Lot 18-1 Owner grants to the Lot 18-2 Owner a perpetual non-exclusive right and easement for vehicular and pedestrian travel over a portion of its property along the common lot line between Lot 18-1 and Lot 18-2 within that area identified on the Plan as "Proposed Shared Driveway Access Easement to Benefit Proposed Lots" which area is more particularly bounded and described as follows:

> Beginning at an iron rod on the easterly side of Chevrolet Ave. and the northeasterly corner of Lot 18-1 as shown on the above-referenced plan; thence running S 29° 50' 26" E a distance of 188.06 feet to a point; thence turning and running S 41° 58' 09" W a distance of 6.17 feet to a point; thence turning and running N 31° 44' 31" W a distance of 126.13 feet to a point; thence turning and running along a curve with a radius of 72.50 feet, chord bearing of N 24° 54' 13" W and arc length of 17.31 feet to a point; thence turning and running N 34° 19' 36" W a distance of 22.36 feet to a point; thence turning and running N 55° 37' 42" E a distance of 5.30 feet to an iron rod at the point of beginning.

2. The Lot 18-2 Owner grants to the Lot 18-1 Owner a perpetual non-exclusive right and easement for vehicular and pedestrian travel over a portion of its property along the common lot line between Lot 18-1 and Lot 18-2 within that area identified on the Plan as "Proposed Shared Driveway Access Easement to Benefit Proposed Lots" which area is more particularly bounded and described as follows:

Beginning at an iron rod on the easterly side of Chevrolet Ave. and the northwesterly corner of Lot 18-2 as shown on the above-referenced plan; thence running N 43° 50' 49" E a distance of 21.23 feet; thence turning and running S 34° 19' 36" E a distance of 27.57 feet to a point; thence turning and running along a curve with a radius of 47.50 feet, chord bearing of S 24° 54' 13' E and arc length of 11.34 feet to a point; thence turning and running S 31° 44' 31" E a distance of 126.12 feet to a point; thence turning and running S 41° 58' 09" W a distance of 18.83 feet to a point; thence turning and running N 29° 50' 26" W a distance of 188.06 feet to an iron rod at the point of beginning.

(the areas set forth in paragraphs 1 and 2 above, collectively, the "Driveway Easement Area")

The purposes of these reciprocal easements are to provide ingress and egress over the Driveway Easement Area from to Lot 18-1 and Lot 18-2.

The Owners shall jointly and equally share the burden and cost to maintain the Driveway Easement Area in good order, condition and repair the Driveway Easement Area. Notwithstanding the foregoing, damage by accident or casualty proximately caused by one of the parties hereto, their family, agents, representatives or invitees shall be undertaken at the sole expense of that party. Each Owner shall provide to the other

copies of estimates and proposals, and shall obtain the other's written approval prior to undertaking any activities within the Driveway Easement Area for which that Owner intends to seek monetary contribution from the other. Unless the nature and/or cost of any repair or maintenance is in dispute, each Owner shall reimburse the other within thirty (30) days of documentation of payment for such work.

If either the Lot 18-1 Owner or the Lot 18-2 Owner shall fail to operate, maintain and repair any portion of the Driveway Easement Area in accordance with such Owner's obligations hereunder, and if such failure has not been fully remedied after thirty (30) days prior written notice, the other Owner may perform such operation, maintenance or repair, in such manner as reasonably deemed necessary, for and on the account of the non-performing Owner. In the event of any emergency or other circumstances requiring earlier action (including specifically, but without limitation, failure to perform snow and/or ice removal in a timely fashion), no prior notice shall be required hereunder. In the event of such action, the non-performing Owner shall be required to reimburse the performing Owner, within thirty (30) days, for the actual and reasonable costs incurred in such performance, to the extent that the performing Owner was not financially responsible for such performance.

In the event of a dispute as to the need, nature, or cost of any particular intended expense, the Owners shall attempt to amicably resolve the dispute, failing which each shall be entitled to pursue any and all remedies at law or in equity.

This easement is perpetual, shall run with the land and is binding upon and enforceable by the Owners, and all future owners of the Lots.

IN WITNESS WHEREOF, the parties hereto have caused this Reciprocal Driveway Easement to be executed as of the day and year first above written.

LOT 18-1 OWNER

_____ _____

Witness [Name]

LOT 18-2 OWNER

_____ _____

Witness [Name]

The State of New Hampshire
County of _____ _____, 202__

Personally appeared the above-named, _____, known to me or satisfactorily proven to be the person whose name is subscribed to the above document and acknowledged that he executed the same for the purposes contained therein,

Before me,

_____
Notary Public/Justice of the Peace
Print Name:
My Commission Expires:

The State of New Hampshire
County of _____ _____, 202__

Personally appeared the above-named, _____, known to me or satisfactorily proven to be the person whose name is subscribed to the above document and acknowledged that she executed the same for the purposes contained therein,

Before me,

_____
Notary Public/Justice of the Peace
Print Name:
My Commission Expires:

DRAINAGE ANALYSIS

SEDIMENT AND EROSION CONTROL PLAN

"Chevrolet Avenue Duplexes"
668 Middle Street
Portsmouth, NH 03801
Tax Map 147, Lots 18

Prepared for:

Tuck Realty Corporation
P.O. Box 190
Exeter, NH 03833



Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
December 20, 2021
REVISED February 15, 2022
REVISED March 22, 2022
JBE Project No. 20686

EXECUTIVE SUMMARY

Tuck Realty Corporation is proposing to subdivide the existing Map 147 Lot 18 at 668 Middle Street Portsmouth, creating two new lots with frontage on Chevrolet Avenue on which they propose to construct a total of 2 residential duplexes on the proposed parcels. The existing Map 147 Lot 18 has a 3-unit residential dwelling, a carriage house with a garage, and a barn. Much of the rear of the lot is wooded with some lawn area as well.

A drainage analysis of the entire site was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. The analysis was conducted using data for the 2 Year – 24 Hour (3.69"), 10 Year – 24 Hour (5.60"), 25 Year – 24 Hour (7.10"), and 50 Year – 24 Hour (8.50")storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. This data was taken from the Extreme Precipitation Tables developed by the Northeast Regional Climate Center (NRCC), and the values have been increased by 15% due to the project being within the Coastal/Great Bay Region. A summary of the existing and proposed conditions peak rates of runoff in units of cubic feet per second (cfs) is as follows:

Analysis Point	2 Year		10 Year		25 Year		50 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	1.35	1.35	3.53	3.13	5.56	4.81	7.55	6.78

A similar summary of the existing and proposed peak volumes in units of acre-feet is as follows:

Analysis Point	2 Year		10 Year		25 Year		50 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	0.146	0.184	0.343	0.409	0.524	0.607	0.706	0.801

The subject parcel is located in the General Residence A District. The subject parcels currently consist of the aforementioned 3-unit residential dwelling, a carriage house with a garage, and a barn, all of which is proposed to remain, with the expectation of the existing barn which will be demolished. The topography on the site defines two (2) subcatchment, which drains to one (1) analysis point at the north eastern corner of the site.

The proposed site development consists of the aforementioned two new lots with frontage on Chevrolet Avenue with the 2 residential duplexes with associated paved common driveway. The addition of the proposed impervious paved areas and buildings causes an increase in the curve number (C_n) and a decrease in the time of concentration (T_c), the net result being a potential increase in peak rates of runoff from the site. A stormwater management system was designed in order to treat additional site run-off and mitigate peak flow rates. The proposed site development divides the site into five (5) subcatchments. The proposed stormwater management system for the front of the site consists of a rain garden system and a catch basin control structure to filter runoff.

The City of Portsmouth's only regulation concerning volume is that it shall be reduced to the maximum extent practicable. There are slight increases at the analysis point during the design storms, however although this project will not require an Alteration of Terrain Permit, it meets the Alteration of Terrain (AoT) Bureau's Channel Protection requirement, stipulating that volume may not increase toward any analysis point by more than 0.1 acre-foot during the 2-Year 24-Hour storm event. The volumes from all analyzed storm events do not exceed this 0.1 acre-foot threshold.

The use of Best Management Practices per the NHDES Stormwater Manual have been applied to the design of this drainage system and will be observed during all stages of construction. All land disturbed during construction will be stabilized within thirty days of groundbreaking and abutting property owners will suffer minimal adversity resultant of this development.

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2.0 Existing Conditions Analysis

3.0 Proposed Conditions Analysis

4.0 Conclusion

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25 Year - 24 Hour Summary
50 Year - 24 Hour Complete

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2 Year - 24 Hour Summary
10 Year - 24 Hour Complete
25 Year - 24 Hour Summary
50 Year - 24 Hour Complete

Appendix III Test Pit Logs
Appendix IV NRCS Soil Map
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Appendix VI Pre- and Post-Construction Watershed Plans

1.0 RAINFALL CHARACTERISTICS

This drainage report includes an existing conditions analysis of the area involved in the proposed development, as well as a proposed condition, or post-construction analysis, of the same location. These analyses were accomplished using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. The curve numbers were developed using the SCS TR-55 Runoff Curve numbers for Urban Areas. A Type III SCS 24-hour rainfall distribution was utilized in analyzing the data for the 2 Year – 24 Hour (3.69"), 10 Year – 24 Hour (5.60"), 25 Year – 24 Hour (7.10"), and 50 Year – 24 Hour (8.50") storm events. This data was taken from the Extreme Precipitation Tables developed by the Northeast Regional Climate Center (NRCC), and the values have been increased by 15% due to the project being within the Coastal/Great Bay Region.

The peak rates of runoff will be reduced from the existing condition, thereby minimizing any potential for a negative impact on abutting properties or erosion of the wetland system. This is accomplished through treatment of stormwater runoff and attenuation of peak flows resulting from storm events.

2.0 EXISTING CONDITIONS ANALYSIS

Based on NRCS Web Soil Survey, the soil type for the entire studied area was found to consist of "Urban land – Canton complex" (Map unit symbol 799). This classifies the soils as Hydrologic Soil Groups (HSG) B.

The existing property feature a main house and a carriage house with porches, a garage, a barn, and two gravel driveways. The site is otherwise covered by both woods and grass. The majority of the site is sloped toward the northeastern corner of the lot. This point where the lot drains to have been designated Analysis Point #1 (AP1). The area draining from the south to this point can be described as two subcatchments, Subcatchments 1S and 2S. Subcatchment 1S consists of existing dwelling units and associated driveways and utilities. Subcatchment 2S consists of woods and grassed areas along with a existing barn structure. This subcatchment experiences some grade change, with the highest elevations being roughly 12' higher than the lowest elevation at AP1.

3.0 PROPOSED CONDITIONS ANALYSIS

The addition of the proposed impervious driveway and the buildings causes an increase in the curve number (C_n) and a decrease in the time of concentration (T_c), the result being a potential increase in peak rates of runoff from the site. The proposed development, consisting of the aforementioned two residential duplex units with associated paved driveways as well as stormwater management features divide the subject parcel into five (5) subcatchments. Subcatchment 10S is comprised of the unchanged section of the lot, existing houses, gravel driveway, garage, etc. Subcatchment 20S consists of the remainder of 2S left after the placement of the driveway and houses. Subcatchments 21S is comprised of the proposed driveway and sidewalk. The runoff from subcatchment 21S is directed into the proposed rain garden (10P). After receiving treatment in the rain garden system, runoff will be directed into the existing City of Portsmouth drainage network. Subcatchments 22S and 23S consists of the proposed roof areas along with the proposed drip edges (3P and 4P). The roof areas are directed to the drip edges and any overflow will go to the proposed rain garden.

The site will be graded such that runoff from all the proposed impervious areas, will be treated, by way of the rain garden system.

According to the NH Stormwater Manual, bioretention systems (rain gardens) provide a pollutant removal efficiency of 90% for TSS and 65% for nitrogen, and infiltration basins (including subsurface ones) provide a removal efficiency of 90% for TSS and 60% for nitrogen. Runoff from all impervious surfaces with the exception of roofs is being directed toward one of these two types of treatment systems.

5.0 CONCLUSION

This proposed site development will have minimal adverse effect on abutting infrastructures and properties by way of stormwater runoff or siltation. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of site grading, multi-stage discharge outlet structure, and rain garden system as well as temporary erosion control measures including but not limited to silt fence and the use of a stabilized construction entrance. Best Management Practices developed by the State of New Hampshire have been utilized in the design of this system and their application will be enforced throughout the construction process. Peak rates of runoff from the site will be reduced from the unmanaged post development condition to the analysis point during all storms.

This project disturbs less than 100,000 S.F. and does not require a NHDES Alteration of Terrain Permit.

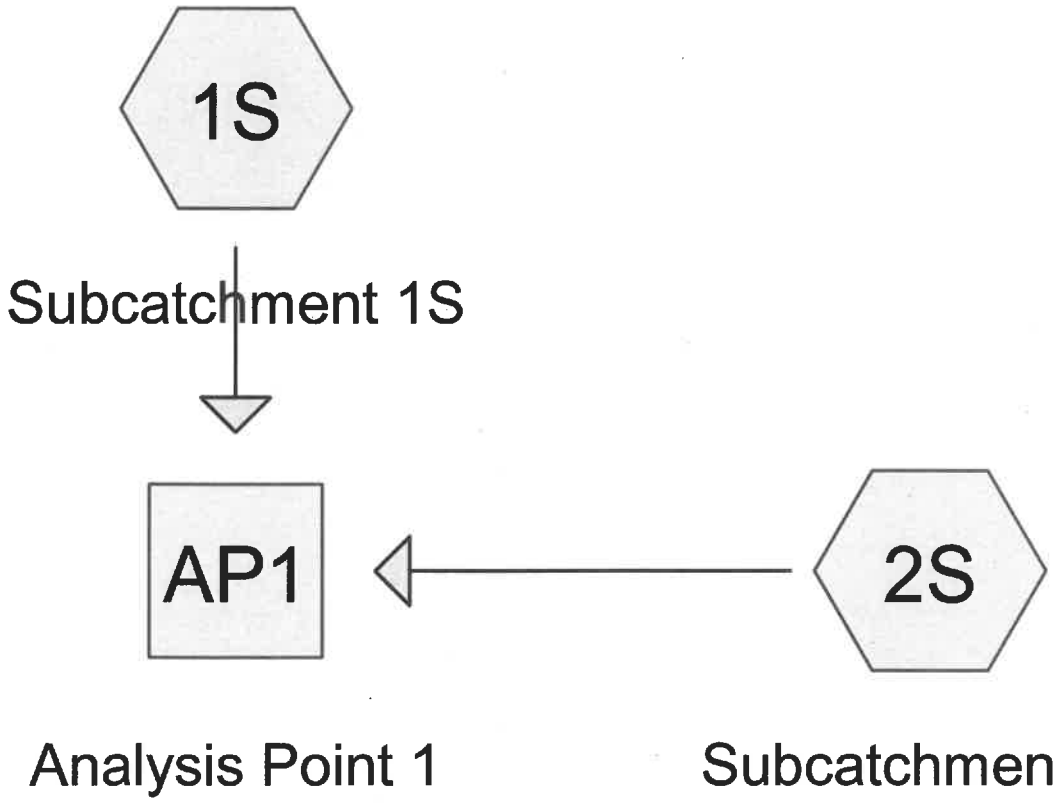
Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

Michael Kerivan, P.E.
Project Engineer

APPENDIX I

EXISTING CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Summary 25 YEAR
Complete 50 YEAR



Subcat Reach Pond Link

Routing Diagram for 20686-EXISTING_3-22-2022_work
Prepared by Jones and Beach Engineers, Inc., Printed 3/22/2022
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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 Yr 24 Hr (+15%)	Type III 24-hr		Default	24.00	1	3.69	2
2	10 Yr 24 Hr(+15%)	Type III 24-hr		Default	24.00	1	5.60	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.679	61	>75% Grass cover, Good, HSG B (1S, 2S)
0.198	96	Gravel surface, HSG B (1S)
0.074	98	Paved parking, HSG B (1S, 2S)
0.116	98	Roofs, HSG B (1S, 2S)
0.864	55	Woods, Good, HSG B (1S, 2S)
1.931	**66**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.931	HSG B	1S, 2S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
1.931		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
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 1S: Subcatchment 1S Runoff Area=44,468 sf 11.24% Impervious Runoff Depth>1.12"
Flow Length=305' Tc=15.5 min CN=70 Runoff=0.93 cfs 0.096 af

Subcatchment 2S: Subcatchment 2S Runoff Area=39,659 sf 8.35% Impervious Runoff Depth>0.66"
Flow Length=235' Tc=8.6 min CN=61 Runoff=0.48 cfs 0.050 af

Reach AP1: Analysis Point 1 Inflow=1.35 cfs 0.146 af
Outflow=1.35 cfs 0.146 af

Total Runoff Area = 1.931 ac Runoff Volume = 0.146 af Average Runoff Depth = 0.90"
90.12% Pervious = 1.741 ac 9.88% Impervious = 0.191 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
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 1S: Subcatchment 1S Runoff Area=44,468 sf 11.24% Impervious Runoff Depth>2.48"
Flow Length=305' Tc=15.5 min CN=70 Runoff=2.19 cfs 0.211 af

Subcatchment 2S: Subcatchment 2S Runoff Area=39,659 sf 8.35% Impervious Runoff Depth>1.74"
Flow Length=235' Tc=8.6 min CN=61 Runoff=1.56 cfs 0.132 af

Reach AP1: Analysis Point 1 Inflow=3.53 cfs 0.343 af
Outflow=3.53 cfs 0.343 af

Total Runoff Area = 1.931 ac Runoff Volume = 0.343 af Average Runoff Depth = 2.13"
90.12% Pervious = 1.741 ac 9.88% Impervious = 0.191 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 2.19 cfs @ 12.22 hrs, Volume= 0.211 af, Depth> 2.48"

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 24 Hr(+15%) Rainfall=5.60"

Area (sf)	CN	Description
4,850	98	Roofs, HSG B
147	98	Paved parking, HSG B
8,632	96	Gravel surface, HSG B
14,968	61	>75% Grass cover, Good, HSG B
15,871	55	Woods, Good, HSG B
44,468	70	Weighted Average
39,471		88.76% Pervious Area
4,997		11.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
1.4	60	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	120	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.9	55	0.0010	0.47		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	20	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
15.5	305	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 1.56 cfs @ 12.14 hrs, Volume= 0.132 af, Depth> 1.74"

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 24 Hr(+15%) Rainfall=5.60"

Area (sf)	CN	Description
223	98	Roofs, HSG B
3,090	98	Paved parking, HSG B
14,596	61	>75% Grass cover, Good, HSG B
21,750	55	Woods, Good, HSG B
39,659	61	Weighted Average
36,346		91.65% Pervious Area
3,313		8.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0770	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
1.9	185	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.6	235	Total			

Summary for Reach AP1: Analysis Point 1

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

Inflow Area = 1.931 ac, 9.88% Impervious, Inflow Depth > 2.13" for 10 Yr 24 Hr(+15%) event
Inflow = 3.53 cfs @ 12.18 hrs, Volume= 0.343 af
Outflow = 3.53 cfs @ 12.18 hrs, Volume= 0.343 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
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 1S: Subcatchment 1S Runoff Area=44,468 sf 11.24% Impervious Runoff Depth>3.69"
Flow Length=305' Tc=15.5 min CN=70 Runoff=3.29 cfs 0.314 af

Subcatchment 2S: Subcatchment 2S Runoff Area=39,659 sf 8.35% Impervious Runoff Depth>2.77"
Flow Length=235' Tc=8.6 min CN=61 Runoff=2.58 cfs 0.210 af

Reach AP1: Analysis Point 1 Inflow=5.56 cfs 0.524 af
Outflow=5.56 cfs 0.524 af

Total Runoff Area = 1.931 ac Runoff Volume = 0.524 af Average Runoff Depth = 3.26"
90.12% Pervious = 1.741 ac 9.88% Impervious = 0.191 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
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 1S: Subcatchment 1S Runoff Area=44,468 sf 11.24% Impervious Runoff Depth>4.88"
Flow Length=305' Tc=15.5 min CN=70 Runoff=4.37 cfs 0.415 af

Subcatchment 2S: Subcatchment 2S Runoff Area=39,659 sf 8.35% Impervious Runoff Depth>3.82"
Flow Length=235' Tc=8.6 min CN=61 Runoff=3.62 cfs 0.290 af

Reach AP1: Analysis Point 1 Inflow=7.55 cfs 0.706 af
Outflow=7.55 cfs 0.706 af

Total Runoff Area = 1.931 ac Runoff Volume = 0.706 af Average Runoff Depth = 4.38"
90.12% Pervious = 1.741 ac 9.88% Impervious = 0.191 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 4.37 cfs @ 12.21 hrs, Volume= 0.415 af, Depth> 4.88"

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 50 Yr 24 Hr(+15%) Rainfall=8.50"

Area (sf)	CN	Description
4,850	98	Roofs, HSG B
147	98	Paved parking, HSG B
8,632	96	Gravel surface, HSG B
14,968	61	>75% Grass cover, Good, HSG B
15,871	55	Woods, Good, HSG B
44,468	70	Weighted Average
39,471		88.76% Pervious Area
4,997		11.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
1.4	60	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	120	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.9	55	0.0010	0.47		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	20	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
15.5	305	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 3.62 cfs @ 12.13 hrs, Volume= 0.290 af, Depth> 3.82"

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 50 Yr 24 Hr(+15%) Rainfall=8.50"

Area (sf)	CN	Description
223	98	Roofs, HSG B
3,090	98	Paved parking, HSG B
14,596	61	>75% Grass cover, Good, HSG B
21,750	55	Woods, Good, HSG B
39,659	61	Weighted Average
36,346		91.65% Pervious Area
3,313		8.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0770	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
1.9	185	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.6	235	Total			

Summary for Reach AP1: Analysis Point 1

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

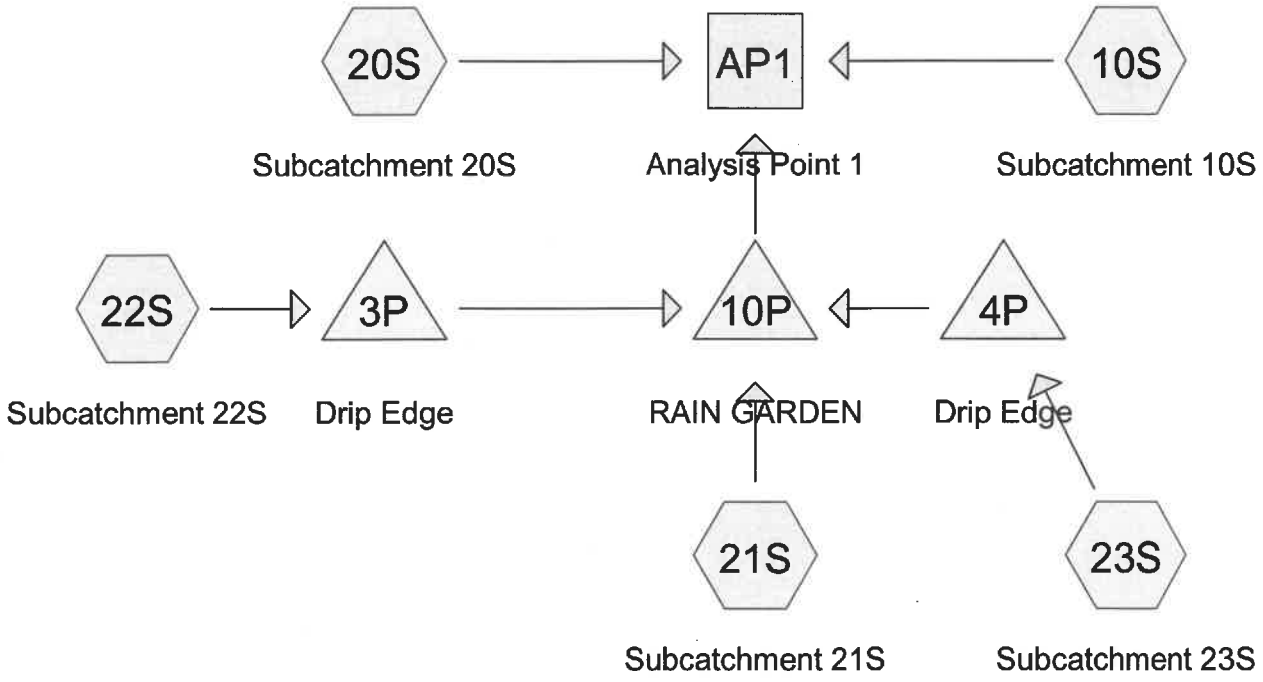
Inflow Area = 1.931 ac, 9.88% Impervious, Inflow Depth > 4.38" for 50 Yr 24 Hr(+15%) event
Inflow = 7.55 cfs @ 12.17 hrs, Volume= 0.706 af
Outflow = 7.55 cfs @ 12.17 hrs, Volume= 0.706 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

APPENDIX II

PROPOSED CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Summary 25 YEAR
Complete 50 YEAR



Subcat Reach Pond Link

Routing Diagram for 20686-PROPOSED_3-22-2022_work
Prepared by Jones and Beach Engineers, Inc., Printed 3/22/2022
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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 Yr 24 Hr (+15%)	Type III 24-hr		Default	24.00	1	3.69	2
2	10 Yr 24 Hr(+15%)	Type III 24-hr		Default	24.00	1	5.60	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.745	61	>75% Grass cover, Good, HSG B (10S, 20S, 21S)
0.197	96	Gravel surface, HSG B (10S)
0.198	98	Paved parking, HSG B (20S, 21S)
0.274	98	Roofs, HSG B (10S, 22S, 23S)
0.035	98	Water Surface, HSG B (22S, 23S)
0.481	55	Woods, Good, HSG B (10S, 20S, 21S)
1.931	**73**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.931	HSG B	10S, 20S, 21S, 22S, 23S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
1.931		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
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 10S: Subcatchment 10S Runoff Area=44,468 sf 10.41% Impervious Runoff Depth>1.07"
Flow Length=305' Tc=15.5 min CN=69 Runoff=0.87 cfs 0.091 af

Subcatchment 20S: Subcatchment 20S Runoff Area=14,138 sf 24.01% Impervious Runoff Depth>1.01"
Flow Length=330' Tc=15.6 min CN=68 Runoff=0.26 cfs 0.027 af

Subcatchment 21S: Subcatchment 21S Runoff Area=16,665 sf 31.51% Impervious Runoff Depth>1.25"
Flow Length=196' Tc=6.0 min CN=72 Runoff=0.53 cfs 0.040 af

Subcatchment 22S: Subcatchment 22S Runoff Area=4,415 sf 100.00% Impervious Runoff Depth>3.45"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.029 af

Subcatchment 23S: Subcatchment 23S Runoff Area=4,434 sf 100.00% Impervious Runoff Depth>3.45"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.029 af

Reach AP1: Analysis Point 1 Inflow=1.35 cfs 0.184 af
Outflow=1.35 cfs 0.184 af

Pond 3P: Drip Edge Peak Elev=26.00' Storage=1,216 cf Inflow=0.36 cfs 0.029 af
Outflow=0.00 cfs 0.001 af

Pond 4P: Drip Edge Peak Elev=22.00' Storage=1,247 cf Inflow=0.36 cfs 0.029 af
Outflow=0.00 cfs 0.001 af

Pond 10P: RAIN GARDEN Peak Elev=14.50' Storage=1,200 cf Inflow=0.53 cfs 0.042 af
Outflow=0.44 cfs 0.066 af

Total Runoff Area = 1.931 ac Runoff Volume = 0.216 af Average Runoff Depth = 1.34"
73.70% Pervious = 1.423 ac 26.30% Impervious = 0.508 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
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 10S: Subcatchment 10S Runoff Area=44,468 sf 10.41% Impervious Runoff Depth>2.40"
Flow Length=305' Tc=15.5 min CN=69 Runoff=2.11 cfs 0.204 af

Subcatchment 20S: Subcatchment 20S Runoff Area=14,138 sf 24.01% Impervious Runoff Depth>2.31"
Flow Length=330' Tc=15.6 min CN=68 Runoff=0.64 cfs 0.062 af

Subcatchment 21S: Subcatchment 21S Runoff Area=16,665 sf 31.51% Impervious Runoff Depth>2.67"
Flow Length=196' Tc=6.0 min CN=72 Runoff=1.17 cfs 0.085 af

Subcatchment 22S: Subcatchment 22S Runoff Area=4,415 sf 100.00% Impervious Runoff Depth>5.36"
Tc=6.0 min CN=98 Runoff=0.54 cfs 0.045 af

Subcatchment 23S: Subcatchment 23S Runoff Area=4,434 sf 100.00% Impervious Runoff Depth>5.36"
Tc=6.0 min CN=98 Runoff=0.55 cfs 0.045 af

Reach AP1: Analysis Point 1 Inflow=3.13 cfs 0.409 af
Outflow=3.13 cfs 0.409 af

Pond 3P: Drip Edge Peak Elev=26.01' Storage=1,226 cf Inflow=0.54 cfs 0.045 af
Outflow=0.23 cfs 0.017 af

Pond 4P: Drip Edge Peak Elev=22.01' Storage=1,257 cf Inflow=0.55 cfs 0.045 af
Outflow=0.24 cfs 0.017 af

Pond 10P: RAIN GARDEN Peak Elev=14.53' Storage=1,217 cf Inflow=1.17 cfs 0.119 af
Outflow=0.44 cfs 0.143 af

Total Runoff Area = 1.931 ac Runoff Volume = 0.442 af Average Runoff Depth = 2.75"
73.70% Pervious = 1.423 ac 26.30% Impervious = 0.508 ac

Summary for Subcatchment 10S: Subcatchment 10S

Runoff = 2.11 cfs @ 12.22 hrs, Volume= 0.204 af, Depth> 2.40"

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 24 Hr(+15%) Rainfall=5.60"

Area (sf)	CN	Description
4,628	98	Roofs, HSG B
8,595	96	Gravel surface, HSG B
15,374	61	>75% Grass cover, Good, HSG B
15,871	55	Woods, Good, HSG B
44,468	69	Weighted Average
39,840		89.59% Pervious Area
4,628		10.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
1.4	60	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	120	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.9	55	0.0010	0.47		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	20	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
15.5	305	Total			

Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 0.64 cfs @ 12.22 hrs, Volume= 0.062 af, Depth> 2.31"

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 24 Hr(+15%) Rainfall=5.60"

Area (sf)	CN	Description
3,395	98	Paved parking, HSG B
7,455	61	>75% Grass cover, Good, HSG B
3,288	55	Woods, Good, HSG B
14,138	68	Weighted Average
10,743		75.99% Pervious Area
3,395		24.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	20	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
4.6	30	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
1.6	173	0.0630	1.76		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	28	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	79	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.6	330	Total			

Summary for Subcatchment 21S: Subcatchment 21S

Runoff = 1.17 cfs @ 12.09 hrs, Volume= 0.085 af, Depth> 2.67"

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 24 Hr(+15%) Rainfall=5.60"

Area (sf)	CN	Description
5,251	98	Paved parking, HSG B
9,631	61	>75% Grass cover, Good, HSG B
1,783	55	Woods, Good, HSG B
16,665	72	Weighted Average
11,414		68.49% Pervious Area
5,251		31.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	26	0.0850	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
0.1	25	0.2200	3.28		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	145	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.3	196	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 22S: Subcatchment 22S

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 5.36"

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 24 Hr(+15%) Rainfall=5.60"

Area (sf)	CN	Description
3,660	98	Roofs, HSG B
755	98	Water Surface, HSG B
4,415	98	Weighted Average
4,415		100.00% Impervious Area

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

Summary for Subcatchment 23S: Subcatchment 23S

Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 5.36"

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 24 Hr(+15%) Rainfall=5.60"

Area (sf)	CN	Description
3,660	98	Roofs, HSG B
774	98	Water Surface, HSG B
4,434	98	Weighted Average
4,434		100.00% Impervious Area

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

Summary for Reach AP1: Analysis Point 1

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

Inflow Area = 1.931 ac, 26.30% Impervious, Inflow Depth > 2.54" for 10 Yr 24 Hr(+15%) event
Inflow = 3.13 cfs @ 12.22 hrs, Volume= 0.409 af
Outflow = 3.13 cfs @ 12.22 hrs, Volume= 0.409 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 3P: Drip Edge

Inflow Area = 0.101 ac,100.00% Impervious, Inflow Depth > 5.36" for 10 Yr 24 Hr(+15%) event
Inflow = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af
Outflow = 0.23 cfs @ 12.36 hrs, Volume= 0.017 af, Atten= 58%, Lag= 16.7 min
Primary = 0.23 cfs @ 12.36 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 26.01' @ 12.35 hrs Surf.Area= 755 sf Storage= 1,226 cf

Plug-Flow detention time= 337.0 min calculated for 0.017 af (38% of inflow)
Center-of-Mass det. time= 175.3 min (921.1 - 745.8)

Volume	Invert	Avail.Storage	Storage Description
#1	21.99'	1,593 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.99	755	0.0	0	0
22.00	755	40.0	3	3
25.99	755	40.0	1,205	1,208
26.00	755	100.0	8	1,216
26.50	755	100.0	378	1,593

Device	Routing	Invert	Outlet Devices
#1	Primary	26.00'	**50.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.20 cfs @ 12.36 hrs HW=26.01' TW=14.28' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.20 cfs @ 0.31 fps)

Summary for Pond 4P: Drip Edge

Inflow Area = 0.102 ac,100.00% Impervious, Inflow Depth > 5.36" for 10 Yr 24 Hr(+15%) event
Inflow = 0.55 cfs @ 12.09 hrs, Volume= 0.045 af
Outflow = 0.24 cfs @ 12.41 hrs, Volume= 0.017 af, Atten= 56%, Lag= 19.2 min
Primary = 0.24 cfs @ 12.41 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 22.01' @ 12.40 hrs Surf.Area= 774 sf Storage= 1,257 cf

Plug-Flow detention time= 348.8 min calculated for 0.017 af (37% of inflow)
Center-of-Mass det. time= 181.6 min (927.4 - 745.8)

Volume	Invert	Avail.Storage	Storage Description
#1	17.99'	1,633 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.99	774	0.0	0	0
18.00	774	40.0	3	3
21.99	774	40.0	1,235	1,238
22.00	774	100.0	8	1,246
22.50	774	100.0	387	1,633

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	**50.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.22 cfs @ 12.41 hrs HW=22.01' TW=14.38' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.22 cfs @ 0.33 fps)

Summary for Pond 10P: RAIN GARDEN

Inflow Area = 0.586 ac, 55.26% Impervious, Inflow Depth > 2.44" for 10 Yr 24 Hr(+15%) event
Inflow = 1.17 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 0.44 cfs @ 12.55 hrs, Volume= 0.143 af, Atten= 62%, Lag= 27.2 min
Primary = 0.44 cfs @ 12.55 hrs, Volume= 0.143 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Starting Elev= 14.50' Surf.Area= 1,327 sf Storage= 1,200 cf
Peak Elev= 14.53' @ 12.55 hrs Surf.Area= 1,327 sf Storage= 1,217 cf (18 cf above start)

Plug-Flow detention time= 45.7 min calculated for 0.115 af (97% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	12.24'	4,595 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
12.24	1,327	212.9	0.0	0	0	1,327
12.25	1,327	212.9	40.0	5	5	1,329
15.24	1,327	212.9	40.0	1,587	1,592	1,966
15.25	1,327	212.9	5.0	1	1,593	1,968
15.49	1,327	212.9	5.0	16	1,609	2,019
15.50	1,327	212.9	15.0	2	1,611	2,021
16.99	1,327	212.9	15.0	297	1,908	2,338
17.00	88	55.7	100.0	6	1,913	5,698
18.00	716	193.8	100.0	352	2,265	8,443
19.00	1,325	212.9	100.0	1,005	3,270	9,094
20.00	1,325	0.0	100.0	1,325	4,595	12,702

Device	Routing	Invert	Outlet Devices
#1	Primary	19.00'	**95.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#2	Primary	12.50'	**12.0" Round Culvert** L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 12.50' / 12.00' S= 0.0200 '/' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.79 sf
#3	Device 2	12.50'	**3.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	18.75'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.44 cfs @ 12.55 hrs HW=14.53' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└—**2=Culvert** (Passes 0.44 cfs of 3.70 cfs potential flow)
  ↑—**3=Orifice/Grate** (Orifice Controls 0.44 cfs @ 6.61 fps)
  └—**4=Orifice/Grate** (Controls 0.00 cfs)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
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 10S: Subcatchment 10S Runoff Area=44,468 sf 10.41% Impervious Runoff Depth>3.59"
Flow Length=305' Tc=15.5 min CN=69 Runoff=3.20 cfs 0.305 af

Subcatchment 20S: Subcatchment 20S Runoff Area=14,138 sf 24.01% Impervious Runoff Depth>3.48"
Flow Length=330' Tc=15.6 min CN=68 Runoff=0.98 cfs 0.094 af

Subcatchment 21S: Subcatchment 21S Runoff Area=16,665 sf 31.51% Impervious Runoff Depth>3.91"
Flow Length=196' Tc=6.0 min CN=72 Runoff=1.72 cfs 0.125 af

Subcatchment 22S: Subcatchment 22S Runoff Area=4,415 sf 100.00% Impervious Runoff Depth>6.86"
Tc=6.0 min CN=98 Runoff=0.69 cfs 0.058 af

Subcatchment 23S: Subcatchment 23S Runoff Area=4,434 sf 100.00% Impervious Runoff Depth>6.86"
Tc=6.0 min CN=98 Runoff=0.69 cfs 0.058 af

Reach AP1: Analysis Point 1 Inflow=4.81 cfs 0.607 af
Outflow=4.81 cfs 0.607 af

Pond 3P: Drip Edge Peak Elev=26.03' Storage=1,241 cf Inflow=0.69 cfs 0.058 af
Outflow=0.85 cfs 0.030 af

Pond 4P: Drip Edge Peak Elev=22.04' Storage=1,273 cf Inflow=0.69 cfs 0.058 af
Outflow=0.93 cfs 0.030 af

Pond 10P: RAIN GARDEN Peak Elev=18.04' Storage=2,296 cf Inflow=3.18 cfs 0.184 af
Outflow=0.75 cfs 0.208 af

Total Runoff Area = 1.931 ac Runoff Volume = 0.640 af Average Runoff Depth = 3.98"
73.70% Pervious = 1.423 ac 26.30% Impervious = 0.508 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
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 10S: Subcatchment 10S Runoff Area=44,468 sf 10.41% Impervious Runoff Depth>4.76"
Flow Length=305' Tc=15.5 min CN=69 Runoff=4.26 cfs 0.405 af

Subcatchment 20S: Subcatchment 20S Runoff Area=14,138 sf 24.01% Impervious Runoff Depth>4.64"
Flow Length=330' Tc=15.6 min CN=68 Runoff=1.32 cfs 0.126 af

Subcatchment 21S: Subcatchment 21S Runoff Area=16,665 sf 31.51% Impervious Runoff Depth>5.13"
Flow Length=196' Tc=6.0 min CN=72 Runoff=2.25 cfs 0.164 af

Subcatchment 22S: Subcatchment 22S Runoff Area=4,415 sf 100.00% Impervious Runoff Depth>8.25"
Tc=6.0 min CN=98 Runoff=0.83 cfs 0.070 af

Subcatchment 23S: Subcatchment 23S Runoff Area=4,434 sf 100.00% Impervious Runoff Depth>8.25"
Tc=6.0 min CN=98 Runoff=0.83 cfs 0.070 af

Reach AP1: Analysis Point 1 Inflow=6.78 cfs 0.801 af
Outflow=6.78 cfs 0.801 af

Pond 3P: Drip Edge Peak Elev=26.04' Storage=1,242 cf Inflow=0.83 cfs 0.070 af
Outflow=0.95 cfs 0.042 af

Pond 4P: Drip Edge Peak Elev=22.04' Storage=1,275 cf Inflow=0.83 cfs 0.070 af
Outflow=1.04 cfs 0.041 af

Pond 10P: RAIN GARDEN Peak Elev=18.84' Storage=3,066 cf Inflow=4.14 cfs 0.247 af
Outflow=1.88 cfs 0.270 af

Total Runoff Area = 1.931 ac Runoff Volume = 0.834 af Average Runoff Depth = 5.18"
73.70% Pervious = 1.423 ac 26.30% Impervious = 0.508 ac

Summary for Subcatchment 10S: Subcatchment 10S

Runoff = 4.26 cfs @ 12.22 hrs, Volume= 0.405 af, Depth> 4.76"

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 50 Yr 24 Hr(+15%) Rainfall=8.50"

Area (sf)	CN	Description
4,628	98	Roofs, HSG B
8,595	96	Gravel surface, HSG B
15,374	61	>75% Grass cover, Good, HSG B
15,871	55	Woods, Good, HSG B
44,468	69	Weighted Average
39,840		89.59% Pervious Area
4,628		10.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
1.4	60	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	120	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.9	55	0.0010	0.47		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	20	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
15.5	305	Total			

Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 1.32 cfs @ 12.22 hrs, Volume= 0.126 af, Depth> 4.64"

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 50 Yr 24 Hr(+15%) Rainfall=8.50"

Area (sf)	CN	Description
3,395	98	Paved parking, HSG B
7,455	61	>75% Grass cover, Good, HSG B
3,288	55	Woods, Good, HSG B
14,138	68	Weighted Average
10,743		75.99% Pervious Area
3,395		24.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	20	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
4.6	30	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
1.6	173	0.0630	1.76		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	28	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	79	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.6	330	Total			

Summary for Subcatchment 21S: Subcatchment 21S

Runoff = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af, Depth> 5.13"

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 50 Yr 24 Hr(+15%) Rainfall=8.50"

Area (sf)	CN	Description
5,251	98	Paved parking, HSG B
9,631	61	>75% Grass cover, Good, HSG B
1,783	55	Woods, Good, HSG B
16,665	72	Weighted Average
11,414		68.49% Pervious Area
5,251		31.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	26	0.0850	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
0.1	25	0.2200	3.28		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	145	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.3	196	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 22S: Subcatchment 22S

Runoff = 0.83 cfs @ 12.09 hrs, Volume= 0.070 af, Depth> 8.25"

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 50 Yr 24 Hr(+15%) Rainfall=8.50"

Area (sf)	CN	Description
3,660	98	Roofs, HSG B
755	98	Water Surface, HSG B
4,415	98	Weighted Average
4,415		100.00% Impervious Area

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

Summary for Subcatchment 23S: Subcatchment 23S

Runoff = 0.83 cfs @ 12.09 hrs, Volume= 0.070 af, Depth> 8.25"

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 50 Yr 24 Hr(+15%) Rainfall=8.50"

Area (sf)	CN	Description
3,660	98	Roofs, HSG B
774	98	Water Surface, HSG B
4,434	98	Weighted Average
4,434		100.00% Impervious Area

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

Summary for Reach AP1: Analysis Point 1

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

Inflow Area = 1.931 ac, 26.30% Impervious, Inflow Depth > 4.98" for 50 Yr 24 Hr(+15%) event
Inflow = 6.78 cfs @ 12.29 hrs, Volume= 0.801 af
Outflow = 6.78 cfs @ 12.29 hrs, Volume= 0.801 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 3P: Drip Edge

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.101 ac,100.00% Impervious, Inflow Depth > 8.25" for 50 Yr 24 Hr(+15%) event
Inflow = 0.83 cfs @ 12.09 hrs, Volume= 0.070 af
Outflow = 0.95 cfs @ 12.06 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min
Primary = 0.95 cfs @ 12.06 hrs, Volume= 0.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 26.04' @ 12.05 hrs Surf.Area= 755 sf Storage= 1,242 cf

Plug-Flow detention time= 221.4 min calculated for 0.042 af (60% of inflow)

Center-of-Mass det. time= 109.7 min (849.7 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	21.99'	1,593 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.99	755	0.0	0	0
22.00	755	40.0	3	3
25.99	755	40.0	1,205	1,208
26.00	755	100.0	8	1,216
26.50	755	100.0	378	1,593

Device	Routing	Invert	Outlet Devices
#1	Primary	26.00'	**50.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.86 cfs @ 12.06 hrs HW=26.03' TW=15.36' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.86 cfs @ 0.51 fps)

Summary for Pond 4P: Drip Edge

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.102 ac,100.00% Impervious, Inflow Depth > 8.25" for 50 Yr 24 Hr(+15%) event
Inflow = 0.83 cfs @ 12.09 hrs, Volume= 0.070 af
Outflow = 1.04 cfs @ 12.06 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.06 hrs, Volume= 0.041 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 22.04' @ 12.05 hrs Surf.Area= 774 sf Storage= 1,275 cf

Plug-Flow detention time= 225.8 min calculated for 0.041 af (59% of inflow)
Center-of-Mass det. time= 111.5 min (851.6 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	17.99'	1,633 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.99	774	0.0	0	0
18.00	774	40.0	3	3
21.99	774	40.0	1,235	1,238
22.00	774	100.0	8	1,246
22.50	774	100.0	387	1,633

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	**50.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.91 cfs @ 12.06 hrs HW=22.03' TW=15.30' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.91 cfs @ 0.52 fps)

Summary for Pond 10P: RAIN GARDEN

Inflow Area = 0.586 ac, 55.26% Impervious, Inflow Depth > 5.06" for 50 Yr 24 Hr(+15%) event
Inflow = 4.14 cfs @ 12.07 hrs, Volume= 0.247 af
Outflow = 1.88 cfs @ 12.31 hrs, Volume= 0.270 af, Atten= 55%, Lag= 14.6 min
Primary = 1.88 cfs @ 12.31 hrs, Volume= 0.270 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Starting Elev= 14.50' Surf.Area= 1,327 sf Storage= 1,200 cf
Peak Elev= 18.84' @ 12.31 hrs Surf.Area= 1,215 sf Storage= 3,066 cf (1,866 cf above start)

Plug-Flow detention time= 45.8 min calculated for 0.243 af (98% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	12.24'	4,595 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
12.24	1,327	212.9	0.0	0	0	1,327
12.25	1,327	212.9	40.0	5	5	1,329
15.24	1,327	212.9	40.0	1,587	1,592	1,966
15.25	1,327	212.9	5.0	1	1,593	1,968
15.49	1,327	212.9	5.0	16	1,609	2,019
15.50	1,327	212.9	15.0	2	1,611	2,021
16.99	1,327	212.9	15.0	297	1,908	2,338
17.00	88	55.7	100.0	6	1,913	5,698
18.00	716	193.8	100.0	352	2,265	8,443
19.00	1,325	212.9	100.0	1,005	3,270	9,094
20.00	1,325	0.0	100.0	1,325	4,595	12,702

Device	Routing	Invert	Outlet Devices
#1	Primary	19.00'	**95.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#2	Primary	12.50'	**12.0" Round Culvert** L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 12.50' / 12.00' S= 0.0200 '/' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.79 sf
#3	Device 2	12.50'	**3.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	18.75'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.76 cfs @ 12.31 hrs HW=18.83' TW=0.00' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Culvert** (Passes 1.76 cfs of 7.21 cfs potential flow)
  - **3=Orifice/Grate** (Orifice Controls 0.80 cfs @ 11.98 fps)
  - **4=Orifice/Grate** (Weir Controls 0.96 cfs @ 0.94 fps)

APPENDIX III

Test Pit Logs

CSA
ENVIRONMENTAL CONSULTANTS, LLC
CLEAN WATER FOR THE PRESENT AND FUTURE
36 Stage Rd, Nottingham NH 03290
603.679.1866 C: 603.706.2521
calbert.env@gmail.com

TEST PITS
668 MIDDLE ROAD
PORTSMOUTH, NEW HAMPSHIRE
JANUARY 14, 2021

Performed by: Christopher Albert, SSD #1085

TEST PIT #1 – GRASS MAT

0" - 9"	10YR 3/4	dark yellowish brown fine sandy loam common roots
9" - 20"	10YR 5/6	yellowish brown fine sandy loam common roots
20" - 38"	2.5Y 6/4	Light yellowish brown fine sandy loam Few stones



No H2O observed
SHWT: 28"
Roots: 28"
Refusal: 38"
Perc Rate = 8 min/inch

TEST PIT #2 – GRASS MAT

0" - 7"	10YR 3/4	dark yellowish brown fine sandy loam to loamy sand many roots
7" - 20"	10YR 5/6	yellowish brown fine sandy loam few roots
20" - 46"	2.5Y 5/3	Light yellowish brown fine sandy loam, few stones

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No H2O observed
SHWT: 32"
Roots: 32"
Refusal: 46"
Perc Rate = 8 min/inch

TEST PIT #3 – GRASS MAT

Refusal: 12"

TEST PIT #4 – GRASS MAT

0" - 9"	10YR 3/4	dark yellowish brown fine sandy loam to loamy sand many roots
9" - 28"	10YR 5/6	yellowish brown fine sandy loam few roots
28" - 48"	2.5Y 5/3	Light yellowish brown fine sandy loam, few stones

No H2O observed
SHWT: 28"
Roots: 28"
Refusal: 48"
Perc Rate = 8 min/inch

TEST PIT #5 – GRASS MAT

Refusal: 18"

NEW HAMPSHIRE
Designer
of
Subsurface Disposal
Systems
Christopher S Albert
No. 1085
Department of Environmental Services

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TEST PIT #6 – FOREST MAT

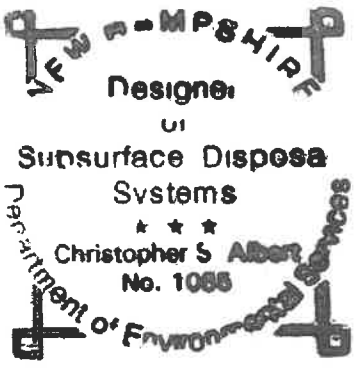
0" – 12"	10YR 3/3	dark brown fine sandy loam few roots
12" - 36"	10YR 4/6	yellowish brown fine sandy loam common roots
36" - 50"	2.5Y 6/4	Light yellowish brown fine sandy loam Few stones

No H2O observed
SHWT: 40"
Roots: 36"
Refusal: 50"
Perc Rate = 8 min/inch

Test Pit #7 – GRASS MAT

0" – 12"	10YR 3/3	dark brown fine sandy loam few roots
12" - 36"	10YR 4/6	yellowish brown fine sandy loam common roots
36" - 72"	2.5Y 5/4	Light Olive brown fine sandy loam Firm, Few stones

No H2O observed
SHWT: 36"
Roots: 36"
Refusal: 72"
Perc Rate = 8 min/inch



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TEST PIT #8 – GRASS MAT

Refusal: 12"

TEST PIT #9 – GRASS MAT

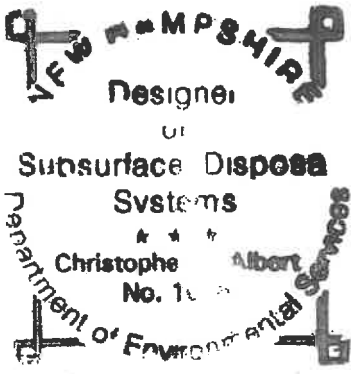
Refusal: 24"

TEST PIT #10 – GRASS MAT

0" - 10"		Crushed Gravel (fill material)
Stabilization Fabric		
10" - 24"	2.5Y 5/3	Light olive brown Silty clay loam Subangular blocky

Encountered 2" electrical conduit

No H2O observed
SHWT: 10"
Roots: none
Refusal: none
Perc Rate = 20 min/inch



TEST PIT #11 – EDGE TREE LINE

0" – 20"	10YR 2/2	Very dark brown, FSL Few roots
20" - 84"	2.5Y 3/4	Light olive brown Silty clay loam Subangular blocky

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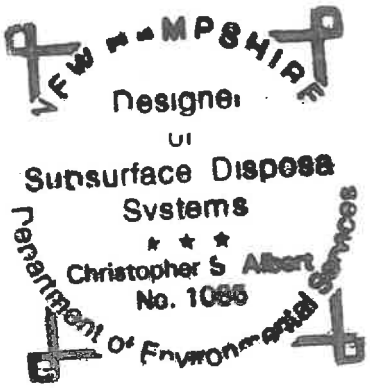
No H2O observed
SHWT: 20"
Roots: 20"
Refusal: none
Perc Rate = 20 min/inch



APPENDIX IV

NRCS Soil Map

Soil Map---Rockingham County, New Hampshire



Map Scale: 1:1,100 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil 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 24, Aug 31, 2021

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

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
799	Urban land-Canton complex, 3 to 15 percent slopes	2.9	100.0%
Totals for Area of Interest		**2.9**	**100.0%**

APPENDIX V

Extreme Precipitation Estimates

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.767 degrees West
Latitude	43.068 degrees North
Elevation	0 feet
Date/Time	Mon, 13 Dec 2021 08:39:25 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66	2.92	**1yr**	2.35	2.81	3.22	3.94	4.55	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.49	3.21	3.57	**2yr**	2.84	3.43	3.94	4.68	5.33	**2yr**
5yr	0.37	0.58	0.73	0.97	1.25	1.61	**5yr**	1.08	1.47	1.89	2.43	3.14	4.07	4.58	**5yr**	3.60	4.40	5.04	5.94	6.70	**5yr**
10yr	0.41	0.65	0.82	1.11	1.45	1.89	**10yr**	1.25	1.72	2.23	2.89	3.75	4.87	5.53	**10yr**	4.31	5.32	6.08	7.11	7.98	**10yr**
25yr	0.48	0.76	0.97	1.33	1.77	2.33	**25yr**	1.53	2.14	2.77	3.63	4.74	6.17	7.10	**25yr**	5.46	6.83	7.80	9.02	10.05	**25yr**
50yr	0.53	0.86	1.10	1.53	2.07	2.75	**50yr**	1.78	2.52	3.28	4.32	5.66	7.39	8.58	**50yr**	6.54	8.25	9.42	10.81	11.98	**50yr**
100yr	0.59	0.96	1.24	1.77	2.41	3.25	**100yr**	2.08	2.97	3.90	5.15	6.77	8.85	10.38	**100yr**	7.84	9.98	11.38	12.96	14.28	**100yr**
200yr	0.67	1.10	1.42	2.04	2.82	3.83	**200yr**	2.43	3.51	4.61	6.12	8.08	10.61	12.55	**200yr**	9.39	12.07	13.75	15.55	17.03	**200yr**
500yr	0.80	1.31	1.71	2.48	3.47	4.75	**500yr**	2.99	4.37	5.75	7.69	10.21	13.49	16.15	**500yr**	11.93	15.53	17.67	19.78	21.50	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.88	1yr	0.63	0.86	0.92	1.33	1.68	2.23	2.50	1yr	1.98	2.40	2.86	3.17	3.89	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.19	2yr	0.86	1.16	1.37	1.82	2.34	3.06	3.45	2yr	2.71	3.32	3.82	4.55	5.08	2yr
5yr	0.35	0.54	0.67	0.92	1.17	1.40	5yr	1.01	1.37	1.61	2.12	2.73	3.79	4.19	5yr	3.35	4.03	4.72	5.54	6.24	5yr
10yr	0.39	0.59	0.73	1.03	1.32	1.60	10yr	1.14	1.56	1.81	2.39	3.06	4.37	4.87	10yr	3.87	4.68	5.45	6.42	7.20	10yr
25yr	0.44	0.67	0.83	1.19	1.56	1.90	25yr	1.35	1.86	2.10	2.76	3.54	4.71	5.90	25yr	4.17	5.68	6.66	7.80	8.69	25yr
50yr	0.48	0.73	0.91	1.31	1.77	2.17	50yr	1.52	2.12	2.35	3.08	3.94	5.32	6.82	50yr	4.71	6.56	7.74	9.06	10.03	50yr
100yr	0.54	0.81	1.01	1.47	2.01	2.47	100yr	1.74	2.41	2.63	3.42	4.36	5.98	7.87	100yr	5.29	7.57	9.00	10.53	11.58	100yr
200yr	0.59	0.89	1.13	1.63	2.28	2.82	200yr	1.97	2.75	2.93	3.79	4.80	6.70	9.09	200yr	5.93	8.74	10.46	12.25	13.39	200yr
500yr	0.69	1.02	1.31	1.91	2.71	3.37	500yr	2.34	3.29	3.41	4.33	5.47	7.79	10.98	500yr	6.89	10.56	12.75	14.99	16.21	500yr

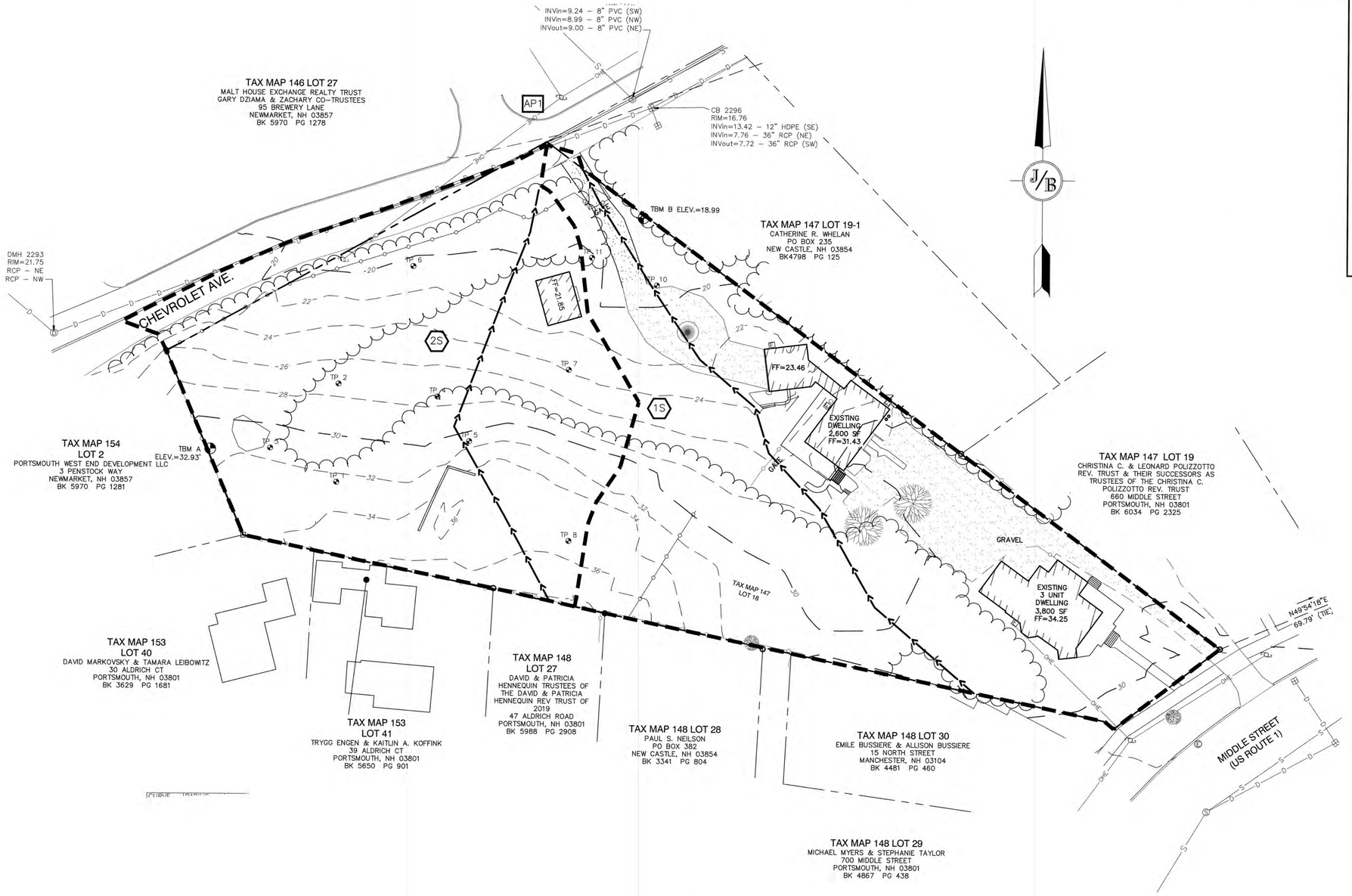
Upper Confidence Limits

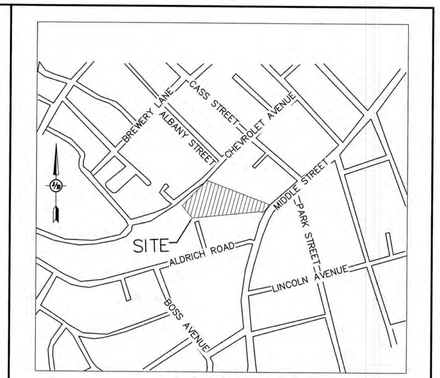
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	1yr	0.77	1.06	1.26	1.74	2.21	2.99	3.16	1yr	2.64	3.04	3.58	4.38	5.05	1yr
2yr	0.34	0.52	0.64	0.86	1.07	1.27	2yr	0.92	1.24	1.48	1.96	2.51	3.43	3.70	2yr	3.03	3.56	4.09	4.84	5.63	2yr
5yr	0.40	0.62	0.76	1.05	1.34	1.62	5yr	1.15	1.58	1.88	2.53	3.25	4.34	4.96	5yr	3.84	4.77	5.38	6.37	7.15	5yr
10yr	0.47	0.72	0.89	1.24	1.61	1.97	10yr	1.39	1.93	2.28	3.10	3.95	5.34	6.19	10yr	4.72	5.96	6.81	7.83	8.74	10yr
25yr	0.57	0.87	1.09	1.55	2.04	2.56	25yr	1.76	2.51	2.95	4.07	5.14	7.79	8.33	25yr	6.90	8.01	9.13	10.33	11.40	25yr
50yr	0.67	1.02	1.27	1.82	2.45	3.12	50yr	2.12	3.05	3.59	4.99	6.30	9.76	10.44	50yr	8.64	10.03	11.41	12.71	13.95	50yr
100yr	0.79	1.19	1.49	2.15	2.95	3.80	100yr	2.55	3.72	4.37	6.15	7.74	12.22	13.07	100yr	10.81	12.57	14.25	15.67	17.07	100yr
200yr	0.92	1.39	1.76	2.54	3.55	4.64	200yr	3.06	4.54	5.33	7.57	9.50	15.33	16.40	200yr	13.57	15.77	17.84	19.31	20.90	200yr
500yr	1.14	1.70	2.19	3.18	4.52	6.02	500yr	3.90	5.88	6.91	10.00	12.50	20.72	22.13	500yr	18.34	21.28	24.00	25.46	27.31	500yr

Powered by ACIS Northeast Regional Climate Center

APPENDIX VI

Pre- and Post-Construction Watershed Plans





LOCUS SCALE: 1"=500'

LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH [X]
- POND
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 147, LOT 18

APPLICANT
TUCK REALTY CORPORATION
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
81,046 SQ. FT.
1.86 ACRES

Design: JAC	Draft: AJB	Date: 11/11/20
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERWAN No. 9648 LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
6	3/10/22	REVISED PER TAC COMMENTS	AJB
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVSION	AJB

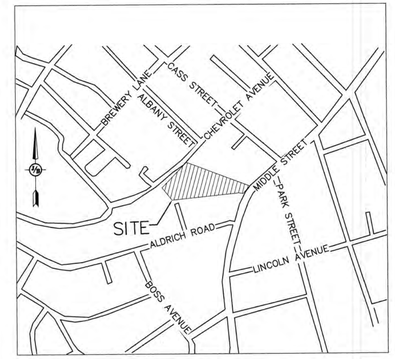
Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EXISTING WATERSHED PLAN
Project: 668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record: PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No. W1
SHEET 1 OF 2
JBE PROJECT NO. 20686

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT





LOCUS SCALE: 1"=500'

LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH [X]
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 147, LOT 18

APPLICANT
TUCK REALTY CORPORATION
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
81,046 SQ. FT.
1.86 ACRES

Design: JAC	Draft: AJB	Date: 11/11/20
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERVAN No. 9646 – LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
6	3/10/22	REVISED PER TAC COMMENTS	AJB
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVSION	AJB

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PROPOSED WATERSHED PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
W2
SHEET 2 OF 2
JBE PROJECT NO. 20686

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Plan Name TBD

Chevrolet Ave, Portsmouth NH (10/8/2021)



Artform Home Plans

Prelim / Work in Progress 603-431-9559

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NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").

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In addition to our Terms and Conditions (the "Terms"), please be aware of the following:

This design may not yet have Construction Drawings (as defined in the Terms), and is, therefore, only available as a Design Drawing (as defined in the Terms and together with Construction Drawings, "Drawings'). It is possible that during the conversion of a Design Drawing to a final Construction Drawing, changes may be necessary including, but not limited to, dimensional changes. Please see Plan Data Explained on www.ArtformHomePlans.com to understand room sizes, dimensions and other data provided. We are not responsible for typographical errors.

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Facade Changes:

• To maintain design integrity, we pay particular attention to features on the front facade, including but not limited to door surrounds, window casings, finished porch column sizes, and roof friezes. While we may allow builders to add their own flare to aesthetic elements, we don't allow our designs to be stripped of critical details. Any such alterations require the express written consent of Artform.

• Increasing ceiling heights usually requires adjustments to window sizes and other exterior elements.

Floor plan layout and/or Structural Changes:

• Structural changes always require the express written consent of Artform

• If you wish to move or remove walls or structural elements (such as removal of posts, increases in house size, ceiling height changes, addition of dormers, etc), please do not assume it can be done without other additional changes (even if the builder or lumber yard says you can).

Plan Name TBD

Chevrolet Ave, Portsmouth NH (10/8/2021)

Artform Home Plans

Prelim / Work in Progress 603-431-9559

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Plan Name TBD

Chevrolet Ave, Portsmouth NH (10/8/2021)

Artform Home Plans
Prelim / Work in Progress 603-431-9559

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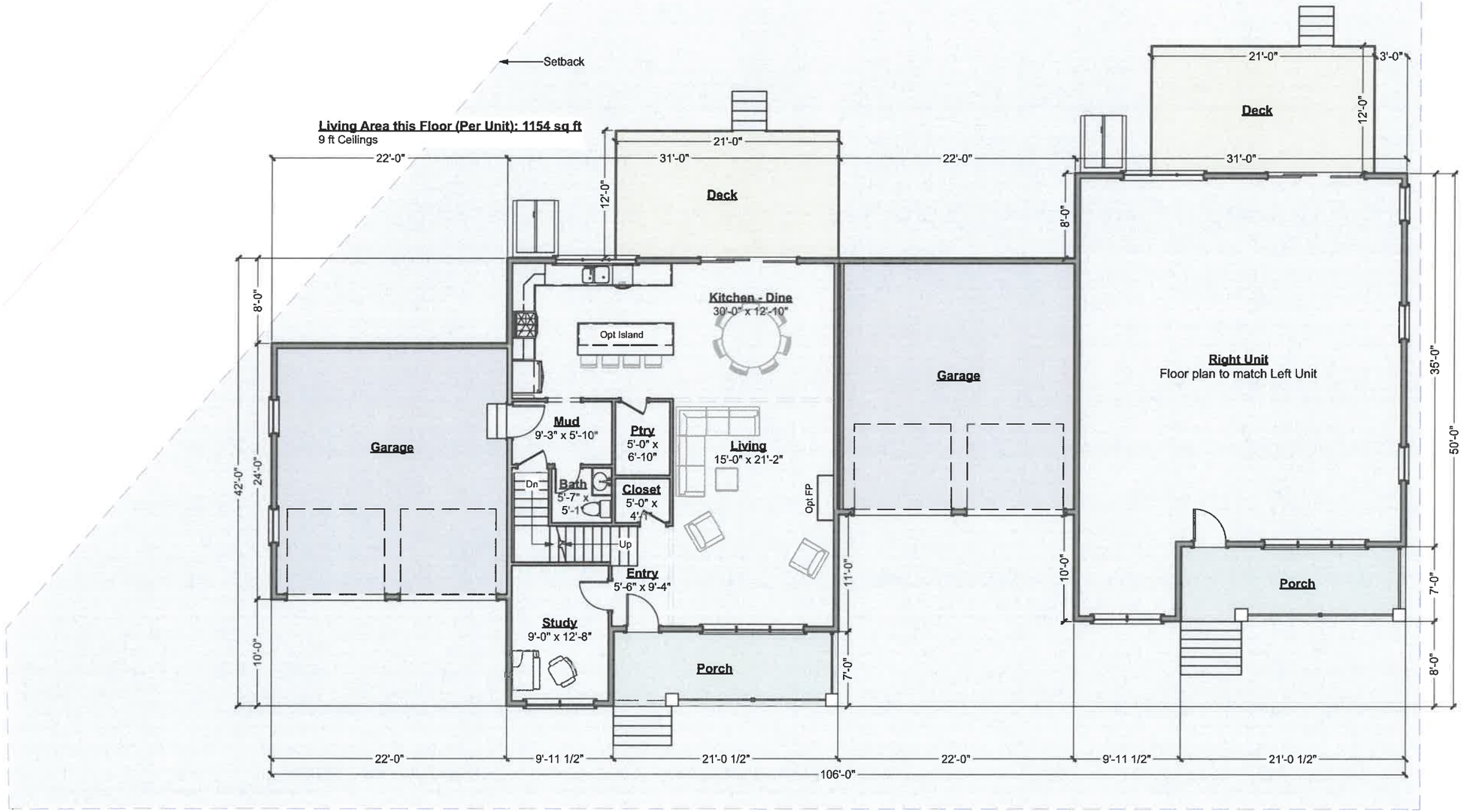

First Floor Plan

Scale: 3/32" = 1'-0"

Plan Name TBD

Chevrolet Ave, Portsmouth NH (10/8/2021)

Artform Home Plans

Prelim / Work in Progress 603-431-9559

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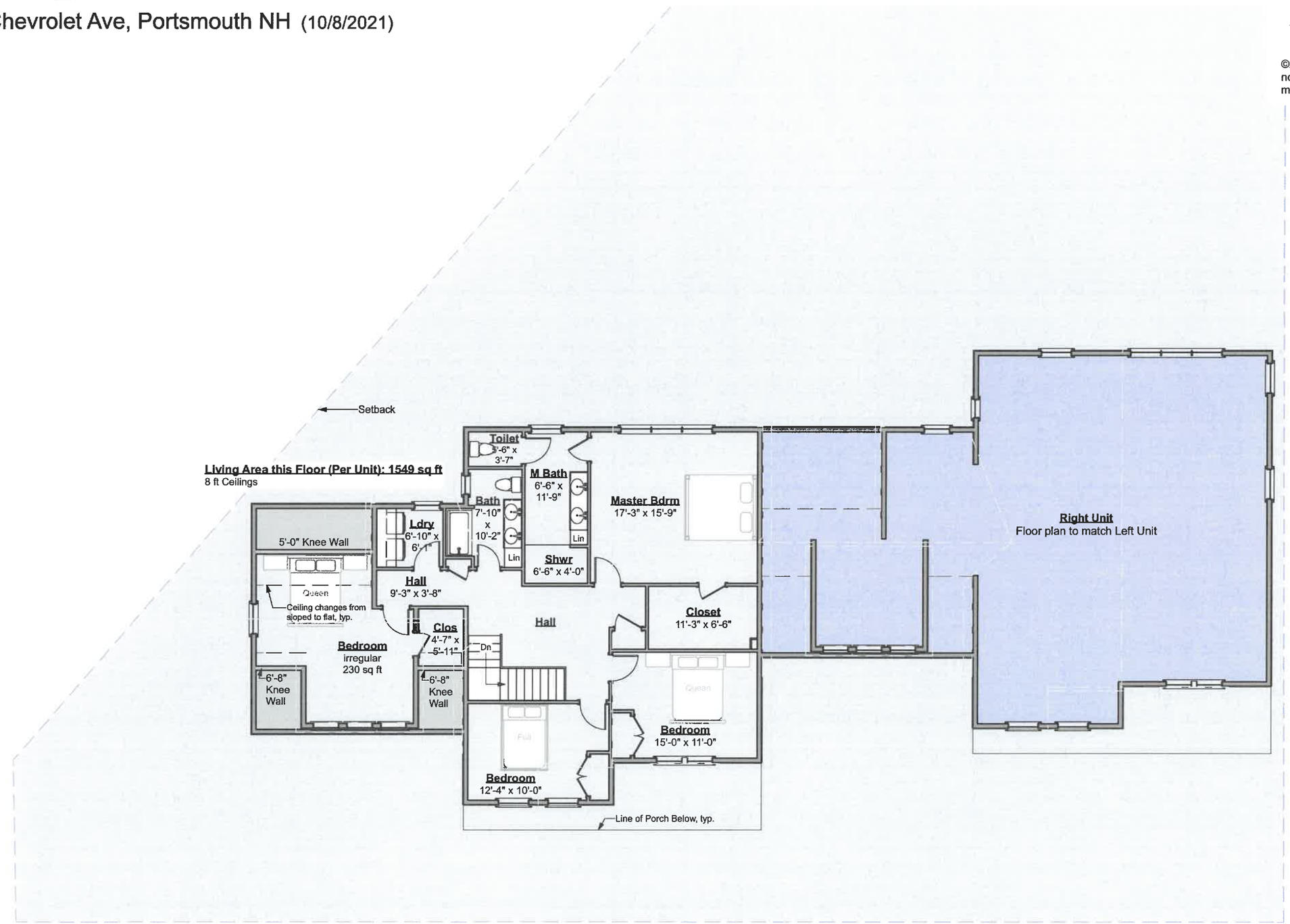

Second Floor Plan

Scale: 3/32" = 1'-0"

Plan Name TBD

Chevrolet Ave, Portsmouth NH (10/8/2021)

Artform Home Plans

Prelim / Work in Progress 603-431-9559

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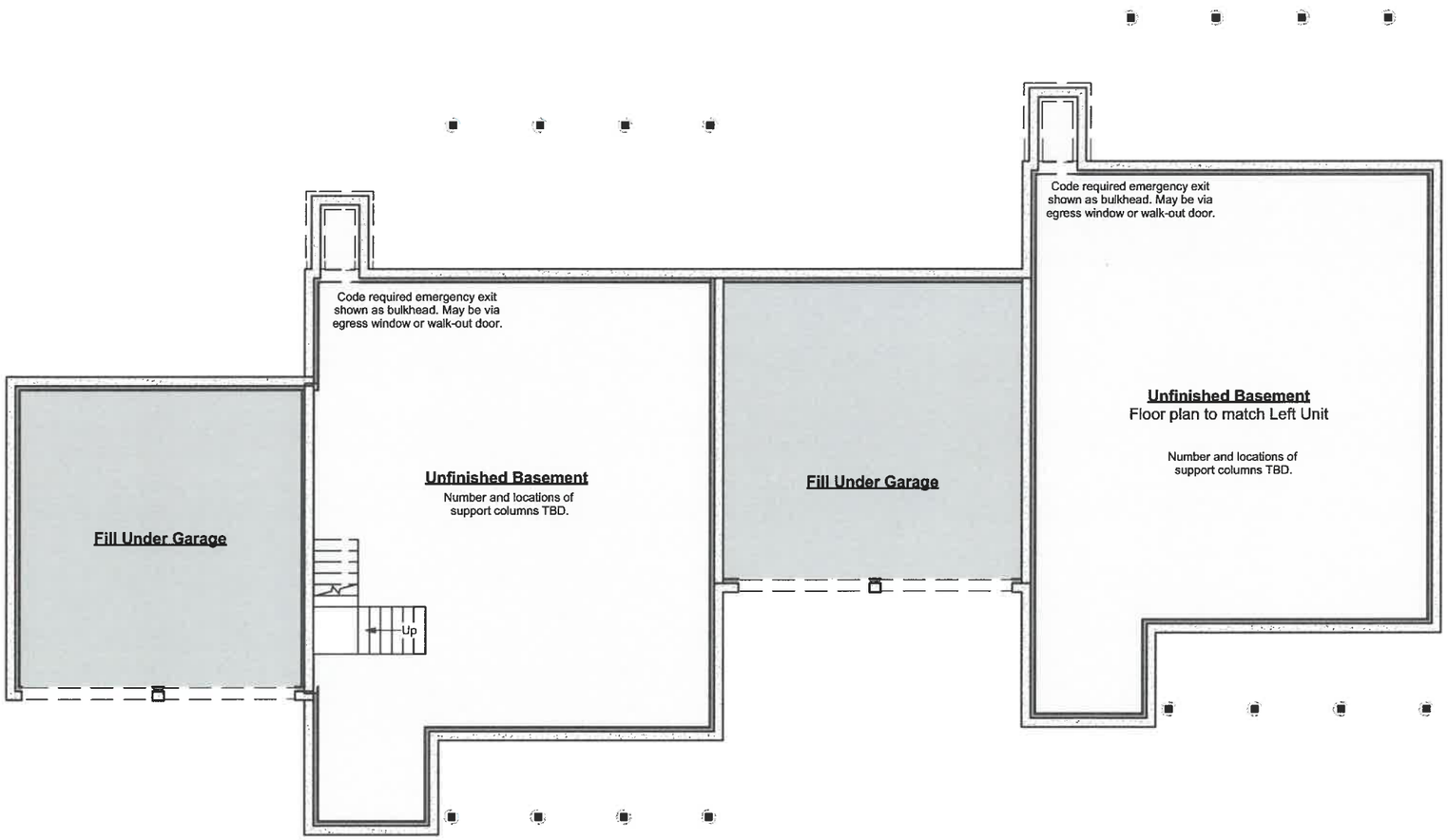
NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").



Foundation Plan

Scale: 3/32" = 1'-0"

Plan Name TBD

Chevrolet Ave, Portsmouth NH (10/8/2021)

Artform Home Plans

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Front Elevation

Scale: 1/8" = 1'-0"

Plan Name TBD

Chevrolet Ave, Portsmouth NH (10/8/2021)

Artform Home Plans
Prelim / Work in Progress 603-431-9559

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Right Elevation

Scale: 1/8" = 1'-0"

Plan Name TBD

Chevrolet Ave, Portsmouth NH (10/8/2021)

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Prelim / Work in Progress 603-431-9559

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Rear Elevation

Scale: 1/8" = 1'-0"

Plan Name TBD

Chevrolet Ave, Portsmouth NH (10/8/2021)

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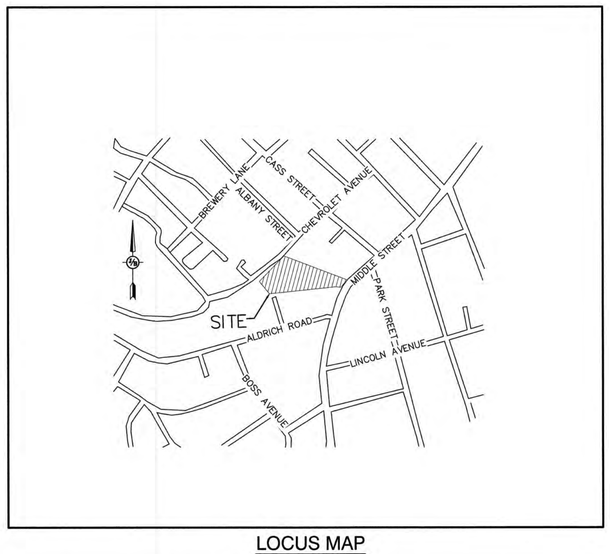
Left Elevation

Scale: 1/8" = 1'-0"

SITE & SUBDIVISION PLAN
"CHEVROLET AVENUE DUPLEXES"
TAX MAP 147 LOT 18
668 MIDDLE STREET, PORTSMOUTH NEW HAMPSHIRE

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		CENTERLINE
		FRESHWATER WETLANDS LINE
		TIDAL WETLANDS LINE
		STREAM CHANNEL
		TREE LINE
		STONEWALL
		BARBED WIRE
		FENCE
		STOCKADE FENCE
		SOIL BOUNDARY
		AQUIFER PROTECTION LINE
		FLOOD PLAIN LINE
		ZONELINE
		EASEMENT
100	100	MAJOR CONTOUR
98	98	MINOR CONTOUR
		EDGE OF PAVEMENT
VGC	VGC	VERTICAL GRANITE CURB
SGC	SGC	SLOPE GRANITE CURB
CCB	CCB	CAPE COD BERM
PCC	PCC	POURED CONCRETE CURB
X	X	SILT FENCE
D		DRAINAGE LINE
S	S	SEWER LINE
FM	FM	SEWER FORCE MAIN
G	G	GAS LINE
W	W	WATER LINE
WS	WS	WATER SERVICE
OHE	OHE	OVERHEAD ELECTRIC
UGE	UGE	UNDERGROUND ELECTRIC
		GUARDRAIL
UD	UD	UNDERDRAIN
F	F	FIRE PROTECTION LINE
	W	THRUST BLOCK
		IRON PIPE/IRON ROD
		DRILL HOLE
		IRON ROD/DRILL HOLE
		STONE/GRANITE BOUND
100x0		SPOT GRADE
100.00		PAVEMENT SPOT GRADE
100.00 / 99.50		CURB SPOT GRADE
		BENCHMARK (TBM)
		DOUBLE POST SIGN
		SINGLE POST SIGN
		TEST PIT
		TREES AND BUSHES
		UTILITY POLE
		LIGHT POLES
		DRAIN MANHOLE
		SEWER MANHOLE
		HYDRANT
		WATER GATE
		WATER SHUT OFF
		REDUCER
		SINGLE GRATE CATCH BASIN
		DOUBLE GRATE CATCH BASIN
		TRANSFORMER
		CULVERT W/STRAIGHT HEADWALL
		STONE CHECK DAM
		DRAINAGE FLOW DIRECTION
		RIPRAP
		STABILIZED CONSTRUCTION ENTRANCE
		CONCRETE
		GRAVEL
		SNOW STORAGE
		RETAINING WALL



LOCUS MAP
SCALE 1" = 500'

SHEET INDEX

CS	COVER SHEET
C1	EXISTING CONDITIONS PLAN
A1	SUBDIVISION PLAN
C2	SITE PLAN
CS1	CONDO SITE PLAN
C3	GRADING AND DRAINAGE PLAN
C4	UTILITY PLAN
P1	SEWER PLAN AND PROFILE
L1	LIGHTING PLAN
L2	LANDSCAPING PLAN
D1-D3	DETAIL SHEETS
E1	EROSION AND SEDIMENT CONTROL DETAILS
	ARCHITECTURAL PLANS

CIVIL ENGINEER / SURVEYOR
JONES & BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
PO BOX 219
STRATHAM, NH 03885
(603) 772-4746
CONTACT: JOSEPH CORONATI
EMAIL: JCORONATI@JONESANDBEACH.COM

LIGHTING CONSULTANT
CHARRON, INC.
P.O BOX 4550
MANCHESTER, NH 03108
(603) 945-3500
CONTACT: KEN SWEENEY
EMAIL: KSWEENEY@CHARRONINC.COM

LANDSCAPE DESIGNER
LM LAND DESIGN, LLC
11 SOUTH ROAD
BRENTWOOD, NH 03833
(603) 770-7728
CONTACT: LISE MCNAUGHTON

SOILS CONSULTANT
GOVE ENVIRONMENTAL SERVICES, INC.
8 CONTINENTAL DRIVE, UNIT H
PO BOX 219
EXETER, NH 03833
(603) 778-0644
CONTACT: JIM GOVE, CWS, CSS
JGOVE@GESINC.BIZ

ARCHITECT
ART FORM ARCHITECURE INC.
44 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862
CONTACT: WENDY WELTON
(603) 431-9559

WATER
CITY OF PORTMOUTH
DEPARTMENT OF PUBLIC WORKS
WATER DIVISION
680 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
CONTACT: RAYMOND PEZZULLO
(603) 427-1530

SEWER
CITY OF PORTMOUTH
DEPARTMENT OF PUBLIC WORKS
SEWER DIVISION
680 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
CONTACT: TERRY DESMARAIS, P.E.
(603) 766-1421

NATURAL GAS
UNITIL SERVICE CORP.
114 DRINKWATER ROAD
KENSINGTON, NH 03833-5602
(603) 777-5512

ELECTRIC
EVERSOURCE
74 OLD DOVER ROAD
ROCHESTER, NH 03867
(800) 555-5334

TELEPHONE
FAIRPOINT COMMUNICATIONS
1575 GREENLAND ROAD
GREENLAND, NH 03840
(603) 427-5525
CONTACT: JOE CONSIDINE

CABLE TV
COMCAST COMMUNICATION
CORPORATION
334-B CALEF HIGHWAY
EPPING, NH 03042-2325
(603) 679-5695

APPROVED – PORTSMOUTH, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 147, LOT 18

APPLICANT
TUCK REALTY CORPORATION
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
81,046 SQ. FT.
1.86 ACRES

Design: JAC	Draft: ERE
Checked: JAC	Scale: AS NOTED
Drawing Name: 20686-PLAN.dwg	Date: 03/22/22
	Project No.: 20686

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERRIGAN No. 9346 – LICENSED PROFESSIONAL LAND SURVEYOR – 3/22/2022

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVSION	AJB

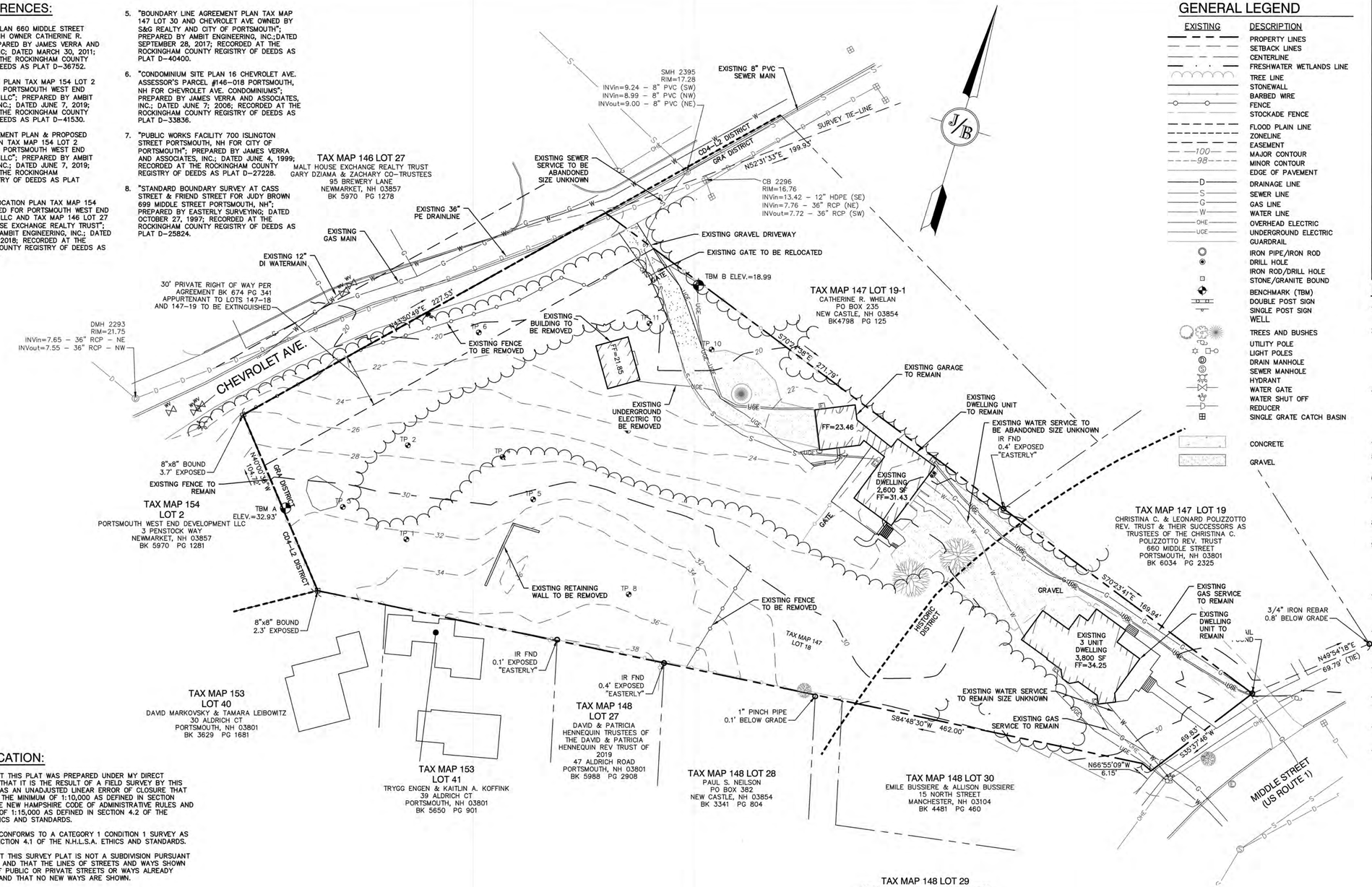
Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	COVER SHEET
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
CS
SHEET 1 OF 14
JBE PROJECT NO. 20686

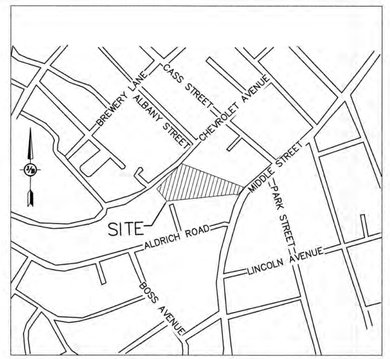
PLAN REFERENCES:

1. "SUBDIVISION PLAN 660 MIDDLE STREET PORTSMOUTH NH OWNER CATHERINE R. WHELAN"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC; DATED MARCH 30, 2011; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-36752.
2. "AMENDED SITE PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41530.
3. "EXISTING EASEMENT PLAN & PROPOSED EASEMENT PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41529.
4. "LOT LINE RELOCATION PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC AND TAX MAP 146 LOT 27 FOR MALT HOUSE EXCHANGE REALTY TRUST"; PREPARED BY AMBIT ENGINEERING, INC.; DATED DECEMBER 21, 2018; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41238.
5. "BOUNDARY LINE AGREEMENT PLAN TAX MAP 147 LOT 30 AND CHEVROLET AVE OWNED BY S&G REALTY AND CITY OF PORTSMOUTH"; PREPARED BY AMBIT ENGINEERING, INC.;DATED SEPTEMBER 28, 2017; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-40400.
6. "CONDOMINIUM SITE PLAN 16 CHEVROLET AVE. ASSESSOR'S PARCEL #146-018 PORTSMOUTH, NH FOR CHEVROLET AVE. CONDOMINIUMS"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 7; 2006; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-33836.
7. "PUBLIC WORKS FACILITY 700 ISLINGTON STREET PORTSMOUTH, NH FOR CITY OF PORTSMOUTH"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 4, 1999; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-27228.
8. "STANDARD BOUNDARY SURVEY AT CASS STREET & FRIEND STREET FOR JUDY BROWN 699 MIDDLE STREET PORTSMOUTH, NH"; PREPARED BY EASTERLY SURVEYING; DATED OCTOBER 27, 1997; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-25824.



GENERAL LEGEND

EXISTING	DESCRIPTION
	PROPERTY LINES
	SETBACK LINES
	CENTERLINE
	FRESHWATER WETLANDS LINE
	TREE LINE
	STONEWALL
	BARBED WIRE
	FENCE
	STOCKADE FENCE
	FLOOD PLAIN LINE
	ZONELINE
	EASEMENT
100	MAJOR CONTOUR
98	MINOR CONTOUR
	EDGE OF PAVEMENT
D	DRAINAGE LINE
S	SEWER LINE
G	GAS LINE
W	WATER LINE
OHE	OVERHEAD ELECTRIC
UGE	UNDERGROUND ELECTRIC
	GUARDRAIL
	IRON PIPE/IRON ROD
	DRILL HOLE
	IRON ROD/DRILL HOLE
	STONE/GRANITE BOUND
	BENCHMARK (TBM)
	DOUBLE POST SIGN
	SINGLE POST SIGN
WELL	
	TREES AND BUSHES
	UTILITY POLE
	LIGHT POLES
D	DRAIN MANHOLE
S	SEWER MANHOLE
	HYDRANT
WG	WATER GATE
WSO	WATER SHUT OFF
R	REDUCER
	SINGLE GRATE CATCH BASIN
	CONCRETE
	GRAVEL



LOCUS SCALE: 1"=500'

NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS OF LOT 18 DEPICTED HEREON TAX MAP 147.
2. 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 IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO ANY EXCAVATION WORK OR CALL DIG-SAFE AT 1-888-DIG-SAFE.
3. THE SUBJECT PARCEL IS LOCATED WITHIN AN AREA HAVING A ZONE X DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0259F, DATED JANUARY 29, 2021, FOR COMMUNITY PANEL NO. 259 OF 681, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
4. BASIS OF BEARING: HORIZONTAL: STATE PLANE NAD83 VERTICAL: NAVD88
5. CERTAIN DATA HEREON MAY VARY FROM RECORDED DATA DUE TO DIFFERENCES IN DECLINATION, ORIENTATION, AND METHODS OF MEASUREMENT.
6. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
7. THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
8. RESEARCH WAS PERFORMED AT THE CITY OF PORTSMOUTH ASSESSOR'S OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
9. 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.
10. 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.
11. NO WETLANDS WERE OBSERVED ON THE SUBJECT PREMISES.
12. THIS PLAN IS THE RESULT OF A CLOSED TRAVERSE WITH A RAW, UNADJUSTED LINEAR ERROR OF CLOSURE GREATER THAN 1 IN 150,000.
13. 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.
14. HOUSE LOCATIONS OF ABUTTING PROPERTIES ARE FROM AERIAL PHOTOGRAPHY AND DIGITIZED ON PLAT. BUILDINGS WERE LOCATED ON SUBJECT PARCEL BY CONVENTIONAL SURVEYING METHODS.
15. RIGHT OF WAY WENT FROM A 50' IN WIDTH (SEE DEED BK. 512 PG. 429) TO 30' RIGHT OF WAY (SEE DEED BK. 674, PG. 341).
16. EXISTING 20' WIDE GAS EASEMENT ON SUBJECT PARCEL SEE DEED BK 4470 PG 2003. LOCATION OF EASEMENT UNDETERMINDED AT THIS TIME. EASEMENT SHALL FOLLOW THE ROUTE OF PIPELINES 10 FEET ON EACH SIDE EXTENDED TO PROPERTY LINE.

CERTIFICATION:

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 EXCEED 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.

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.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR

SIGNATURE 3/22/2022

DAVID M. COLLIER, LLS 892 DATE:

ON BEHALF OF JONES & BEACH ENGINEERS, INC.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 147, LOT 18

APPLICANT
TUCK REALTY CORPORATION
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
81,046 SQ. FT.
1.86 ACRES

Design: JAC	Draft: ERE
Checked: JAC	Scale: AS NOTED
Date: 03/22/22	Project No.: 20686
Drawing Name: 20686-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.

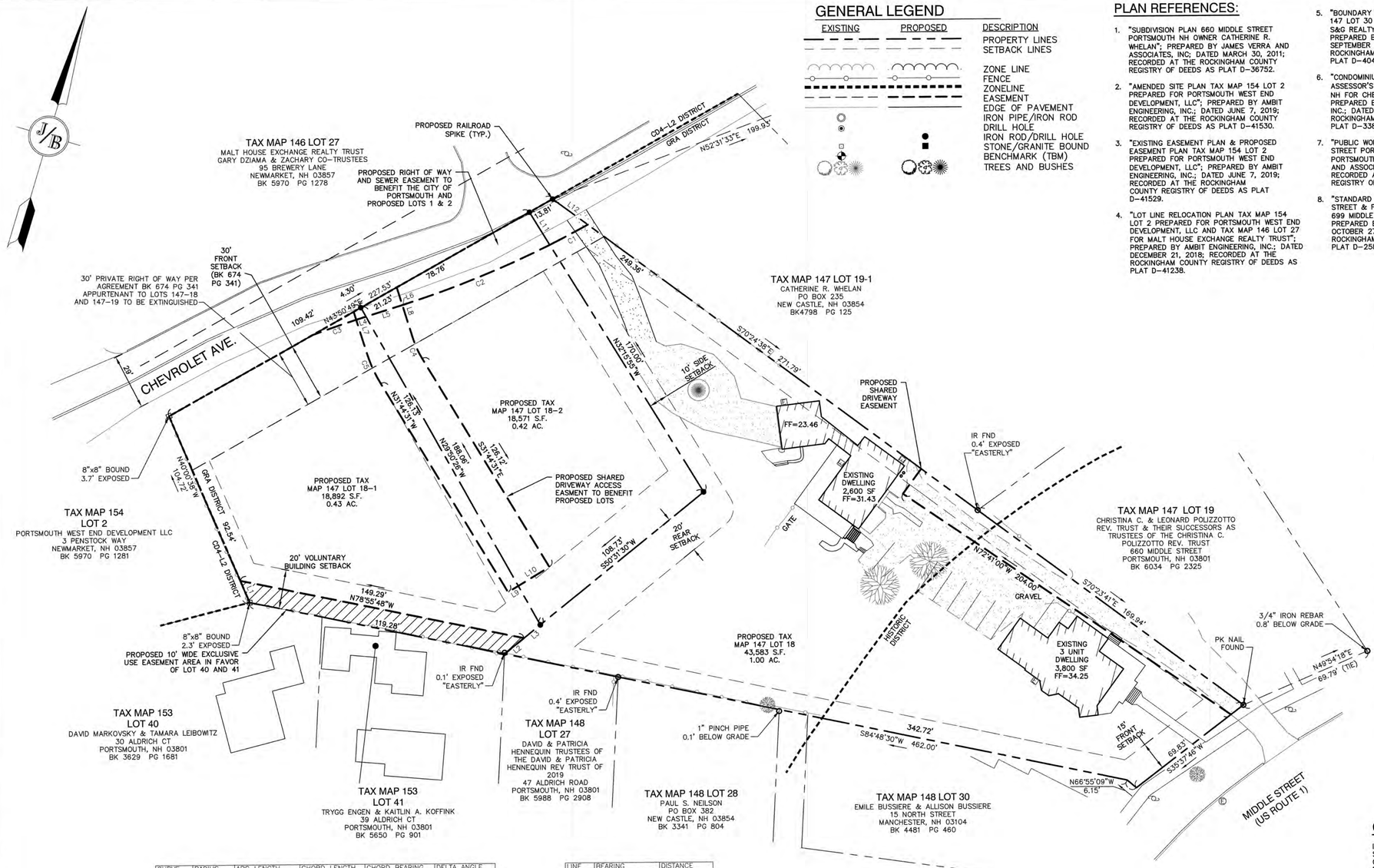
STATE OF NEW HAMPSHIRE MICHAEL J. KERVAN No. 9946 LICENSED PROFESSIONAL ENGINEER 3/22/2022

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVSION	AJB

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
C1
SHEET 2 OF 14
JBE PROJECT NO. 20686

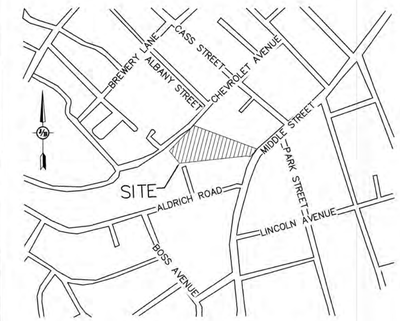


GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		ZONE LINE
		FENCE
		ZONELINE
		EASEMENT
		EDGE OF PAVEMENT
○	●	IRON PIPE/IRON ROD
		DRILL HOLE
⊙	⊙	IRON ROD/DRILL HOLE
		STONE/GRANITE BOUND
⊕	⊕	BENCHMARK (TBM)
		TREES AND BUSHES

PLAN REFERENCES:

1. "SUBDIVISION PLAN 660 MIDDLE STREET PORTSMOUTH NH OWNER CATHERINE R. WHELAN"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC; DATED MARCH 30, 2011; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-36752.
2. "AMENDED SITE PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41530.
3. "EXISTING EASEMENT PLAN & PROPOSED EASEMENT PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC AND TAX MAP 146 LOT 27 FOR MALT HOUSE EXCHANGE REALTY TRUST"; PREPARED BY AMBIT ENGINEERING, INC.; DATED DECEMBER 21, 2018; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41238.
4. "LOT LINE RELOCATION PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC AND TAX MAP 146 LOT 27 FOR MALT HOUSE EXCHANGE REALTY TRUST"; PREPARED BY AMBIT ENGINEERING, INC.; DATED DECEMBER 21, 2018; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41529.
5. "BOUNDARY LINE AGREEMENT PLAN TAX MAP 147 LOT 30 AND CHEVROLET AVE OWNED BY S&G REALTY AND CITY OF PORTSMOUTH"; PREPARED BY AMBIT ENGINEERING, INC.;DATED SEPTEMBER 28, 2017; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-40400.
6. "CONDOMINIUM SITE PLAN 16 CHEVROLET AVE. ASSESSOR'S PARCEL #146-018 PORTSMOUTH, NH FOR CHEVROLET AVE. CONDOMINIUMS"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 7; 2006; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-33836.
7. "PUBLIC WORKS FACILITY 700 ISLINGTON STREET PORTSMOUTH, NH FOR CITY OF PORTSMOUTH"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 4, 1999; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-27228.
8. "STANDARD BOUNDARY SURVEY AT CASS STREET & FRIEND STREET FOR JUDY BROWN 699 MIDDLE STREET PORTSMOUTH, NH"; PREPARED BY EASTERLY SURVEYING; DATED OCTOBER 21, 1997; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-25824.



LOCUS SCALE: 1"=500'

SUBDIVISION NOTES:

1. THE INTENT OF THIS PLAN IS TO SUBDIVIDE MAP 147, LOT 18 INTO 3 RESIDENTIAL LOTS AND CONVERT THE EXISTING BUILDINGS INTO CONDOMINIUMS WITH CITY WATER AND SEWER.
2. ZONING DISTRICT: GENERAL RESIDENCE A (GRA)
   LOT AREA MINIMUM = 7,500 S.F.
   MAX DENSITY = 1 DWELLING UNIT PER 7,500 S.F. LOT AREA
   LOT FRONTAGE MINIMUM = 100'
   LOT DEPTH MINIMUM = 70'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 15'
   SIDE SETBACK = 10'
   REAR SETBACK = 20'
   MAX. BUILDING HEIGHT = 35' WITH SLOPED ROOF, 30' WITH FLAT ROOF
   MAX. BUILDING COVERAGE = 25%
   MIN. OPEN SPACE = 30%
2. GRANTED VARIANCES:
   SECTION 10.521 – FRONTAGE
   SECTION 10.512 – ACCESS VIA PRIVATE R.O.W.
3. 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.
4. THE SUBJECT PARCEL IS LOCATED WITHIN AN AREA HAVING A ZONE X DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0259F, WITH EFFECTIVE DATE OF JANUARY 29, 2021, FOR COMMUNITY PANEL NO. 259 OF 681, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
5. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
6. IRON RODS WITH SURVEY CAPS OR RAIL ROAD SPIKES TO BE SET AT ALL PROPERTY CORNERS AND ANGLE POINTS, UNLESS OTHERWISE INDICATED. ALL MONUMENTS SET ARE 5/8" IRON RODS WITH ALUMINUM CAPS MARKED "JONES & BEACH ENGINEERS BOUNDARY, DO NOT DISTURB, STRATHAM, N.H." AS SHOWN.
7. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
8. THE TAX MAP AND LOT NUMBERS AND ABUTTING OWNERS ARE BASED ON THE TOWN OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
9. RESEARCH WAS PERFORMED AT THE CITY OF PORTSMOUTH ASSESSORS OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
10. 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.
11. 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.
12. PROPOSED LOTS NEED TO OBTAIN DRIVEWAY PERMITS FOR CHEVROLET AVE.
13. A BLANKET EASEMENT SHALL BE CONVEYED TO THE CITY OF PORTSMOUTH UPON TAX MAP 147, LOTS 18-1 & 18-2 FOR VALVES, LEAK DETECTION, AND METERING.

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	519.00'	22.21'	22.21'	N45°24'52"E	2°27'09"
C2	519.00'	81.43'	81.34'	N51°08'07"E	8°59'22"
C3	481.00'	23.79'	23.79'	N54°06'57"E	2°50'01"
C4	47.50'	11.34'	11.31'	S24°54'13"E	13°40'38"
C5	72.50'	17.31'	17.27'	N24°54'13"W	13°40'38"

LINE	BEARING	DISTANCE
L1	N40°00'38"W	12.18'
L2	N34°15'48"E	12.95'
L3	S34°15'48"W	10.87'
L4	S55°37'42"W	5.30'
L5	S55°37'42"W	19.70'
L6	S55°37'48"W	0.87'
L7	N34°19'36"W	22.35'
L8	N34°19'36"W	27.57'
L9	N41°58'09"E	6.17'
L10	S41°58'09"W	18.83'
L11	S48°33'28"E	20.07'
L12	N70°21'21"W	22.42'

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

APPROVED – PORTSMOUTH, NH PLANNING BOARD

DATE:

CERTIFICATION:

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 EXCEED 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.

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 892 DAVID M. COLLIER

SIGNATURE 3/22/2022

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 147, LOT 18

APPLICANT
TUCK REALTY CORPORATION
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
81,046 SQ. FT.
1.86 ACRES

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.

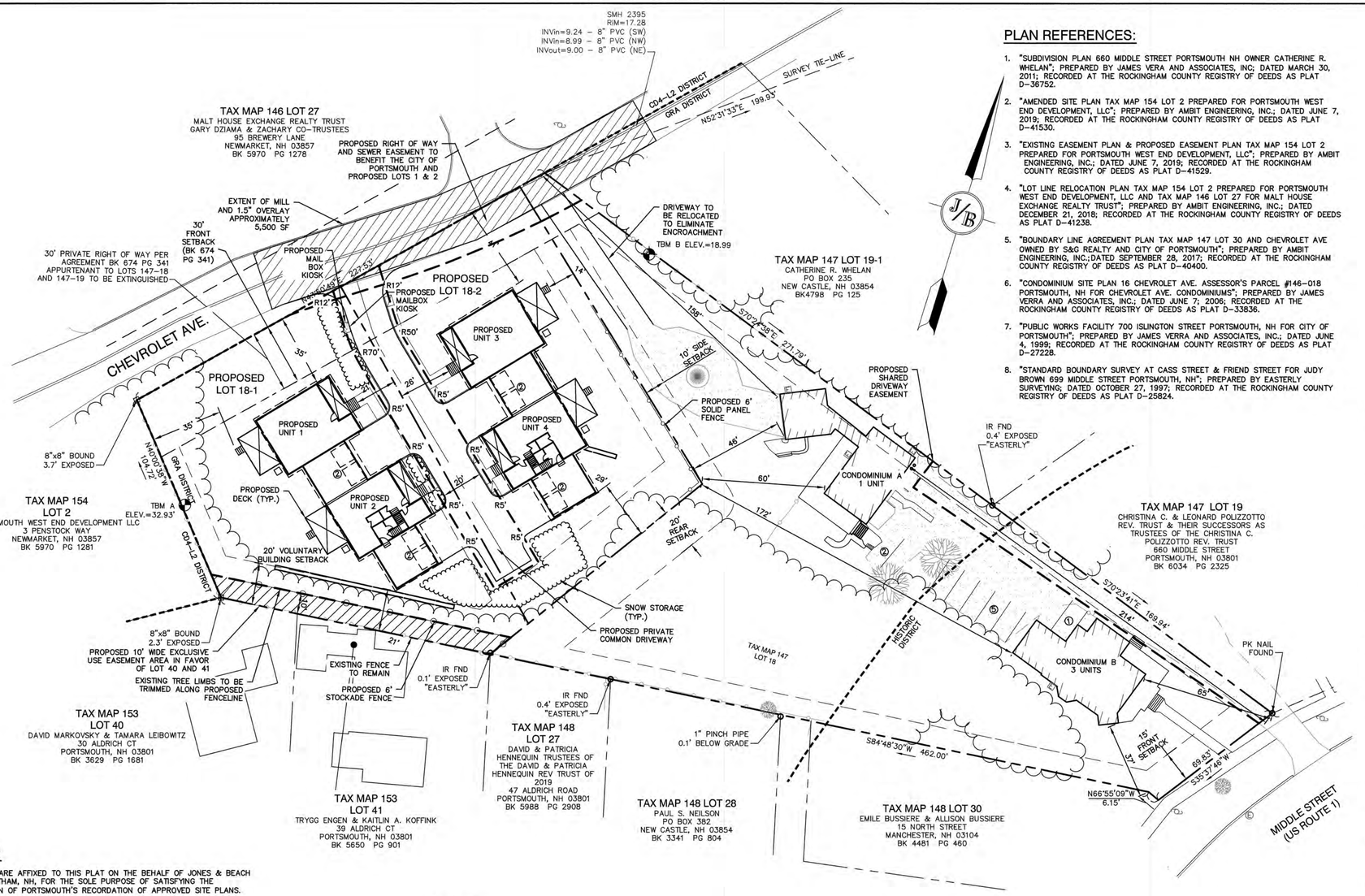
STATE OF NEW HAMPSHIRE MICHAEL J. KERVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 3/22/2022

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB
1			

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SUBDIVISION PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
A1
SHEET 3 OF 14
JBE PROJECT NO. 20686



PLAN REFERENCES:

1. "SUBDIVISION PLAN 660 MIDDLE STREET PORTSMOUTH NH OWNER CATHERINE R. WHELAN"; PREPARED BY JAMES VERA AND ASSOCIATES, INC; DATED MARCH 30, 2011; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-36752.
2. "AMENDED SITE PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41530.
3. "EXISTING EASEMENT PLAN & PROPOSED EASEMENT PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41529.
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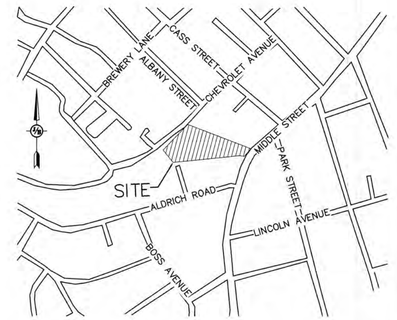
5. "BOUNDARY LINE AGREEMENT PLAN TAX MAP 147 LOT 30 AND CHEVROLET AVE OWNED BY S&G REALTY AND CITY OF PORTSMOUTH"; PREPARED BY AMBIT ENGINEERING, INC.;DATED SEPTEMBER 28, 2017; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-40400.
6. "CONDOMINIUM SITE PLAN 16 CHEVROLET AVE. ASSESSOR'S PARCEL #146-018 PORTSMOUTH, NH FOR CHEVROLET AVE. CONDOMINIUMS"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 7; 2006; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-33836.
7. "PUBLIC WORKS FACILITY 700 ISLINGTON STREET PORTSMOUTH, NH FOR CITY OF PORTSMOUTH"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 4, 1999; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-27228.
8. "STANDARD BOUNDARY SURVEY AT CASS STREET & FRIEND STREET FOR JUDY BROWN 699 MIDDLE STREET PORTSMOUTH, NH"; PREPARED BY EASTERLY SURVEYING; DATED OCTOBER 27, 1997; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-25824.



LOCUS SCALE: 1"=500'

NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED 2 LOT RESIDENTIAL SUBDIVISION WITH FRONTAGE ALONG CHEVROLET AVENUE AND THE PROPOSED DUPLEXES ON THOSE LOTS WITH ASSOCIATED UTILITIES.
2. ZONING DISTRICT: GENERAL RESIDENCE A (GRA)
   LOT AREA MINIMUM = 7,500 S.F.
   MAX DENSITY = 1 DWELLING UNIT PER 7,500 S.F. LOT AREA
   DUPLEX LOTS REQUIRE 15,000 SF,
   LOT FRONTAGE MINIMUM = 100'
   LOT DEPTH MINIMUM = 70'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 15'
   SIDE SETBACK = 10'
   REAR SETBACK = 20'
   MAX. BUILDING HEIGHT = 35' WITH SLOPED ROOF, 30' WITH FLAT ROOF
   MAX. BUILDING COVERAGE = 25%
   PROPOSED LOT 18-1 = 23.9%
   PROPOSED LOT 18-2 = 24.4%
   PROPOSED MAP 147 LOT 18 = 10.6%
   MIN. OPEN SPACE = 30%
   PROPOSED LOT 18-1 = 50%
   PROPOSED LOT 18-2 = 45%
   PROPOSED MAP 147 LOT 18 = 35%
   SEALED SURFACE: LOT 18-1=7,250 SF
   LOT 18-2=7,250 SF
   DISTRUBANCE: LOT 18-1=15,000 SF
   LOT 18-2=17,750 SF
   REQUIRED PARKING=1.3 SPACES PER UNIT OVER 750 SF
   REQUIRED LOT 18-1 = 3 SPACES, 4 PROVIDED
   REQUIRED LOT 18-2 = 3 SPACES, 4 PROVIDED
   REQUIRED CONDO A = 2 SPACES, 2 PROVIDED
   REQUIRED CONDO B = 4 SPACES, 6 PROVIDED
3. THE SUBJECT PARCEL IS LOCATED WITHIN AN AREA HAVING A ZONE X DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0259F, WITH EFFECTIVE DATE OF JANUARY 29, 2021, FOR COMMUNITY PANEL NO. 259 OF 681, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
4. BASIS OF BEARING: HORIZONTAL: STATE PLANE NAD83 VERTICAL: NAVD88.
5. EACH UNIT SHALL OBTAIN A SEPARATE OCCUPANCY PERMIT FROM THE BUILDING INSPECTOR PRIOR TO BEING SOLD.
6. ALL CONSTRUCTION SHALL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
7. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
8. 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.
9. 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.
10. ALL ARCHITECTURAL BLOCK RETAINING WALLS ARE TO BE DESIGNED AND STAMPED BY THE MANUFACTURER'S STRUCTURAL ENGINEER. CONTRACTOR TO COORDINATE WITH APPROVED MANUFACTURER PRIOR TO INSTALLATION.
11. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
12. DISTURBANCE OF EXISTING ROADWAY SHALL REQUIRE MILLING AND OVERLAY OF THE FULL ROAD WIDTH TO PORTSMOUTH DEPARTMENT OF PUBLIC WORKS STANDARDS. DISTURBED SIDEWALK SHALL BE REPAIRED OR REPLACED AS DETERMINED BY PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.
13. SUBJECT TO PORTSMOUTH DEPARTMENT OF PUBLIC WORKS REVIEW AND APPROVAL TEMPORARY PAVEMENT SHALL BE REQUIRED AT THE TIME OF CONSTRUCTION. SUCH PAVING SHALL BE TO THE EXISTING PAVEMENT DEPTH AND, AFTER A WINTER SEASON THE STREET SHALL RECIEVE A FULL MILL AND OVERLAY.
14. PROPOSED LOTS NEED TO OBTAIN DRIVEWAY PERMITS FOR CHEVROLET AVE.
15. $5,000 PER NEW DWELLING SHALL BE PAID TO THE CITY OF PORTSMOUTH FOR DEVELOPMENT OF SIDEWALKS ON ALBANY STREET/MALT HOUSE DRIVE
16. TRASH SHALL BE KEPT INSIDE OF EACH UNIT'S GARAGE.
17. FOUNDATION TO BE FULLY WATERPROOFED TO BOTTOM OF FOOTING (APPLY WATERPROOFING COATING ON EXTERIOR)
18. FOUNDATION FOOTING CAN'T BE INSTALLED ON CRUSHED STONE TO ISOLATE EXTERIOR WATER & INTERIOR WATER.
19. FOOTINGS TO BE BUILT ON VIRGIN GROUND & NO CRUSHED STONE ALLOWED BENEATH FOOTINGS.
20. NO EXTERIOR FOUNDATION DRAINS ON FOUNDATIONS BELOW SEASONAL WATER TABLE
21. INTERIOR ONLY DRAINS TO SUMP BASIN ON FOUNDATIONS BELOW SEASONAL WATER TABLE

CERTIFICATION:

MY SEAL AND SIGNATURE ARE AFFIXED TO THIS PLAT ON THE BEHALF OF JONES & BEACH ENGINEERS, INC., OF STRATHAM, NH, FOR THE SOLE PURPOSE OF SATISFYING THE REQUIREMENT OF THE TOWN OF PORTSMOUTH'S RECORDATION OF APPROVED SITE PLANS.

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.

A COPY OF THIS PLAN HAS BEEN FILED WITH THE TOWN OF PORTSMOUTH PLANNING BOARD RSA 676:18 PAR. IV

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR

SIGNATURE

3/22/2022

DAVID M. COLLIER, LLS 892 DATE:

ON BEHALF OF JONES & BEACH ENGINEERS, INC.

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		PRIVACY FENCE
		PICKET FENCE
		EASEMENT
100	100	MAJOR CONTOUR
98	98	MINOR CONTOUR
		EDGE OF PAVEMENT
D		DRAINAGE LINE
S	S	SEWER LINE
G		GAS LINE
W		WATER LINE
WS		WATER SERVICE
OHE		OVERHEAD ELECTRIC
UGE		UNDERGROUND ELECTRIC

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

APPROVED – PORTSMOUTH, NH PLANNING BOARD

DATE:

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 147, LOT 18

APPLICANT
TUCK REALTY CORPORATION
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
81,046 SQ. FT.
1.86 ACRES

Design: JAC	Draft: ERE
Checked: JAC	Scale: AS NOTED
Drawing Name: 20686-PLAN.dwg	Date: 03/22/22
	Project No.: 20686

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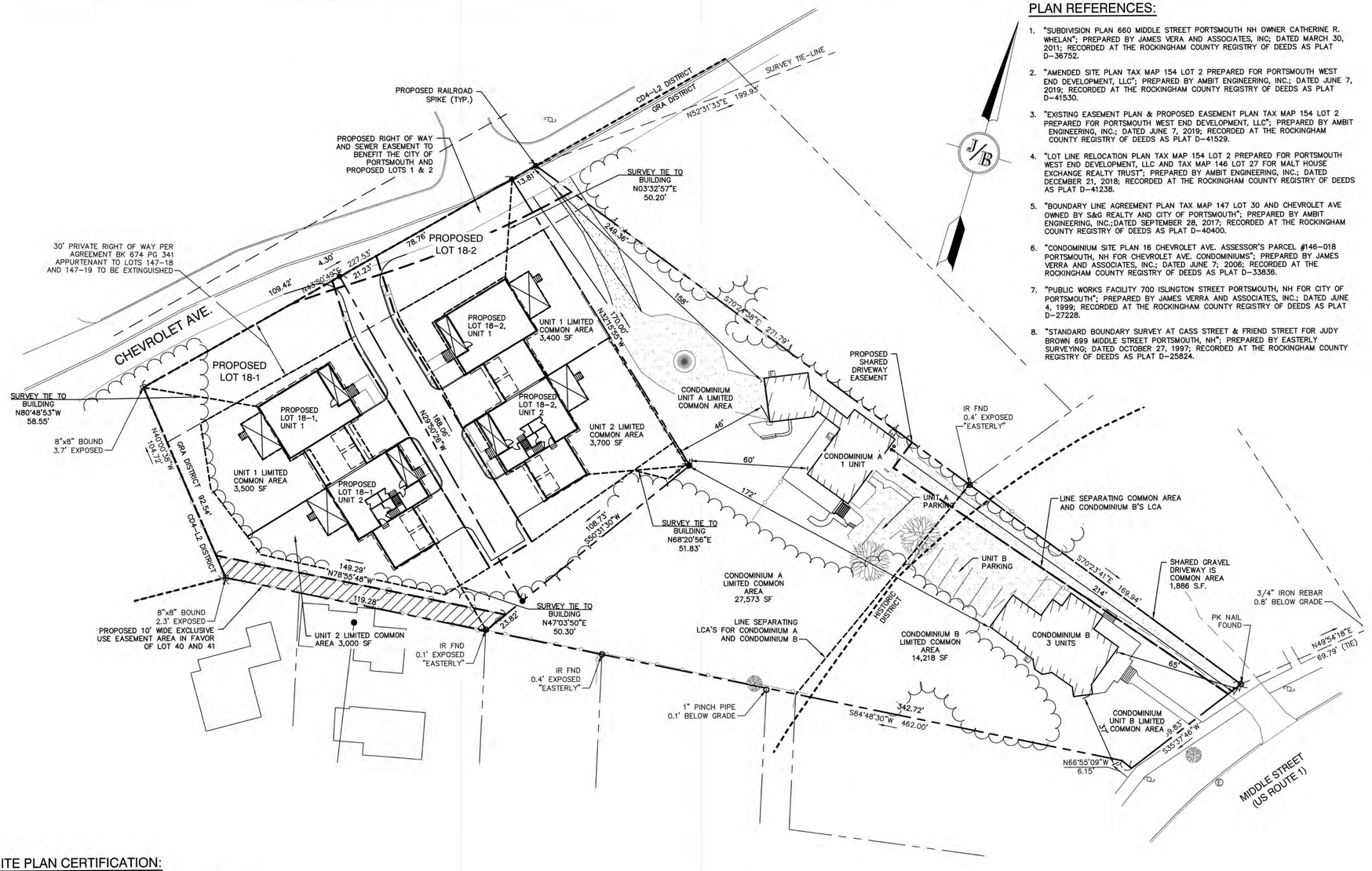
STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 3/22/2022

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVSION	AJB

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

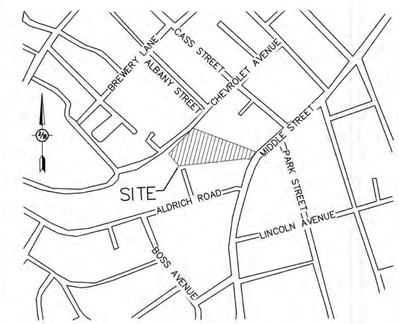
Plan Name:	SITE PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
C2
SHEET 4 OF 14
JBE PROJECT NO. 20686



PLAN REFERENCES:

1. "SUBDIVISION PLAN 660 MIDDLE STREET PORTSMOUTH NH OWNER CATHERINE R. WHELAN", PREPARED BY JAMES VERA AND ASSOCIATES, INC; DATED MARCH 30, 2011; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-36752.
2. "AMENDED SITE PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41530.
3. "EXISTING EASEMENT PLAN & PROPOSED EASEMENT PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41529.
4. "LOT LINE RELOCATION PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC AND TAX MAP 146 LOT 27 FOR MALT HOUSE EXCHANGE REALTY TRUST", PREPARED BY AMBIT ENGINEERING, INC.; DATED DECEMBER 21, 2018; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41238.
5. "BOUNDARY LINE AGREEMENT PLAN TAX MAP 147 LOT 30 AND CHEVROLET AVE OWNED BY S&G REALTY AND CITY OF PORTSMOUTH"; PREPARED BY AMBIT ENGINEERING, INC.;DATED SEPTEMBER 28, 2017; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-40400.
6. "CONDOMINIUM SITE PLAN 16 CHEVROLET AVE. ASSESSOR'S PARCEL #146-018 PORTSMOUTH, NH FOR CHEVROLET AVE. CONDOMINIUMS"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 7; 2006; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-33836.
7. "PUBLIC WORKS FACILITY 700 ISLINGTON STREET PORTSMOUTH, NH FOR CITY OF PORTSMOUTH"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 4, 1999; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-27228.
8. "STANDARD BOUNDARY SURVEY AT CASS STREET & FRIEND STREET FOR JUDY BROWN 699 MIDDLE STREET PORTSMOUTH, NH"; PREPARED BY EASTERLY SURVEYING; DATED OCTOBER 27, 1997; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-25824.



LOCUS SCALE: 1"=500'

NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED CONDOMINIUM CONVERISION OF THE EXISTING RESIDENCES AT 668 MIDDLE STREET.
2. ZONING DISTRICT: GENERAL RESIDENCE A (GRA)
   LOT AREA MINIMUM = 7,500 S.F.
   MAX DENSITY = 1 DWELLING UNIT PER 7,500 S.F. LOT AREA
   LOT FRONTAGE MINIMUM = 100'
   LOT DEPTH MINIMUM = 70'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 15'
   SIDE SETBACK = 10'
   REAR SETBACK = 20'
   MAX. BUILDING HEIGHT = 35' WITH SLOPED ROOF, 30' WITH FLAT ROOF
   MAX. BUILDING COVERAGE = 25%
   MIN. OPEN SPACE = 30%
3. APPROVED VARIANCES:
   1) SECTION 10.521 REQUIRING 100' FRONTAGE ON A FORMALLY ACCEPTED STREET (PROPOSED TAX MAP 147 LOTS 18-1 & 18-2)
   2) SECTION 10.521 REQUIRING 100' FRONTAGE ON A FORMALLY ACCEPTED STREET (TAX MAP 147 LOT 18)
   3) SECTION 10.512 ALLOW CONSTRUCTION A LOT WITH ACCESS TO A PRIVATE WAY (PROPOSED TAX MAP 147 LOTS 18-1 & 18-2)
4. THE SUBJECT PARCEL IS LOCATED WITHIN AN AREA HAVING A ZONE X DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0259F, WITH EFFECTIVE DATE OF JANUARY 29, 2021, FOR COMMUNITY PANEL NO. 259 OF 681, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
5. BASIS OF BEARING: HORIZONTAL: ASSUMED. VERTICAL: ASSUMED AT 200.00'.
6. EACH UNIT SHALL OBTAIN A SEPARATE OCCUPANCY PERMIT FROM THE BUILDING INSPECTOR PRIOR TO BEING SOLD.
7. ALL BOOK AND PAGE NUMBERS REFER TO ROCKINGHAM COUNTY REGISTRY OF DEEDS.
8. THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
9. LOCATION, DEPTH, SIZE, TYPE, EXISTENCE, NONEXISTENCE OF UNDERGROUND UTILITIES AND/OR UNDERGROUND STORAGE TANKS WAS NOT VERIFIED BY THIS SURVEY.
10. 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.
11. CONDOMINIUM UNIT A IS A SINGLE DWELLING AND CONDOMINIUM UNIT B IS AN EXISTING 3 UNIT APARTMENT BUILDING.
12. NEW PROPOSED CONDOMINIUM UNITS 1-4 SHALL HAVE CHEVROLET AVE. STREET ADDRESSES; EXISTING BUILDINGS TO BE CONVERTED INTO CONDOMINIUM UNITS A & B SHALL HAVE MIDDLE STREET ADDRESSES.
13. EACH OF CONDOMINIUM UNITS 1-4 SHALL BE A 4-BEDROOM UNIT.
14. PROPOSED COMMON DRIVE RIGHT OF WAY SHALL REMAIN A PRIVATE RIGHT OF WAY.
15. LCA UNIT A IS ALL AREA NORTHWEST OF THE HISTORIC DISTRICT LINE. LCA UNIT B IS ALL AREA SOUTHEAST OF THE HISTORIC DISTRICT LINE, EXCEPT THE DRIVEWAY FROM MIDDLE STREET TO THE HISTORIC DISTRICT LINE WHICH IS COMMON AREA.

CONDOMINIUM SITE PLAN CERTIFICATION:

I CERTIFY THAT THIS PLAN FULLY AND ACCURATELY DEPICTS THE LOCATION AND DIMENSIONS OF THE LAND AND EXISTING IMPROVEMENTS SHOWN THEREON AND TO THE EXTENT FEASIBLE, ALL EASEMENTS APPURTENANT THERETO, AND THAT THE UNITS 1-4 DEPICTED HEREON ARE HAVE NOT YET BEGUN. THE UNITS A AND B DEPICTED HEREON ARE HAVE BEEN SUBSTANTIALLY COMPLETE. THIS PLAN COMPLIES WITH NH RSA 356-B20 (I).

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 EXCEED 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.

STATE OF NEW HAMPSHIRE — No. 892 — DAVID M. COLLIER — LICENSED LAND SURVEYOR

SIGNATURE 3/22/2022

DAVID M. COLLIER, LLS 892
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

DATE:

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 147, LOT 18

APPLICANT
TUCK REALTY CORPORATION
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
81,046 SQ. FT.
1.86 ACRES

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER — 3/22/2022

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
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Designed and Produced in NH

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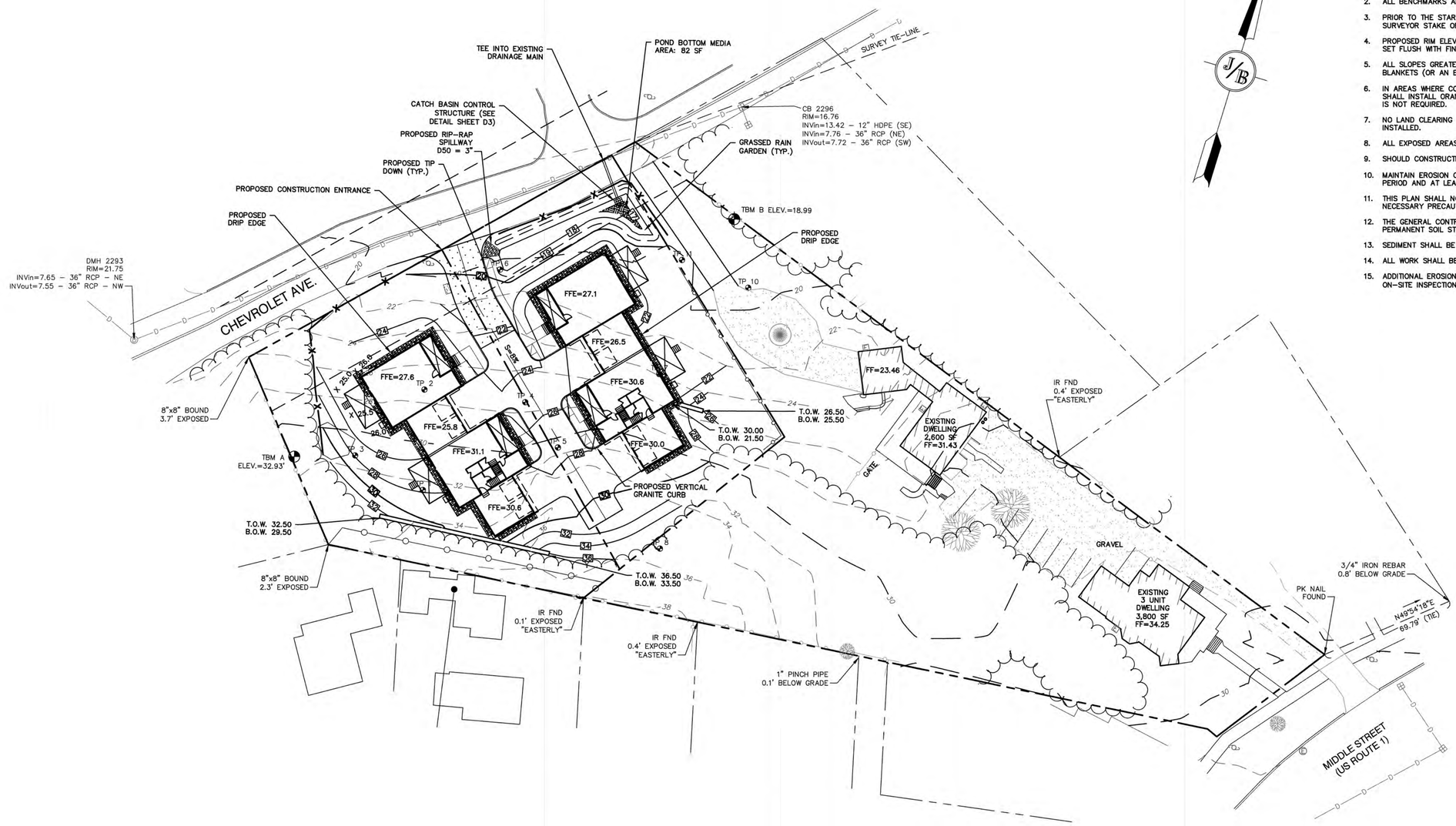
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	CONDOMINIUM SITE PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
CS1
SHEET 5 OF 14
JBE PROJECT NO. 20686

GRADING AND DRAINAGE NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
3. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
4. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
5. ALL SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
6. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
7. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
8. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
9. SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
10. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.25" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
11. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
12. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
13. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
14. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
15. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 147, LOT 18

APPLICANT
TUCK REALTY CORPORATION
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
81,046 SQ. FT.
1.86 ACRES

Design: JAC	Draft: ERE	Date: 03/22/22	
Checked: JAC	Scale: AS NOTED	Project No.: 20686	
Drawing Name: 20686-PLAN.dwg			

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9648 LICENSED PROFESSIONAL ENGINEER — 3/22/2022

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
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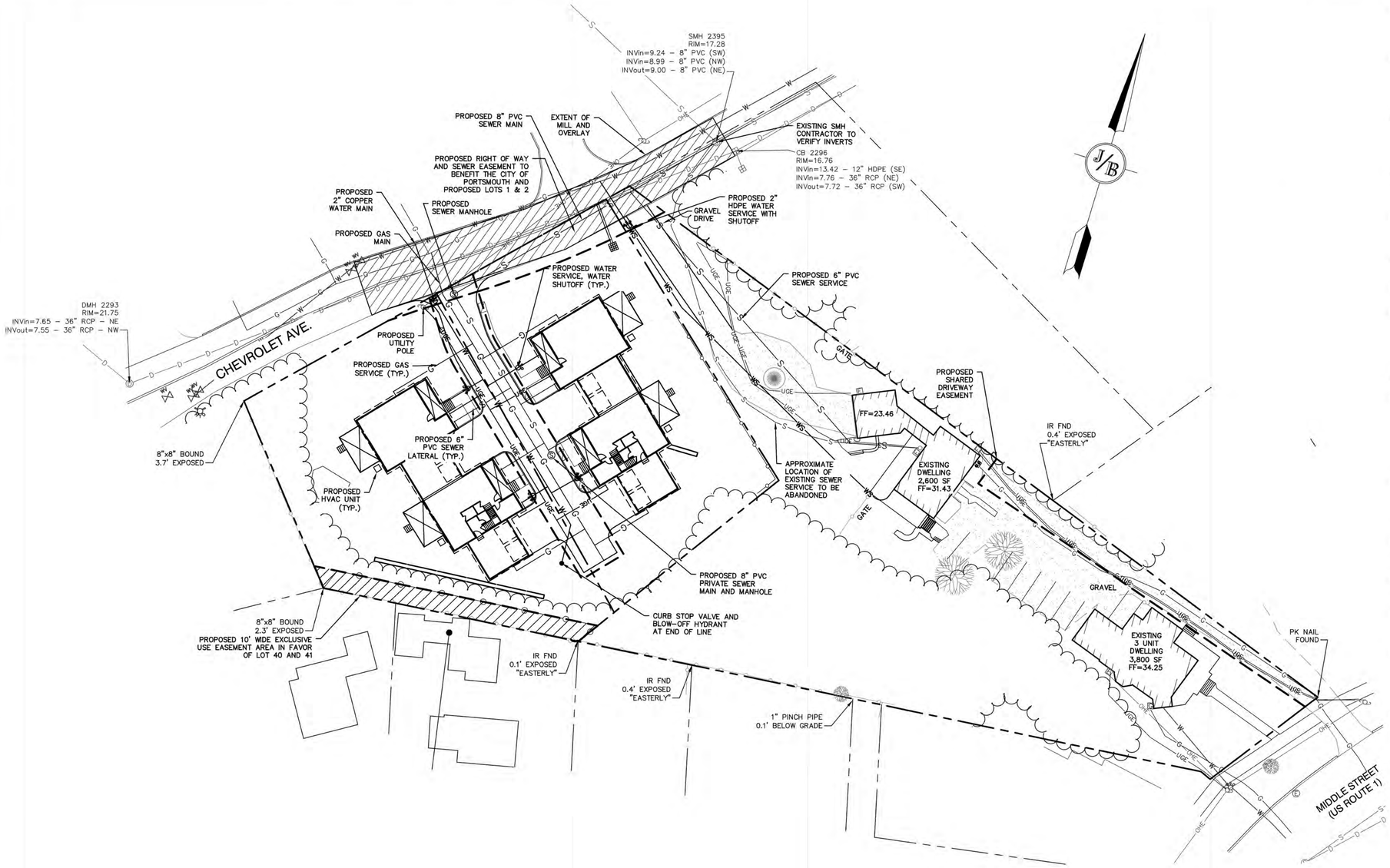
Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	GRADING AND DRAINAGE PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
C3
SHEET 6 OF 14
JBE PROJECT NO. 20686



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

UTILITY NOTES:

1. 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, CONNECTION FEES AND BONDS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF FOURTEEN (14) DAYS TO ALL CORPORATIONS, COMPANIES AND/OR LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
3. THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY (ELECTRIC, TELEPHONE, CABLE TELEVISION, FIRE ALARM, GAS, WATER, AND SEWER).
4. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, ARCHITECT, CONTRACTOR, LOCAL OFFICIALS, AND ALL PROJECT-RELATED UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
5. ALL CONSTRUCTION SHALL CONFORM TO THE TOWN STANDARDS AND REGULATIONS, AND NHDES STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE STRINGENT, UNLESS OTHERWISE SPECIFIED.
6. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
7. BUILDING TO BE SERVICED BY UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED.
8. THE CONTRACTOR IS TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITY STUBS PRIOR TO CONSTRUCTION AND DISCONNECT ALL EXISTING SERVICE CONNECTIONS AT THEIR RESPECTIVE MAINS IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY'S STANDARDS AND SPECIFICATIONS. ENGINEER TO BE NOTIFIED.
9. AS-BUILT PLANS SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
10. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE THROUGH CHANNEL UNDERLAYMENT OF INVERT, AND SHELF SHALL CONSIST OF BRICK MASONRY.
11. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30 INCH DIA. CLEAR OPENING. THE WORD "SEWER" OR DRAIN" SHALL BE CAST INTO THE CENTER OF THE UPPER FACE OF EACH COVER WITH RAISED, 3" LETTERS.
12. CONTRACTOR SHALL PLACE 2" WIDE METAL WIRE IMPREGNATED RED PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS, SERVICES, AND FORCE MAINS.
13. SANITARY SEWER FLOW CALCULATIONS:
    4 – FOUR BEDROOM UNITS @ 150 GPD/BEDROOM
    TOTAL FLOW = 2,400 GPD
14. ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
15. PROPOSED RIM ELEVATIONS OF DRAINAGE AND SANITARY MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE AS SHOWN ON THE GRADING AND DRAINAGE PLAN.
16. ALL WATER SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL BOARD INSULATION FOR FREEZING PROTECTION.
17. WATER MAINS SHALL BE HYDROSTATICALLY PRESSURE TESTED FOR LEAKAGE PRIOR TO ACCEPTANCE. WATERMAINS SHALL BE TESTED AT 1.5 TIMES THE WORKING PRESSURE OR 150 PSI, WHICH EVER IS GREATER. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 4 OF AWWA STANDARD C 600. WATERMAINS SHALL BE DISINFECTED AFTER THE ACCEPTANCE OF THE PRESSURE AND LEAKAGE TESTS ACCORDING TO AWWA STANDARD C 651.
18. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
19. THE CONTRACTOR SHALL HAVE THE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER FIRE PROTECTION SYSTEM PRIOR TO INSTALLATION.
20. EXISTING UTILITIES SHALL BE DIGSAFED BEFORE CONSTRUCTION.
21. ALL WATER LINES SHOULD HAVE TESTABLE BACKFLOW PREVENTERS AT THE ENTRANCE TO EACH BUILDING.
22. ALL GRAVITY SEWER PIPE, MANHOLES, AND FORCE MAINS SHALL BE TESTED ACCORDING TO NHDES STANDARDS OF DESIGN AND CONSTRUCTION FOR SEWAGE AND WASTEWATER TREATMENT FACILITIES, CHAPTER ENV-WQ 700. ADOPTED ON 10-15-14.
23. ENV-WQ 704.06 GRAVITY SEWER PIPE TESTING: GRAVITY SEWERS SHALL BE TESTED FOR WATER TIGHTNESS BY USE OF LOW-PRESSURE AIR TESTS CONFORMING WITH ASTM F1417-92(2005) OR UNI-BELL PVC PIPE ASSOCIATION UNI-B-6. LINES SHALL BE CLEANED AND VISUALLY INSPECTED AND TRUE TO LINE AND GRADE. DEFLECTION TESTS SHALL TAKE PLACE AFTER 30 DAYS FOLLOWING INSTALLATION AND THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5% OF AVERAGE INSIDE DIAMETER. A RIGID BALL OR MANDREL WITH A DIAMETER OF AT LEAST 95% OF THE AVERAGE INSIDE PIPE DIAMETER SHALL BE USED FOR TESTING PIPE DEFLECTION. THE DEFLECTION TEST SHALL BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES.
24. ENV-WQ 704.17 SEWER MANHOLE TESTING: SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST PRIOR TO BACKFILLING AND PLACEMENT OF SHELVES AND INVERTS.
25. SANITARY SEWER LINES SHALL BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM AN EXISTING OR PROPOSED WATER LINE. WHEN A SEWER LINE CROSSES UNDER A WATER LINE, THE SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATERMAIN. THE SEWER LINE SHALL ALSO MAINTAIN A VERTICAL SEPARATION OF NOT LESS THAN 18 INCHES.
26. SEWERS SHALL BE BURIED TO A MINIMUM DEPTH OF 6 FEET BELOW GRADE IN ALL ROADWAY LOCATIONS, AND TO A MINIMUM DEPTH OF 4 FEET BELOW GRADE IN ALL CROSS-COUNTRY LOCATIONS. PROVIDE TWO-INCHES OF R-10 FOAM BOARD INSULATION 2-FOOT WIDE TO BE INSTALLED 6-INCHES OVER SEWER PIPE IN AREAS WHERE DEPTH IS NOT ACHIEVED. A WAIVER FROM THE DEPARTMENT OF ENVIRONMENTAL SERVICES WASTEWATER ENGINEERING BUREAU IS REQUIRED PRIOR TO INSTALLING SEWER AT LESS THAN MINIMUM COVER.
27. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END AT RIGHT OF WAY AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
28. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRIC CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
29. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
30. REWORK OF THE EXISTING INVERT INSIDE SMH 2395 WILL BE REQUIRED TO ALLOW THE NEW PIPE TO ENTER AT THE PROPOSED ELEVATION REQUIRED TO CROSS THE EXISTING DRAIN. INSTALLER TO WORK WITH PORTSMOUTH DPW TO MAKE CONNECTIONS TO THEIR SATISFACTION.
31. AN AGREEMENT WITH PORTSMOUTH WATER WILL BE REQUIRED FOR WATER SYSTEM FLUSHING.
32. TO PROTECT THE CITY OF PORTSMOUTH, NEW SEWER TREATMENT PLANT, NO DRAINAGE IS TO BE TIED INTO SEWER LINES

APPROVED – PORTSMOUTH, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 147, LOT 18

APPLICANT
TUCK REALTY CORPORATION
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
81,046 SQ. FT.
1.86 ACRES

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9646 – LICENSED PROFESSIONAL ENGINEER – 3/22/2022

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVSION	AJB

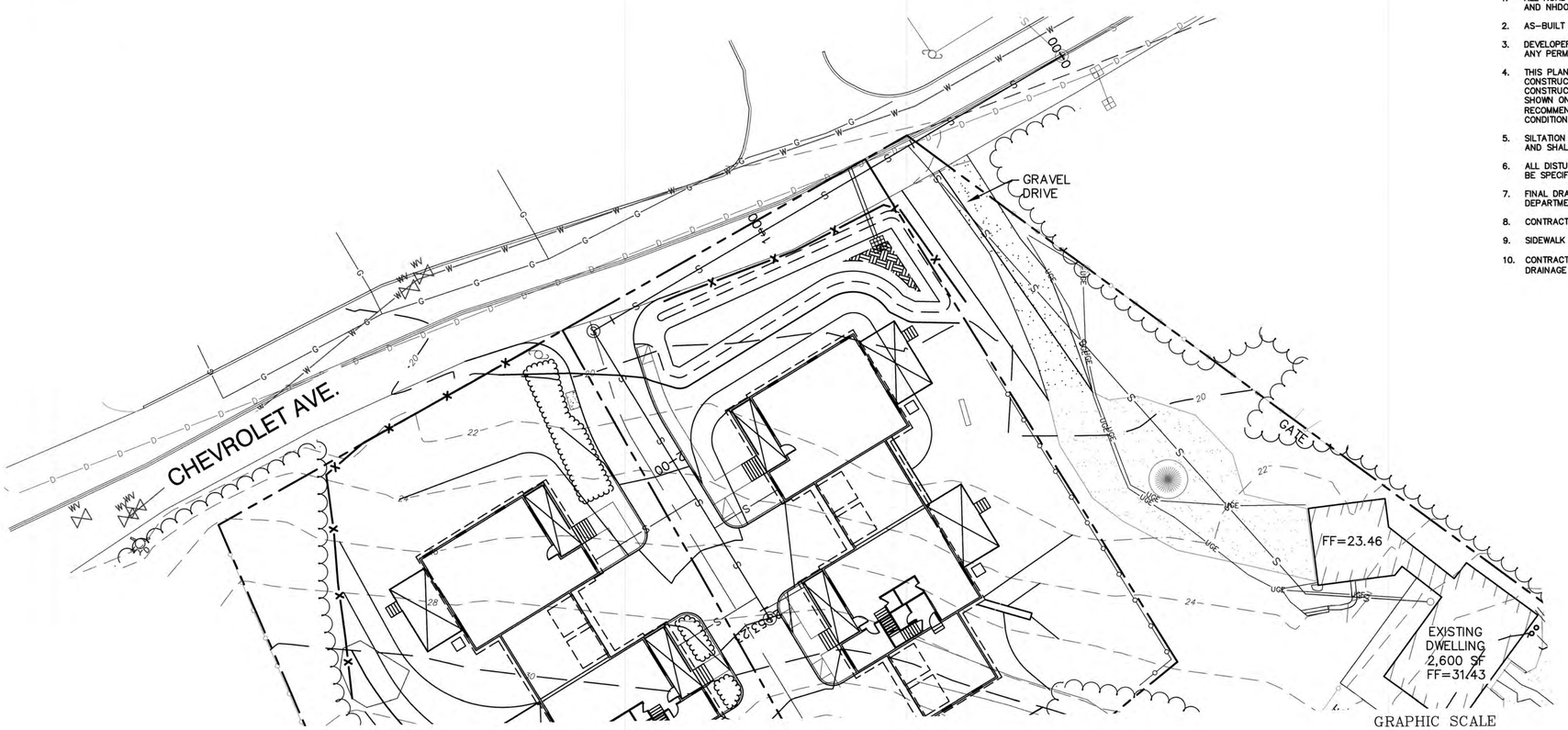
Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	UTILITY PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
C4
SHEET 7 OF 14
JBE PROJECT NO. 20686

NOTES:

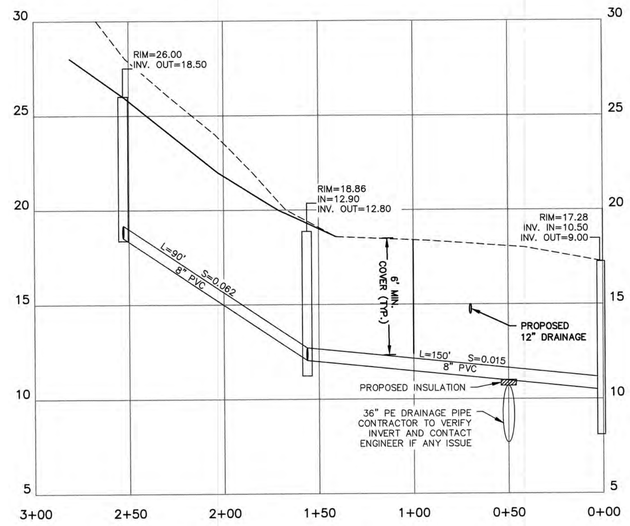
1. ALL ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR THE TOWN, AND NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
2. AS-BUILT PLANS TO BE SUBMITTED TO THE TOWN PRIOR TO ACCEPTANCE OF THE ROADWAY.
3. DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
4. THIS PLAN 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 SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
5. SILTATION AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN UNTIL SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION.
6. ALL DISTURBED AREAS NOT STABILIZED BY NOVEMBER 1st SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. PRODUCT TO BE SPECIFIED BY THE ENGINEER.
7. FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
8. CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
9. SIDEWALK TO BE INSTALLED AT TIME OF TOP COURSE PAVING ALONG WITH DRIVEWAY APRONS.
10. CONTRACTOR MUST HAVE A VALID PIPE INSTALLER'S LICENSE FROM THE PUBLIC WORKS DEPARTMENT BEFORE WORKING ON ANY DRAINAGE AND/OR UTILITY CONSTRUCTION.



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft Horiz.
1 inch = 5 ft Vert.

8 4 0 0 40 80

Design: JAC	Draft: ERE
Checked: JAC	Scale: AS NOTED
Drawing Name: 20686-PLAN.dwg	

Date: 03/22/22
Project No.: 20686

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STATE OF NEW HAMPSHIRE
MICHAEL A. KERVAN
No. 9846
LICENSED PROFESSIONAL SURVEYOR
3/22/22

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
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4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
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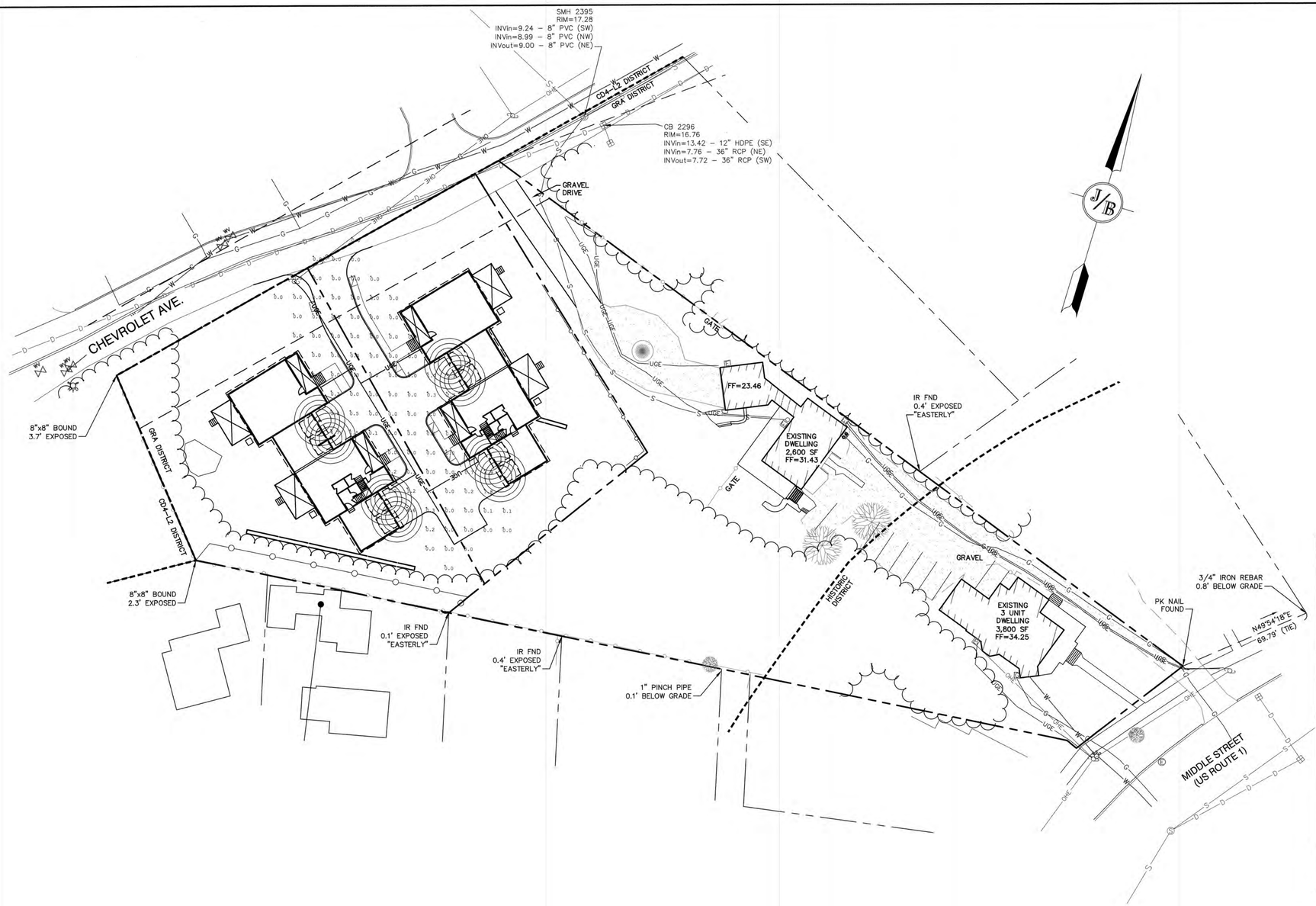
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SEWER PLAN AND PROFILE
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.

P1

SHEET 8 OF 14
JBE PROJECT NO. 20686



LIGHTING AND ELECTRICAL NOTES:

1. SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
2. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
3. ILLUMINATION READINGS SHOWN ARE BASED ON A TOTAL LLF OF 0.75 AT GRADE. ILLUMINATION READINGS SHOWN ARE IN UNITS OF FOOT–CANDLES.
4. LIGHTING CALCULATIONS SHOWN ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM AND SAFETY.
5. ALL LIGHTING FIXTURES SHALL BE FULL CUT–OFF DARK–SKY COMPLIANT, UNLESS OTHERWISE NOTED.
6. NL INDICATES THAT THIS LUMINAIRE SHALL BE ON A NIGHT LIGHT CIRCUIT. FL INDICATES THAT THIS LUMINAIRE SHALL BE A FLOOD LIGHT FIXTURE. MOUNTING BRACKET FOR THIS FL FIXTURE SHALL BE MOUNTED 25' ABOVE BOTTOM OF POLE BASE FOR ALL LIGHT POLES CLOSEST TO STOREFRONT. THESE DESIGNATIONS INDICATE WHAT PHASE LIGHTS ARE WIRED TO (TYP).
7. THE PROPOSED LIGHTING CALCULATIONS AND DESIGN WAS PERFORMED BY CHARRON, INC., P.O. BOX 4550, MANCHESTER, NH 03108, ATTENTION KEN SWEENEY. ALL LIGHTS SHOULD BE PURCHASED FROM THIS COMPANY, OR AN EQUAL LIGHTING DESIGN SHOULD BE SUBMITTED FOR REVIEW IF EQUAL SUBSTITUTIONS ARE PROPOSED BY THE CONTRACTOR OR OWNER.

Calvin Wall

TMSLIGHTING
ESTABLISHED 1923



Features
- Provides excellent coverage and uniformity with cut-off
- Practical and aesthetic options for application and design flexibility
- Weatherproof construction to withstand the elements
- Quality components combined with the most current technology for high efficiency and reduced lighting costs

Applications
The Calvin wall-mount luminaire is ideal for illuminating areas where localized distribution is necessary, such as doorways and entrances, laneways, patios and could provide adequate night time security lighting. It lends itself to commercial, and industrial applications that could benefit from materials and maintenance cost reductions. Calvin could either augment the existing lighting, or illuminate a small to medium-sized area.
Calvin is also available as a pendant-style model.

Construction
High grade spun aluminum, brushed solid copper, or brushed 316L stainless steel reflector, with stainless steel mounting hardware, for indoor and outdoor applications.

Lamp
Operates with Cree™ LED (19W max.), compact fluorescent (42W max.), metal halide (100W max.), or incandescent (150W max.). Specify 3000K, 3500K or 4000K CCT for LED systems. A dimmable, screw-type, 17W LED lamp is also available (PAR 38, E26 base, 120V, 4000K CCT).
Note: LED systems are available with 120-277V supply voltage only.
LED modules do not require a socket, and are wired directly to the integral driver.
Incandescent and metal halide systems, and those using the 17W LED PAR 38 lamp, use a medium base socket (E26).

Diffuser
Globe: clear and prismatic, elongated, glass globes are available.
Lens: the clear, flat lens provides slight diffusion, and protects any components located in the reflector.
Note: G3 is used with 100IN, 32CF, and 15LED max.
Only prismatic globes are compatible with LED systems.
Globes are not available with the 17W LED PAR 38 lamps.

Option
Wire Guard: a steel, chrome-plated wire guard is available for lamp protection against light projectiles, wildlife, and serves as a vandal deterrent.

Ballast/LED Driver
Ballasts are efficient with a high power factor greater than 90%, and quiet with an "A" sound rating.
The LED source is controlled by an advanced electronic driver that delivers consistent power.
Ballast and LED drivers are electronic, and available for integral and remote mounting, indoor or outdoor.

cULus cULus CE IP23

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

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 147, LOT 18

APPLICANT
TUCK REALTY CORPORATION
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
81,046 SQ. FT.
1.86 ACRES

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER – 3/22/22

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
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Designed and Produced in NH
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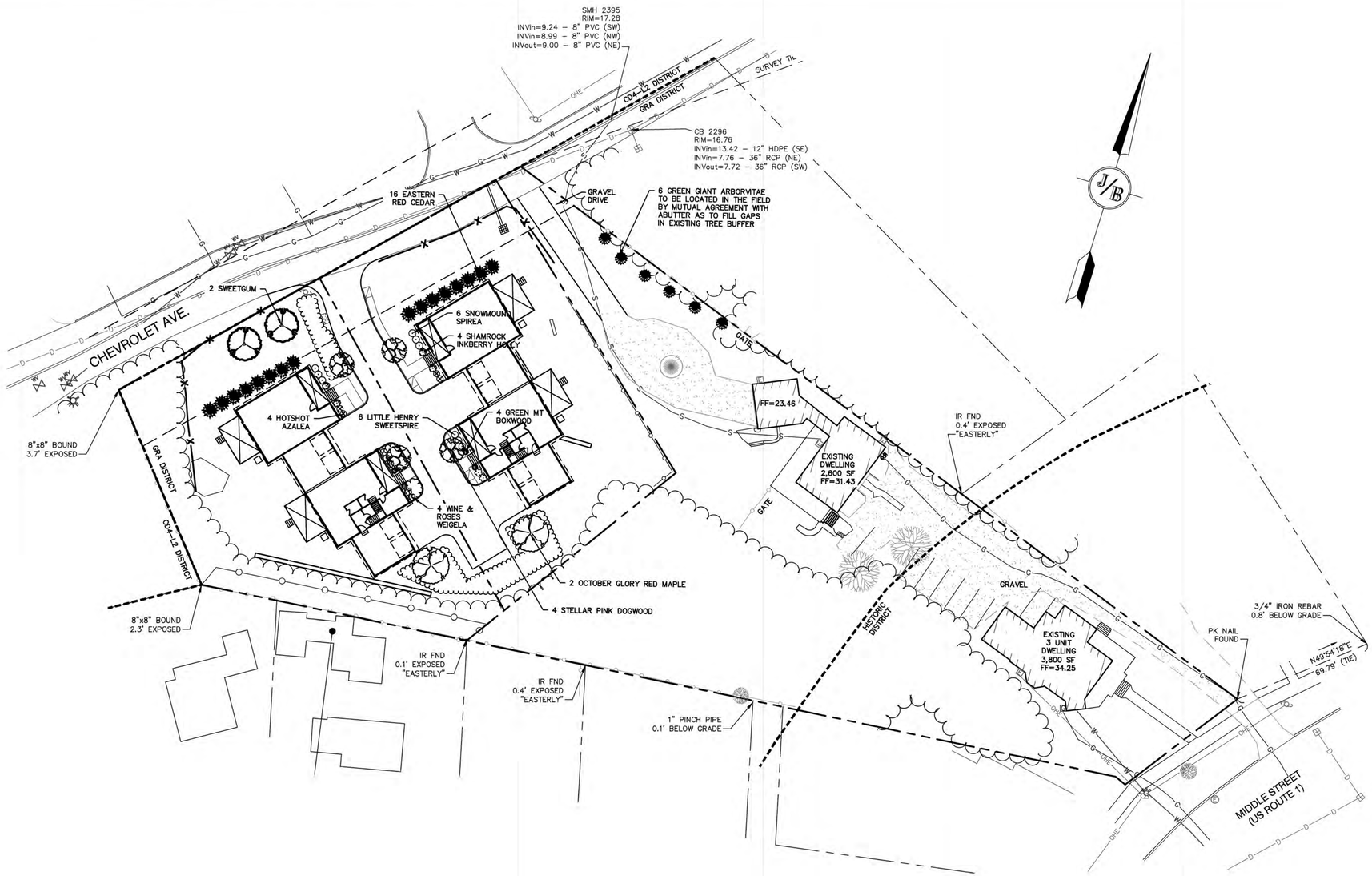
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	LIGHTING PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
L1
SHEET 9 OF 14
JBE PROJECT NO. 20686



LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANT SUBSTITUTIONS MUST BE APPROVED THE LANDSCAPE ARCHITECT.
5. ALL PLANT MATERIALS SHALL BE EXACTLY AS SPECIFIED BY THE LANDSCAPE ARCHITECT. IF PLANT SPECIES CULTIVARS ARE FOUND TO VARY FROM THAT SPECIFIED AT ANY TIME DURING THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE THE CONTRACTOR REPLACE THAT PLANT MATERIAL.
6. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING FOR CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
7. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
8. NO PLANT SHALL BE PUT IN THE GROUND BEFORE GRADING HAS BEEN FINISHED AND APPROVED BY THE LANDSCAPE ARCHITECT.
9. ALL WORK AND PLANTS SHALL BE DONE, INSTALLED AND DETAILED IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
10. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
11. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NOT LESS THAN ONE FULL YEAR FROM THE TIME OF PROVISIONAL ACCEPTANCE. DURING THIS TIME, THE OWNER SHALL MAINTAIN ALL PLANT MATERIALS IN THE ABOVE MANNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE. IF THE CONTRACTOR IS DISSATISFIED WITH THE CARE GIVEN, HE SHALL IMMEDIATELY, AND IN SUFFICIENT TIME TO PERMIT THE CONDITION TO BE RECTIFIED, NOTIFY THE LANDSCAPE ARCHITECT IN WRITING OR OTHERWISE FORFEIT HIS CLAIM.
12. FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT WILL BE MADE UPON THE CONTRACTOR'S REQUEST AFTER ALL CORRECTIVE WORK HAS BEEN COMPLETED.
13. BY THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAS DIED, LOST NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESSIVE PRUNING OR INADEQUATE OR IMPROPER CARE, OR THAT IS, IN THE OPINION OF THE LANDSCAPE ARCHITECT, IN UNHEALTHY OR UNSIGHTLY CONDITION.
14. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION, EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS SPECIFIED.
15. ALL TREES AND SHRUBS SHALL BE PLANTED IN MULCH BEDS WITH EDGE STRIPS TO SEPARATE TURF GRASS AREAS.
16. THE CONTRACTOR SHALL REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC. FROM ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE. GRASS SEED OR PINE BARK MULCH SHALL BE APPLIED AS DEPICTED ON PLANS.
17. ALL LANDSCAPING SHALL MEET THE TOWN STANDARDS AND REGULATIONS.
18. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE DRIPLINE OF THE TREE. THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
19. ALL MULCH AREAS SHALL RECEIVE A 3" LAYER OF SHREDDED PINE BARK MULCH OVER A 10 MIL WEED MAT EQUAL TO 'WEEDBLOCK' BY EASY GARDENER OR DEWITT WEED BARRIER.
20. ALL LANDSCAPED AREAS SHALL HAVE SELECT MATERIALS REMOVED TO A DEPTH OF AT LEAST 9" BELOW FINISH GRADE. THE RESULTING VOID IS TO BE FILLED WITH A MINIMUM OF 9" HIGH-QUALITY SCREENED LOAM AMENDED WITH 3" OF AGED ORGANIC COMPOST.
21. THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO CIVIL/SITE DRAWINGS FOR OTHER SITE CONSTRUCTION INFORMATION.

Plants

Quantity	Botanical Name	Common Name	Size
2	Acer rubrum 'October Glory'	OCTOBER GLORY RED MAPLE	3" Caliper
4	Azalea 'Girards Hotshot'	HOTSHOT AZALEA	3 Gallon
4	Buxus 'Green Mountain'	GREEN MT BOXWOOD	5 Gallon
4	Cornus kousa X C. florida 'Stellar Pink'	STELLAR PINK DOGWOOD	2.5" Caliper
4	Ilex glabra 'Shamrock'	SHAMROCK INKBERRY HOLLY	5 Gallon
6	Itea virginica 'Sprich Little Henry'	LITTLE HENRY SWEETSPIRE	3 Gallon
16	Juniperus virginiana	EASTER RED CEDAR	6-7 Ft. Ht.
6	Thuja plicata 'Green Gaint'	GREEN GIANT ARBORVITAE	10-12 Ft. Ht.
6	Spiraea nipponica 'Snowmound'	SNOWMOUND SPIREA	3 Gallon
2	Liquidambar styraciflua	SWEETGUM	3" Caliper
4	Weigela florida 'Alexandra'	WINE & ROSES WEIGELA	3 Gallon

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 147, LOT 18

APPLICANT
TUCK REALTY CORPORATION
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
81,046 SQ. FT.
1.86 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-PLAN.dwg		

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERVIAN No. 9846 LICENSED PROFESSIONAL ENGINEER
3/22/2022

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
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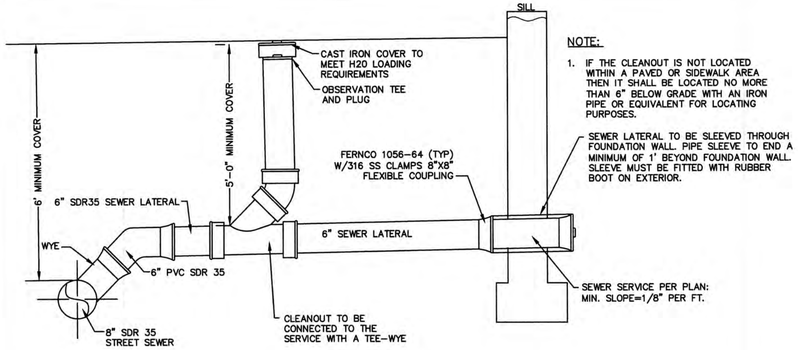
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	LANDSCAPE PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
L2
SHEET 10 OF 14
JBE PROJECT NO. 20686

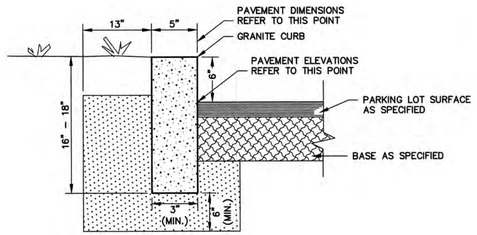


NOTE:

1. IF THE CLEANOUT IS NOT LOCATED WITHIN A PAVED OR SIDEWALK AREA THEN IT SHALL BE LOCATED NO MORE THAN 6" BELOW GRADE WITH AN IRON PIPE OR EQUIVALENT FOR LOCATING PURPOSES.
2. SEWER LATERAL TO BE SLEEVED THROUGH FOUNDATION WALL. PIPE SLEEVE TO END A MINIMUM OF 1' BEYOND FOUNDATION WALL. SLEEVE MUST BE FITTED WITH RUBBER BOOT ON EXTERIOR.

HOUSE SEWER SERVICE

NOT TO SCALE

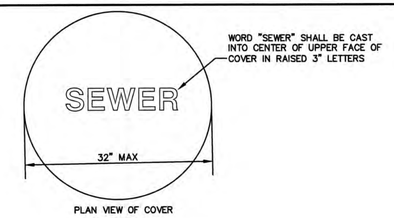


NOTES:

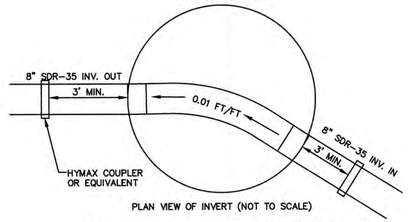
1. EDGING TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

VERTICAL GRANITE CURB

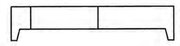
NOT TO SCALE



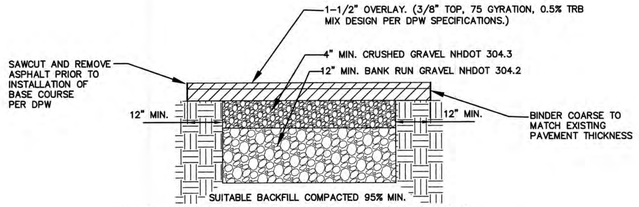
PLAN VIEW OF COVER



PLAN VIEW OF INVERT (NOT TO SCALE)



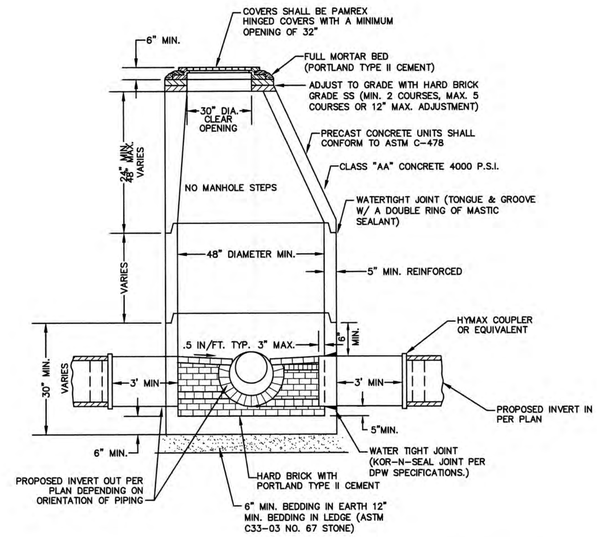
ALTERNATE TOP SLAB FOR MANHOLES LESS THAN SIX FEET DEEP. REINFORCED TO MEET OR EXCEED THE REQUIRMENTS OF AASHTO HS20-44 LOADING



1. AFTER PROPER BACKFILLING AND COMPACTION, ADJACENT PAVEMENT MUST BE "SAW CUT" (STRAIGHT CUTS) A MINIMUM OF ONE FOOT (1') AROUND THE PERIMETER OF THE EXCAVATION. PAVEMENT MUST BE REMOVED.
2. INSTALL BASE COURSE LEAVING A REVEAL FOR SURFACE COURSE.
3. INSTALL SURFACE COURSE OF ASPHALT PAVING.
4. APPLY EMULSION SEALANT AT PERIMETER OF JOINT OVERLAPPING BASE COURSE. INSTALL WEARING COURSE OF ASPHALT TO GRADE. APPLY LIGHT SAND TO ABSORB EXCESS JOINT SEALANT.
5. GRAVEL COMPACTIONS TO MEET 95% MINIMUM.

TYPICAL PAVEMENT REPAIR DETAIL

NOT TO SCALE



NOTES:

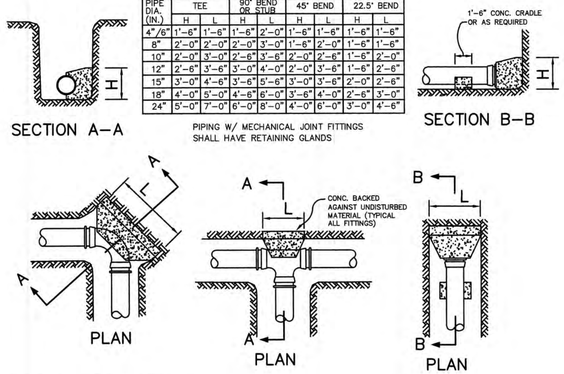
1. PER NHDES ENV-WQ 704.13(C), THE MORTAR SPECIFICATION SHALL BE AS FOLLOWS:
   1. MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT AND SAND WITH OR WITHOUT HYDRATED LIME ADDITION;
   2. PROPORTIONS IN MORTAR OF PARTS BY VOLUMES SHALL BE:
      A. 4.5 PARTS SAND AND 1.5 PARTS CEMENT; OR
      B. 4.5 PARTS SAND, ONE PART CEMENT AND 0.5 PART HYDRATED LIME;
   3. CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150-05;
   4. HYDRATED LIME SHALL BE TYPE S CONFORMING TO THE ASTM C207-06 STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES;
   5. SAND SHALL CONSIST OF INERT NATURAL SAND CONFORMING TO THE ASTM C33-03 STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES;
2. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPED TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL IN ACCORDANCE WITH ENV-WQ 704.12 (K).
3. ALL MANHOLES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH ENV-WQ 704.17 (a) THROUGH (e).
4. SEWER MANHOLE COVERS SHALL CONFORM TO ASTM A48 WITH A CASTING EQUAL TO CLASS 30 IN ACCORDANCE WITH ENV-WQ 704.13 (a).
5. ALL ASBESTOS CONTAINING WASTE MATERIALS MUST BE PROPERLY IDENTIFIED, PACKAGED AND DELIVERED TO A LANDFILL LICENCED BY THE NHDES SOLID WASTE MANAGEMENT PROGRAM FOR DISPOSAL. CALL (603) 271-2925 FOR MORE INFORMATION.
6. PORTSMOUTH STANDARD SEWER MANHOLE SHALL BE USED.
7. CONTRACTOR TO PURCHASE SEWER MANHOLE COVERS FROM THE CITY OF PORTSMOUTH DIRECTLY.
8. MANHOLE BASE SECTIONS SHALL BE MONOLITHIC TO A POINT AT LEAST 6" ABOVE THE HIGHEST INCOMING SEWER PIPE PER ENV-WQ 704.12 (e).
9. MANHOLE CASTINGS SHALL CONFORM TO ASTM A48 PER ENV-WQ 704.13 (a) (8).

PORTSMOUTH SEWER MANHOLE

NOT TO SCALE

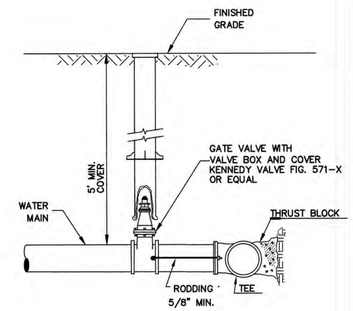
CONCRETE THRUST BLOCK DIMENSIONS									
PIPE DIA. (IN.)	TEE		90° BEND OR STUB		45° BEND		22.5° BEND	
	H	L	H	L	H	L	H	L
4"/6"	1'-6"	1'-6"	1'-6"	2'-0"	1'-6"	1'-6"	1'-6"	1'-6"
8"	2'-0"	2'-0"	2'-0"	3'-0"	1'-6"	2'-0"	1'-6"	1'-6"
10"	2'-0"	3'-0"	2'-6"	3'-6"	2'-0"	2'-6"	1'-6"	2'-0"
12"	2'-6"	3'-6"	3'-0"	4'-0"	2'-0"	3'-6"	1'-6"	2'-6"
15"	3'-0"	4'-6"	3'-6"	5'-6"	3'-0"	3'-6"	2'-0"	2'-6"
18"	4'-0"	5'-0"	4'-6"	6'-0"	3'-6"	4'-0"	2'-6"	3'-0"
24"	5'-0"	7'-0"	6'-0"	8'-0"	4'-0"	6'-0"	3'-0"	4'-6"

PIPING W/ MECHANICAL JOINT FITTINGS SHALL HAVE RETAINING GLANDS



THRUST BLOCK DETAILS

NOT TO SCALE



BURIED GATE VALVE DETAIL

NOT TO SCALE

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Checked: JAC	Scale: AS NOTED
Drawing Name: 20686-PLAN.dwg	

Date: 03/22/22
Project No.: 20686

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9846 — LICENSED PROFESSIONAL ENGINEER — 3/22/2022

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
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4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
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2	8/23/21	REVISED FOR PRELIMINARY SUBDIVSION	AJB

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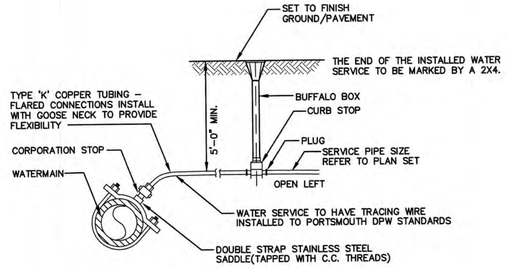
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.

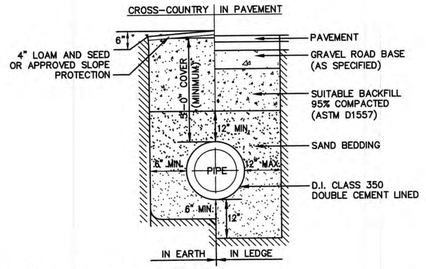
D1

SHEET 11 OF14
JBE PROJECT NO. 20686



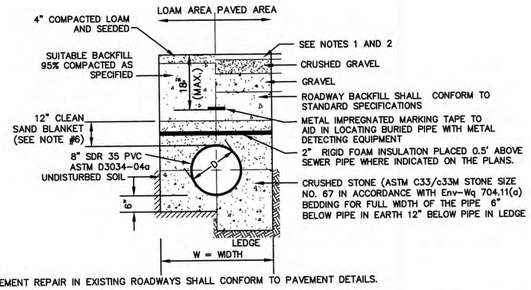
WATER SERVICE CONNECTION-COPPER PIPE

NOT TO SCALE



WATER SYSTEM TRENCH

NOT TO SCALE

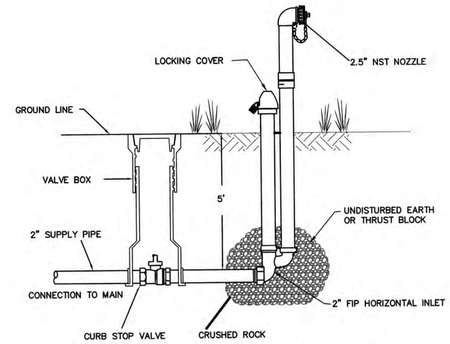


NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO PAVEMENT DETAILS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPECIFICATIONS.
3. TRENCH BACKFILL SHALL CONFORM WITH ENV. Wq 704.11(h) AND BE FREE OF DEBRIS, PAVEMENT, ORGANIC MATTER, TOP SOIL, WET OR SOFT MUCK, PEAT OR CLAY, EXCAVATED LEDGE OR ROCKS OVER SIX INCHES.
4. W= MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12" INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, WIDTH SHALL BE NO MORE THAN 36"; FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, WIDTH SHALL BE 24 INCHES PLUS PIPE O.D. WIDTH SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
5. RIGID FOAM INSULATION TO BE PROVIDED WHERE COVER IN THE ROADWAY IS LESS THAN 6' AND CROSS COUNTRY IS LESS THAN 4', PURSUANT TO DES WAIVER BEING ISSUED.
6. PIPE SAND BLANKET MATERIAL SHALL BE GRADED SAND, FREE FROM ORGANIC MATERIALS, GRADED SUCH THAT 100% PASSES A 1/2 " SIEVE AND A MAXIMUM OF 15% PASSES A #200 SIEVE IN ACCORDANCE WITH Env-Wq 704.11(b).
7. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL AND CERTIFIED BY THE MANUFACTURER AS CONFORMING TO THE ASTM D3212 STANDARD IN EFFECT WHEN THE JOINT SEALS WERE MANUFACTURED, AND SHALL BE PUSH-ON, BELL-AND-SPIGOT TYPE PER Env-Wq 704.05 (e).

SEWER TRENCH

NOT TO SCALE

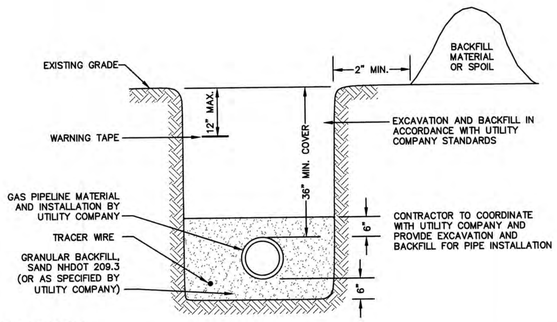


POST HYDRANTS SHALL BE NON-FREEZING, SELF DRAINING TYPE WITH A 5' BURY. THESE HYDRANTS WILL BE FURNISHED WITH A 2" FIP HORIZONTAL INLET, A NON-TURNING OPERATING ROD, AND SHALL OPEN LEFT. BRONZE OPERATING MECHANISM AND ALUMINUM PLUNGER. DESIGN, AND BE SERVICABLE FROM ABOVE GRADE WITH NO DIGGING. THE OUTLET SHALL ALSO BE BRONZE AND BE 2-1/2" NST. HYDRANTS SHALL BE LOCKABLE TO PREVENT UNAUTHORIZED USE AS MANUFACTURED BY KUPFERLE FOUNDRY CO., ST. LOUIS, MO, OR APPROVED EQUAL.

INLET PRESSURE (PSI)	FLOW RATE (GPM)
75	675
100	742
125	800
150	856

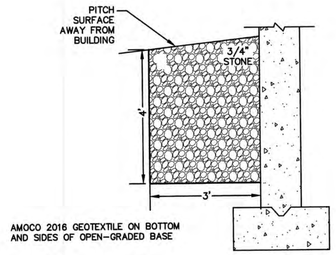
BLOW-OFF HYDRANT DETAIL

NOT TO SCALE



GAS TRENCH

NOT TO SCALE



DRIP EDGE DETAIL

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Drawing Name: 20686-PLAN.dwg	

Date: 03/22/22
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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9846 LICENSED LAND SURVEYOR — 3/22/2022

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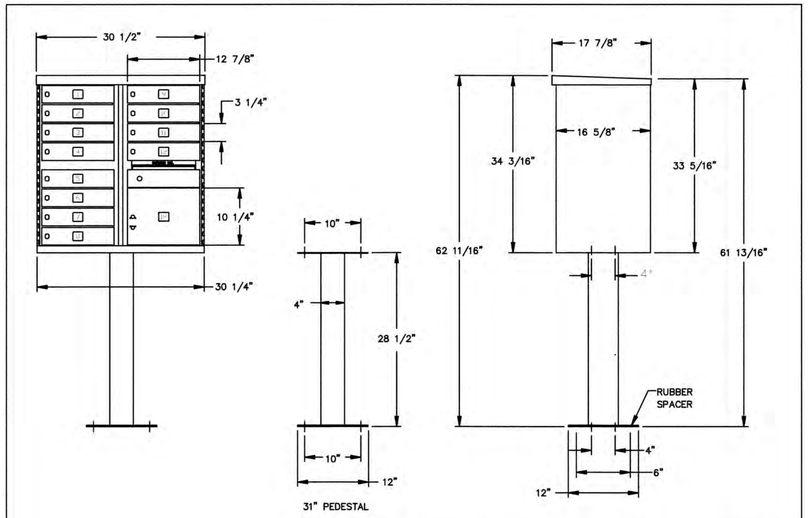
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.

D2

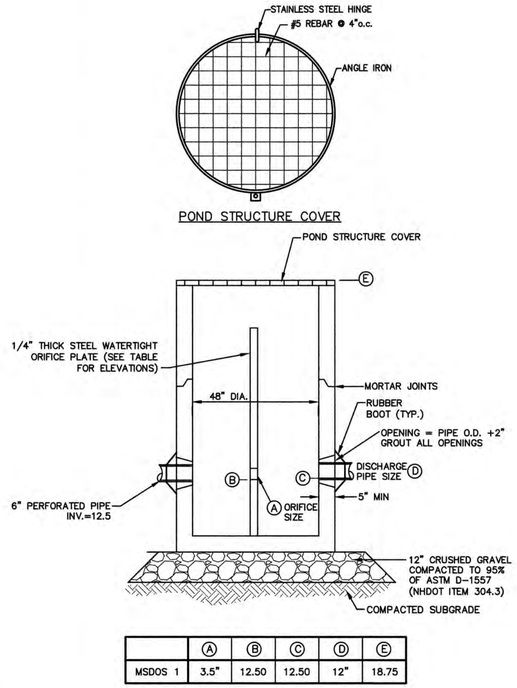
SHEET 12 OF14
JBE PROJECT NO. 20686



POSTAL PRODUCTS UNLIMITED, INC.™ A Division of American Postal Manufacturing, Inc. Phone. 1-800-238-4600 800 W. Oklahoma Ave. Milwaukee, WI 53207-2349	Product: Type II CBU with Pedestal – Front Loading – N1027875			
	Distribution: USPS Approved		Finish: Powder Coat	
	Mounting: Pedestal		Total Mailboxes: 12 Doors – 1 Locker	
	Date: 02/02/06	Scale: NONE	Drawn By: CDO	Checked By: AJK

CLUSTER MAILBOX UNIT DETAIL

NOT TO SCALE



	A	B	C	D	E
MSDOS 1	3.5"	12.50	12.50	12"	18.75

CATCH BASIN CONTROL STRUCTURE (CBCS)

NOT TO SCALE

SAND SPECIFICATION

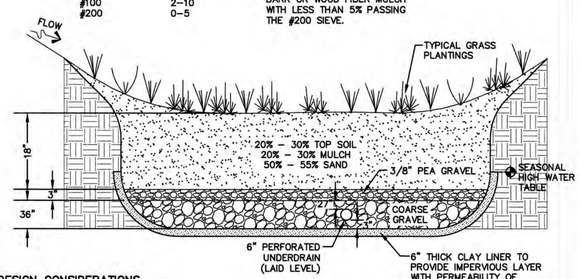
SIEVE SIZE	% BY WEIGHT
3"	100
#4	95–100
#8	80–100
#16	50–85
#30	25–60
#60	10–30
#100	2–10
#200	0–5

TOPSOIL SPECIFICATION

LOAMY SAND TOPSOIL WITH MINIMAL CLAY CONTENT AND BETWEEN 15 TO 25% FINES PASSING THE #200 SIEVE.

MULCH SPECIFICATION

MODERATELY FINE, SHREDDED BARK OR WOOD FIBER MULCH WITH LESS THAN 5% PASSING THE #200 SIEVE.



DESIGN CONSIDERATIONS

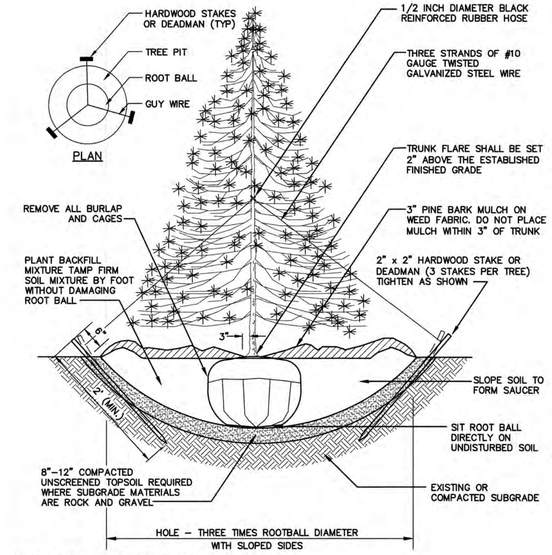
1. DO NOT DIRECT RUNOFF TO THE BIORETENTION SYSTEMS UNTIL IT HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUN-OFF, WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

MAINTENANCE REQUIREMENTS:

1. SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
3. TRASH AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION.
4. AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72 HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
5. VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

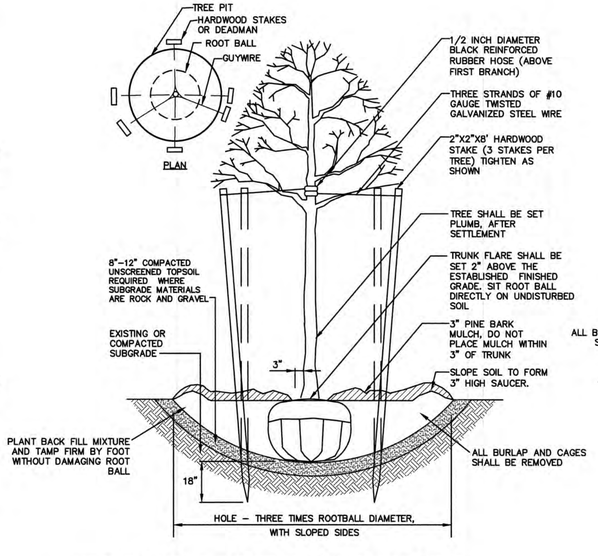
RAIN GARDEN (GRASSED W/ UNDER DRAIN)

NOT TO SCALE



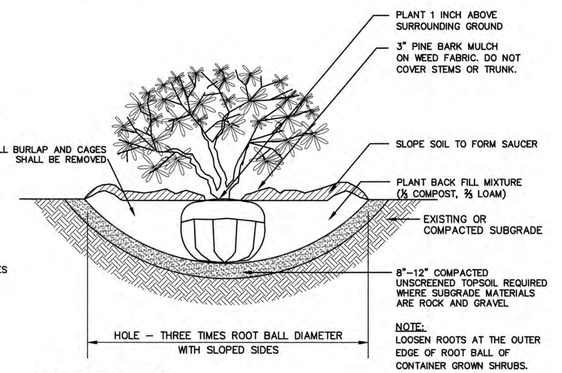
EVERGREEN PLANTING

NOT TO SCALE



TREE PLANTING (FOR TREES UNDER 4" CALIPER)

NOT TO SCALE



SHRUB PLANTING

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Checked: JAC	Scale: AS NOTED	Project No.: 20686	
Drawing Name: 20686-PLAN.dwg			

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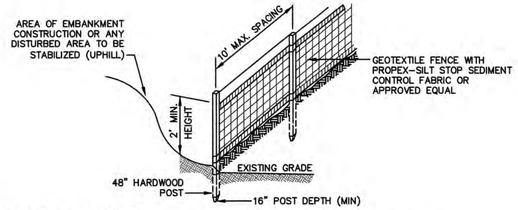
DRAWING No.

D3

SHEET 13 OF 14
JBE PROJECT NO. 20686

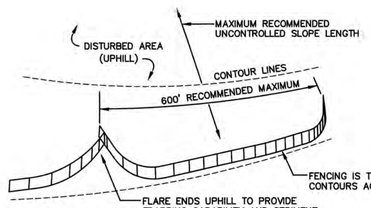
TEMPORARY EROSION CONTROL NOTES

1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF 5 ACRES BE EXPOSED AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS (INCLUDING POND AREAS BELOW THE PROPOSED WATERLINE) SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE 'C' AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
4. SILT FENCES AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.5" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
5. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
6. AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING. OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
7. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
8. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
9. AFTER OCTOBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
10. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    a. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
    b. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    c. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH STONE OR RIPRAP HAS BEEN INSTALLED; OR
    d. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
11. FUGITIVE DUST CONTROL IS REQUIRED TO BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000, AND THE PROJECT IS TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
12. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR'S NAME, ADDRESS, AND PHONE NUMBER SHALL BE SUBMITTED TO DES VIA EMAIL (SEE BELOW).
13. PRIOR TO CONSTRUCTION, A PHASING PLAN THAT DELINEATES EACH PHASE OF THE PROJECT SHALL BE SUBMITTED. ALL TEMPORARY SEDIMENT BASINS THAT WILL BE NEEDED FOR DEWATERING WORK AREAS SHALL BE LOCATED AND IDENTIFIED ON THIS PLAN.



CONSTRUCTION SPECIFICATIONS:

1. WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
2. THE FENCE POSTS SHALL BE A MINIMUM OF 48" LONG, SPACED A MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
5. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
6. SILT FENCE SHALL REMAIN IN PLACE FOR 24 MONTHS.



7. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND REVEGETATED.

MAINTENANCE:

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE DONE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
4. SEDIMENT DEPOSITS THAT ARE REMOVED, OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED, SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

SILT FENCE

NOT TO SCALE

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (3:1 SLOPES OR FLATTER ARE PREFERRED).
   B. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. TYPES AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
      AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ.FT.
      NITROGEN(N), 50 LBS. PER ACRE OR 1.1 LBS. PER 1,000 SQ.FT.
      PHOSPHATE(P2O5), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      POTASH(K2O), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      (NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10.)
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. REFER TO THE 'SEEDING GUIDE' AND 'SEEDING RATES' TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT, TREFOIL AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 S.F.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

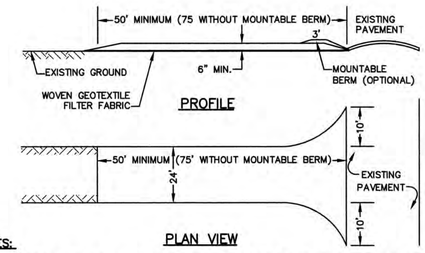
NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

SEEDING GUIDE

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
* C. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
BIRDS FOOT TREFOIL	8	0.20
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING RATES



NOTES:

1. STONE FOR STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, 75' WITHOUT A MOUNTABLE BERM, AND EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS, OR 10 FEET, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER FABRIC IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENTIAL LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A STONE BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

CONSTRUCTION SEQUENCE

1. CUT AND REMOVE TREES IN CONSTRUCTION AREA AS REQUIRED OR DIRECTED.
2. INSTALL SILT FENCING, HAY BALES AND CONSTRUCTION ENTRANCES PRIOR TO THE START OF CONSTRUCTION. THESE ARE TO BE MAINTAINED UNTIL THE FINAL PAVEMENT SURFACING AND LANDSCAPING AREAS ARE ESTABLISHED.
3. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. THIS INCLUDES ANY REQUIRED DEMOLITION OF EXISTING STRUCTURES, UTILITIES, ETC.
4. CONSTRUCT AND/OR INSTALL TEMPORARY OR PERMANENT SEDIMENT AND/OR DETENTION BASIN(S) AS REQUIRED. THESE FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING RUN-OFF TO THEM.
5. STRIP LOAM AND PAVEMENT, OR RECLAIM EXISTING PAVEMENT WITHIN LIMITS OF WORK PER THE RECOMMENDATIONS OF THE PROJECT ENGINEER AND STOCKPILE EXCESS MATERIAL. STABILIZE STOCKPILE AS NECESSARY.
6. PERFORM PRELIMINARY SITE GRADING IN ACCORDANCE WITH THE PLANS, INCLUDING THE CONSTRUCTION OF ANY RETAINING WALLS AND SOUND WALLS.
7. PREPARE BUILDING PAD(S) TO ENABLE BUILDING CONSTRUCTION TO BEGIN.
8. INSTALL THE SEWER AND DRAINAGE SYSTEMS FIRST, THEN ANY OTHER UTILITIES IN ACCORDANCE WITH THE PLAN AND DETAILS. ANY CONFLICTS BETWEEN UTILITIES ARE TO BE RESOLVED WITH THE INVOLVEMENT AND APPROVAL OF THE ENGINEER.
9. INSTALL INLET PROTECTION AT ALL CATCH BASINS AS THEY ARE CONSTRUCTED IN ACCORDANCE WITH DETAILS.
10. ALL SWALES AND DRAINAGE STRUCTURES ARE TO BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
11. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE DITCHES, CHECK DAMS, SEDIMENT TRAPS, ETC., TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS AND/OR PROPERTY.
12. PERFORM FINAL FINE GRADING, INCLUDING PLACEMENT OF 'SELECT' SUBGRADE MATERIALS.
13. PAVE DRIVEWAYS WITH INITIAL 'BASE COURSE'.
14. PERFORM ALL REMAINING SITE CONSTRUCTION (i.e. BUILDING, CURBING, UTILITY CONNECTIONS, ETC.).
15. LOAM AND SEED ALL DISTURBED AREAS AND INSTALL ANY REQUIRED SEDIMENT AND EROSION CONTROL FACILITIES (i.e. RIP RAP, EROSION CONTROL BLANKETS, ETC.).
16. FINISH PAVING ALL DRIVEWAY WAYS WITH 'FINISH' COURSE.
17. ALL DRIVEWAYS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
18. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
19. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
20. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE BEEN 75%-85% ESTABLISHED AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND RE-VEGETATE ALL DISTURBED AREAS.
21. CLEAN SITE AND ALL DRAINAGE STRUCTURES, PIPES AND SUMPS OF ALL SILT AND DEBRIS.
22. UPON COMPLETION OF CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ANY RELEVANT PERMITTING AGENCIES THAT THE CONSTRUCTION HAS BEEN FINISHED IN A SATISFACTORY MANNER.

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Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.

STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9640 — LICENSED — PROFESSIONAL ENGINEER — 3/22/2022

REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVSION	AJB

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EROSION AND SEDIMENT CONTROL DETAILS
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
E1
SHEET 14 OF 14
JBE PROJECT NO. 20686

March 22, 2022

Stefanie Casella, Planner
Portsmouth Planning Department
1 Junkins Avenue
Portsmouth, NH 03801

SUBJECT: Response to TAC comments
Site Plan Application for a Site Redevelopment
2255 Lafayette Road

Dear Stefanie:

Greenman-Pedersen, Inc. (GPI) is in receipt of the comments provided by the TAC members both in the email dated February 28, 2022 and at the March 1, 2022 TAC meeting, regarding the review of the above mentioned application. Our response to comments is as follows:

1. *The OCS HDPE flow control tee outlet structure should have at least 3 SS straps holding it. Also, there should be no or virtually no sump in that assembly as the concrete structure itself has sufficient sump and it could keep animals from drowning. The OCS detail shows a 24" opening in the concrete top for a 32" manhole cover. The opining should be 30" for entry like a standard manhole, not 24". You should specify the distance required from the open top of the tee to the underside of the manhole top to ensure enough flow can enter the tee in peak flow conditions.*
   Response: The Outlet Control Structure (OCS) detail has been revised to include 3 stainless steel straps, reduce the sump within the flow control tee, and revise the structure opening size to accommodate a 32" manhole cover. The distance from the OCS rim elevation to the elevation of the open top of the flow control tee is approximately 4.7 feet, therefore, there will be no flow restrictions for runoff to enter the open top.

2. The two bollards in front of the Handicapped unloading area don't look like they are spaced out enough to safely pass.
   Response: The bollards at the ADA accessible loading space are proposed at 5ft from center to center, which complies with ADA guidelines. A dimension has been added to the site plan to ensure proper construction.

3. *Please show the multi-use path with shading so we can see it clearly and confirm that there are no physical obstructions in the way. Please confirm it will be graded at no more than 1.6% cross pitch and that it extends from property line to property line.*
   Response: Shading has been added to the added to the multi-use path on the Site Plan and spot shots have been added on the Grading and Drainage Plan to show the path is graded at no more than a 1.6% cross slope.

4. Televise and provide video of existing sewer to DPW for review/approve for adequacy for reuse.
   Response: The existing sewer line was televised, and it was determined that due to the numerous breaks in the line, a new service connection should be proposed. The existing sewer line shall be abandoned in place and plugged at the main.

5. *Water shut off to be inside of a gate valve box if the shut off is located in the paved area.*
   Response: The domestic line has changed to a domestic/fire protection line. The new water shutoff is proposed near the eastern building wall.

6. *Existing water line will need to be abandoned at the main prior to demolition if it is not being reused. Existing service is 1.25" copper. CTS water service will need tracing wire installed, contact Water Dept. for information.*
   Response: A note has been added that the existing water service should be abandoned at the main.

7. *Stormwater maintenance plan will be required.*
   Response: The Stormwater Inspection & Maintenance Plan was included toward the back of the Stormwater Management Report.

8. *Multi use path cross section detailing needs to be provided for approval. 2.5" thick asphalt on 8" of crushed gravel base.*
   Response: A new detail has been added to Sheet 9.

9. *What are the plans for the "future EV charging station"?*
   Response: The applicant is currently working with Tesla on timing of construction. Most likely conduit will be installed, and area brought to grade for their construction in the future.

10. *A Conditional Use Permit will be needed for the drive-through.*
    Response: A letter requesting the CUP and addressing the criteria was submitted with the original submission.

11. *A Wetland Conditional Use Permit will be needed for the impacts to the buffer area.*
    Response: A letter requesting a Wetland CUP for the impacts to the buffer were submitted within the Wetland CUP section of the Land Use Application.

12. *Please provide variance info on the plan set.*
    Response: The date the variances were granted has been added to the Site Plan.

13. *Commercial buildings greater than 5,000 sf require fire sprinkler systems.*
    Response: A fire protection water line has been added to the Utility Plan.

14. *Remove the crosswalk in the back.*
    Response: Per discussions with Tesla, an accessible space with connection to the building sidewalk is required.

15. *Extend a sidewalk along the eastern pavement edge from the multi-use path to the sidewalk in front of the building.*
    Response: A bituminous concrete sidewalk has been added.

16. *The truck turning plan should show the turning path for a Portsmouth Fire Truck.*
    Response: The Truck Turn Plan has been revised.

If you have any questions or need additional information, please feel free to contact me by phone at 603-374-7906 or by email to nduquette@gpinet.com.

Sincerely,

Nicole Duquette

Nicole Duquette, PE, LEED AP
Project Manager

enclosure(s)

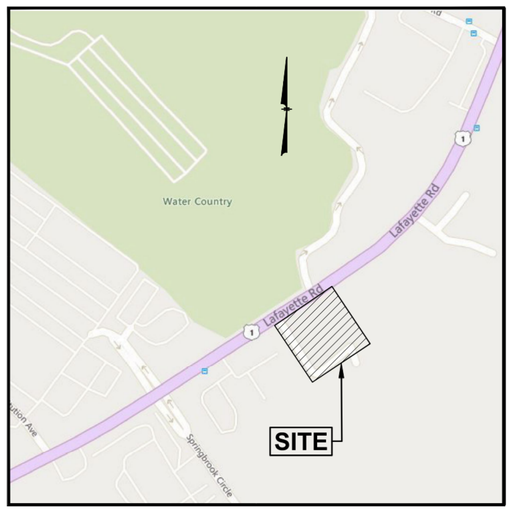
PROPOSED RETAIL MOTOR FUEL OUTLET
SITE REDEVELOPMENT PLANS

for

ASSESSORS MAP 272 LOT 3
2255 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

Prepared for:

GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH 03106



LOCATION MAP
(NOT TO SCALE)

INDEX TO DRAWINGS

1.	TITLE SHEET
2.	EXISTING CONDITIONS PLAN
3.	DEMOLITION PLAN
4.	SITE PLAN
5.	GRADING & DRAINAGE PLAN
6.	UTILITY PLAN
7.	EROSION & SEDIMENT CONTROL PLAN
8.	LANDSCAPE PLAN
9.	DETAIL SHEET
10.	DETAIL SHEET
11.	DETAIL SHEET
12.	DETAIL SHEET
13.	DETAIL SHEET
14.	SIGN & GRAPHICS PLAN
1 OF 1.	TRUCK TURN PLAN
1 OF 2.	LIGHTING PLAN (RL-7838-S1)
2 OF 2.	LIGHTING DETAILS (RL-7838-S1)
1 OF 3.	EXTERIOR ELEVATIONS (A201)
2 OF 3.	EXTERIOR ELEVATIONS (A202)
3 OF 3.	PERSPECTIVE VIEWS (A801)
1 OF 1.	PROPOSED CANOPY ELEVATIONS

GPI Engineering Design Planning Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH

PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD
PORTSMOUTH, NH 03801

STATE OF NEW HAMPSHIRE
DAVID R. JORDAN
No. 7778
LICENSED PROFESSIONAL ENGINEER
3/22/22

REVISIONS		
2	REV. SHEETS 2-9, 11, TT	3/22/22
1	REV. SHEET 4	2/9/22
NO.	REVISION	DATE

JANUARY 26, 2022

DRAWN/DESIGN BY	CHECKED BY
CCC/NID	DRJ

TITLE SHEET

SCALE: NOT TO SCALE

PROJECT NO. NEX-2021163

1 OF 14

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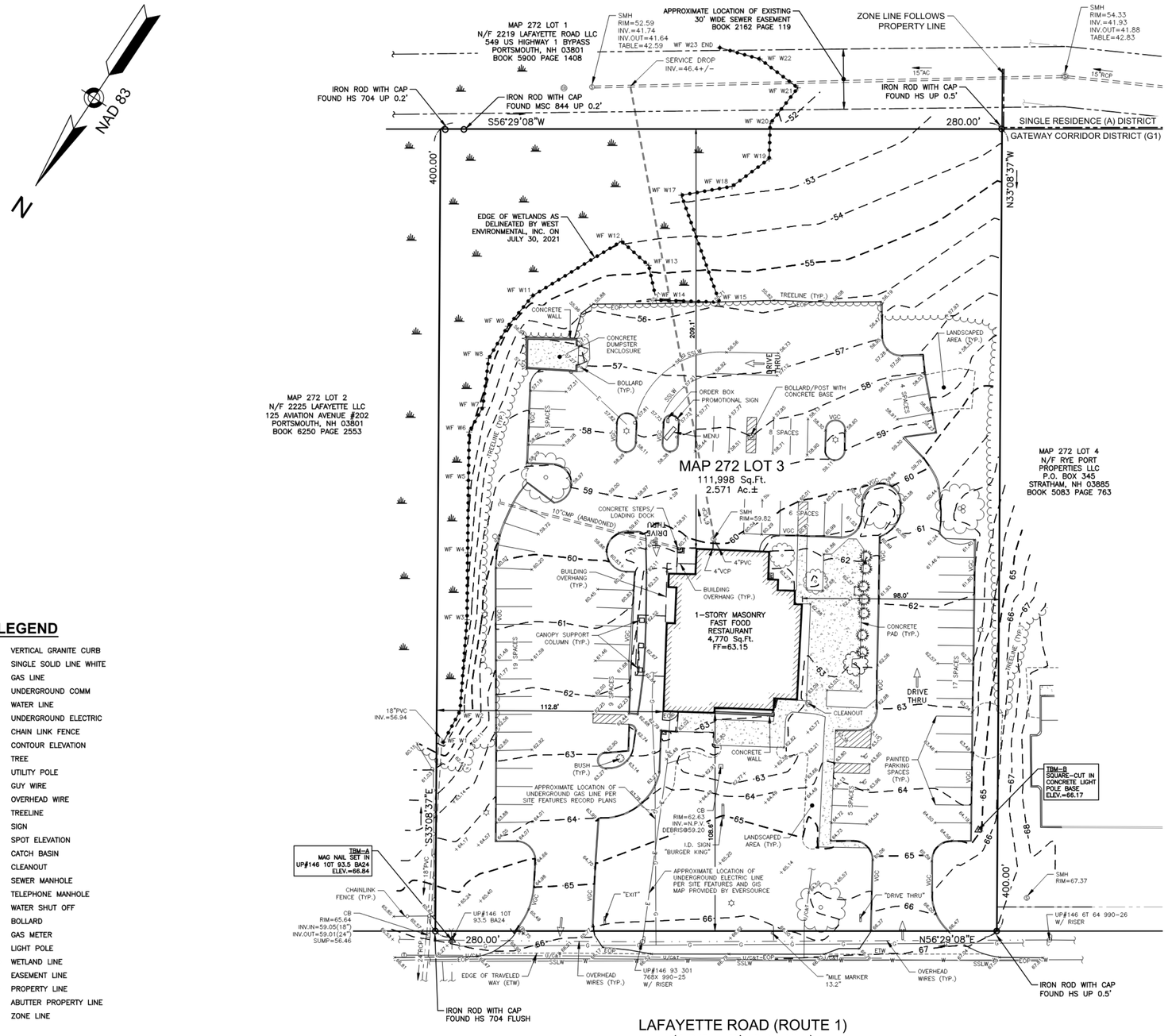

LEGEND

- VGC — VERTICAL GRANITE CURB
- SSLW — SINGLE SOLID LINE WHITE
- G — GAS LINE
- U/Cat — UNDERGROUND COMM
- W — WATER LINE
- E — UNDERGROUND ELECTRIC
- CHAIN LINK FENCE
- 90 — CONTOUR ELEVATION
- TREE
- UTILITY POLE
- GUY WIRE
- OVERHEAD WIRE
- TREELINE
- SIGN
- SPOT ELEVATION
- CATCH BASIN
- CLEANOUT
- SEWER MANHOLE
- TELEPHONE MANHOLE
- WATER SHUT OFF
- BOLLARD
- GAS METER
- LIGHT POLE
- WETLAND LINE
- EASEMENT LINE
- PROPERTY LINE
- ABUTTER PROPERTY LINE
- ZONE LINE

PLAN REFERENCES:

ROCKINGHAM COUNTY REGISTRY OF DEEDS

1) R.C.R.D. PLAN D-33166
2) R.C.R.D. PLAN D-37134
3) R.C.R.D. PLAN D-20705
4) R.C.R.D. PLAN D-15321
5) R.C.R.D. PLAN C-3702
6) R.C.R.D. PLAN C-7649
7) R.C.R.D. PLAN D-41895



LOCATION MAP

(NOT TO SCALE)

NOTES:

1) ZONE: GATEWAY CORRIDOR DISTRICT (G1)
   MIN. LOT SIZE: 1 ACRE
   SETBACKS:
   FRONT 70' TO 90' FROM CENTER OF LAFAYETTE RD
   SIDE 10 Ft.
   REAR 15 Ft.
   REFER TO THE CITY OF PORTSMOUTH ZONING ORDINANCE FOR VERIFICATION, ADDITIONAL RESTRICTIONS AND PERMITTED USES. THE ZONING INFORMATION SHOWN HEREON IS BASED ON A REVIEW OF THE PORTSMOUTH ZONING ORDINANCE.
2) THIS PLAN IS THE RESULT OF AN ON-THE-GROUND FIELD SURVEY PERFORMED BY THIS OFFICE BETWEEN AUGUST 10 AND NOVEMBER 3, 2021.
3) WETLAND FLAGS WERE DELINEATED BY WEST ENVIRONMENTAL, INC. ON JULY 30, 2021 AND LOCATED BY THIS OFFICE.
4) BEARINGS SHOWN HEREON ARE BASED ON NAD83 PER GPS OBSERVATIONS PERFORMED BY THIS OFFICE ON AUGUST 16, 2021.
5) ELEVATIONS SHOWN HEREON ARE BASED ON NAVD88 PER GPS OBSERVATIONS PERFORMED BY THIS OFFICE ON AUGUST 16, 2021.
6) LOCATION OF UNDERGROUND UTILITIES IS APPROXIMATE ONLY. ADDITIONAL UNDERGROUND UTILITIES OTHER THAN THOSE SHOWN MAY BE ENCOUNTERED. INVERTS ARE LISTED IN A CLOCKWISE DIRECTION ENDING WITH THE INVERT OUT (UNLESS OTHERWISE NOTED).
7) THE SURVEY TRACT IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA (100 YEAR FLOOD) PER FLOOD INSURANCE RATE MAP NUMBER 33015C0270F, WITH AN EFFECTIVE DATE OF JANUARY 29, 2021.
8) A TOTAL OF 73 (71 REGULAR, 2 ACCESSIBLE) CLEARLY IDENTIFIABLE PARKING SPACES WERE OBSERVED IN CONDUCTING THIS SURVEY.

WETLAND NOTES

WETLANDS WERE DELINEATED BY WEST ENVIRONMENTAL, INC. ON JULY 30, 2021 UTILIZING THE FOLLOWING STANDARDS:

1) US ARMY CORPS OF ENGINEERS INTERIM REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, TECHNICAL REPORT ERDC/EL TR-09-19 (OCT 2009).
2) FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 7.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2010).
3) NORTH AMERICAN DIGITAL FLORA: NATIONAL WETLAND PLANT LIST, VERSION 2.2.1 (2009).
4) CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES. USFW MANUAL FWS/OBS-79/31 (1979).

STATE OF NEW HAMPSHIRE MARK WEST 8-25-22 No. 010 CERTIFIED WETLAND SCIENTIST

OWNER OF RECORD:

MAP 272 LOT 3
MASTORAN RESTAURANTS, INC.
822 LEXINGTON STREET
WALTHAM, MA 02154
BOOK 3572 PAGE 199

GPI Engineering Design Planning Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH

PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD PORTSMOUTH, NH 03801

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 838 DAVID R. JORDAN SIGNATURE
3/22/22

REVISIONS		
1	REVISE SEWER	3/22/22
NO.	REVISION	DATE

JANUARY 26, 2022

DRAWN/DESIGN BY	CHECKED BY
AKC	DRJ

EXISTING CONDITIONS PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2021163

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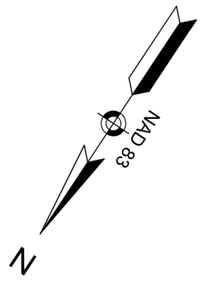

LEGEND

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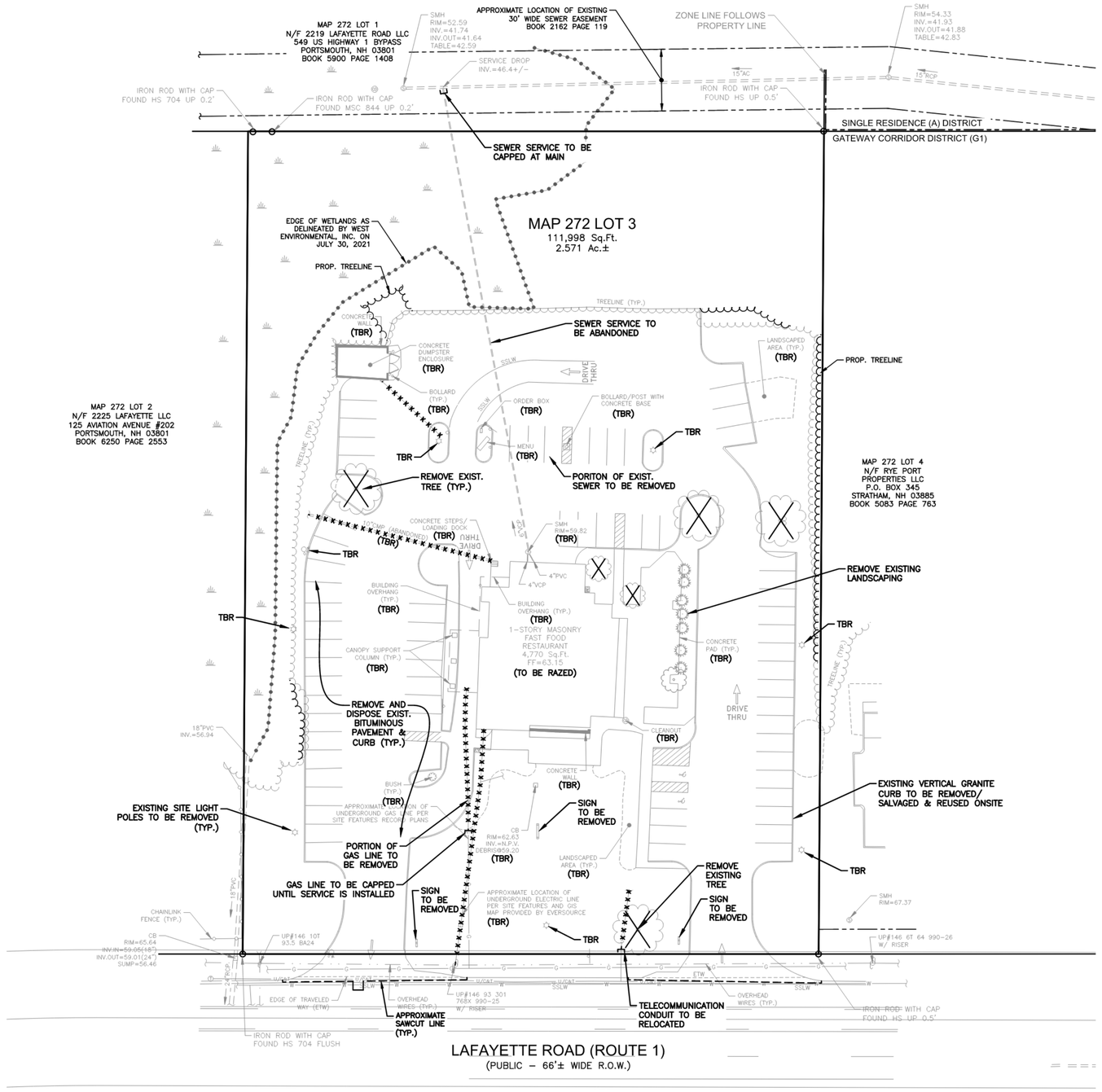
- SSLW — SINGLE SOLID LINE WHITE
- G — GAS LINE
- U/CAT — UNDERGROUND COMM
- W — WATER LINE
- E — UNDERGROUND ELECTRIC
- CHAIN LINK FENCE
- 90 — CONTOUR ELEVATION
- TREE
- UTILITY POLE
- GUY WIRE
- OVERHEAD WIRE
- TREELINE
- SIGN
- 4"=48.69 — SPOT ELEVATION
- CATCH BASIN
- CLEANOUT
- S — SEWER MANHOLE
- T — TELEPHONE MANHOLE
- WATER SHUT OFF
- BOLLARD
- GM — GAS METER
- LIGHT POLE
- WETLAND LINE
- EASEMENT LINE
- PROPERTY LINE
- ABUTTER PROPERTY LINE
- ZONE LINE
- TBR — TO BE REMOVED
- TBR — TO BE REMOVED



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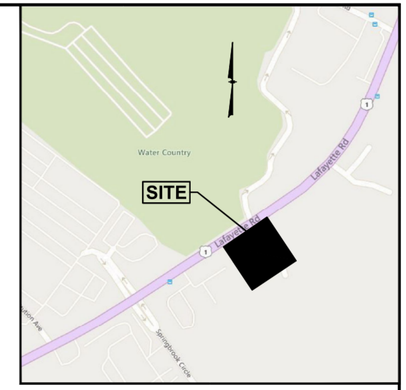
SCALE: 1" = 30'



LOCATION MAP

(NOT TO SCALE)

NOTES:

1) A DEMOLITION PERMIT MUST BE OBTAINED FROM THE CITY OF PORTSMOUTH PRIOR TO COMMENCEMENT OF WORK. ALL EXISTING UTILITY DISCONNECTIONS MUST BE COORDINATED WITH RESPECTIVE UTILITY COMPANIES.
2) ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN STRICT ADHERENCE TO ALL FEDERAL, STATE AND LOCAL REGULATIONS. CONTRACTOR TO INSTALL EROSION CONTROL DEVICES IN ACCORDANCE WITH EROSION AND SEDIMENT CONTROL PLAN PRIOR TO BEGINNING DEMOLITION ACTIVITIES.
3) PROCEED WITH DEMOLITION IN A SYSTEMATIC MANNER, FROM THE TOP OF THE STRUCTURE(S) TO THE GROUND.
4) DEMOLISH CONCRETE IN ALL SECTIONS
5) BREAK UP CONCRETE SLABS–ON–GRADE, UNLESS OTHERWISE DIRECTED BY THE CONSTRUCTION MANAGER.
6) CONDUCT ALL DEMOLITION OPERATIONS IN A MANNER THAT WILL PREVENT INJURY, DAMAGE TO STRUCTURES, ADJACENT BUILDINGS AND ALL PERSONS.
7) REFRAIN FROM USING EXPLOSIVES WITHOUT PRIOR WRITTEN CONSENT OF THE DEVELOPER AND APPLICABLE GOVERNMENTAL AUTHORITIES.
8) CONDUCT DEMOLITION SERVICES IN SUCH A MANNER TO INSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS AND OTHER ADJACENT FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED FACILITIES WITHOUT PRIOR WRITTEN PERMISSION OF THE DEVELOPER AND APPLICABLE GOVERNMENTAL AUTHORITIES. PROVIDE ALTERNATIVE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY APPLICABLE GOVERNMENTAL REGULATIONS.
9) USE WATERING, TEMPORARY ENCLOSURES AND OTHER SUITABLE METHODS, AS NECESSARY TO LIMIT THE AMOUNT OF DUST AND DIRT RISING AND SCATTERING IN THE AIR. CLEAN ADJACENT STRUCTURE AND IMPROVEMENTS OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. RETURN ALL ADJACENT AREAS TO THE CONDITIONS EXISTING PRIOR TO THE START OF WORK.
10) ACCOMPLISH AND PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS AT ANY TIME.
11) COMPLETELY FILL BELOW GRADE AREAS AND VOIDS RESULTING FROM THE DEMOLITION OF STRUCTURES AND FOUNDATIONS WITH SOIL MATERIALS CONSISTING OF STONE, GRAVEL AND SAND, FREE FROM DEBRIS, TRASH, FROZEN MATERIALS, ROOTS AND OTHER ORGANIC MATTER. STONES USED WILL NOT BE LARGER THAT 6 INCHES IN DIMENSION. MATERIAL FROM DEMOLITION MAY NOT BE USED AS FILL. PRIOR TO PLACEMENT OF FILL MATERIALS, UNDERTAKE ALL NECESSARY ACTION IN ORDER TO INSURE THAT AREAS TO BE FILLED ARE FREE OF STANDING WATER, FROZEN MATERIAL, TRASH, DEBRIS. PLACE FILL MATERIALS LAYERS NOT EXCEEDING 6 INCHES IN LOOSE DEPTH AND COMPACT EACH LAYER AT PLACEMENT TO 95% OPTIMUM DENSITY, GRADE SURFACE TO MEET ADJACENT CONTOURS AND TO PROVIDE SURFACE DRAINAGE.
12) REMOVE FROM THE DESIGNATED SITE, AT THE EARLIEST POSSIBLE TIME, ALL DEBRIS RUBBISH, SALVAGEABLE ITEMS, HAZARDOUS AND COMBUSTIBLE SERVICES. REMOVED MATERIALS MAY NOT BE STORED, SOLD OR BURNED ON SITE. REMOVAL OF HAZARDOUS AND COMBUSTIBLE MATERIALS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE PROCEDURES AS AUTHORIZED BY THE FIRE DEPARTMENT OR OTHER APPROPRIATE REGULATORY AGENCIES AND DEPARTMENTS.
13) DISCONNECT, SHUT OFF AND SEAL ALL UTILITIES SERVING THE STRUCTURE(S) TO BE DEMOLISHED BEFORE THE COMMENCEMENT OF THE DESIGNATED DEMOLITION. MARK FOR POSITION ALL UTILITY DRAINAGE AND SANITARY LINES AND PROTECT ALL ACTIVE LINES. CLEARLY IDENTIFY BEFORE THE COMMENCEMENT OF DEMOLITION SERVICES THE REQUIRED INTERRUPTION OF ACTIVE SYSTEMS THAT MAY AFFECT OTHER PARTIES, AND NOTIFY ALL APPLICABLE UTILITY COMPANIES TO INSURE THE CONTINUATION OF SERVICE.
14) PROTECT EXISTING DRAINAGE SYSTEM(S) AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING DURING CONSTRUCTION. SEE DETAIL SHEETS FOR EROSION CONTROL DEVICES.
15) ALL WORK WITHIN ROADWAY RIGHT–OF–WAYS TO CONFORM TO CITY STANDARDS.
16) THE LIMITS OF WORK SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OR SITE CLEARING.
17) IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY DIG SAFE (DIAL 811) 72 HOURS PRIOR TO ANY EXCAVATION ON THIS SITE. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER DEPARTMENT TO MARK OUT THEIR UTILITIES.
18) NOTES ON THIS PLAN THAT READ "TBR" REPRESENT FEATURES TO BE REMOVED. ANY FEATURES NOT LABELED "TBR" OR "TO BE REMOVED" SHALL BE CONSIDERED EXISTING TO REMAIN.

SEE EROSION & SEDIMENT CONTROL PLAN FOR CONSTRUCTION SEQUENCE, TEMPORARY EROSION CONTROL MEASURES, AND LOCATION OF EROSION CONTROL DEVICES. SEE LANDSCAPE PLAN FOR LIMITS OF CLEARING.

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Salem, NH 03079

PREPARED FOR
GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH

PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD PORTSMOUTH, NH 03801

DAVID R. JORDAN No. 7778 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
3/22/22

REVISIONS		
1	REV. PER CITY COMMENTS	3/22/22
NO.	REVISION	DATE

JANUARY 26, 2022

DRAWN/DESIGN BY	CHECKED BY
CCC/NID	DRJ

DEMOLITION PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2021163

3 OF 14

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SIGN KEY

SIGN I.D. NUMBER	TEXT/COLOR	SIZE/REMARKS
R1-1	STOP R/W	30" x 30" NEW SIGN WITH POST
R5-1	DO NOT ENTER R/W	30" x 30" NEW SIGN WITH POST
R7-8	RESERVED PARKING G/B/W	12" x 18" NEW SIGN WITH POST
R7-8A	VAN ACCESSIBLE G/W	6" X 12"

SITE COMPARISON TABLE

DESCRIPTION	EXISTING	PROPOSED
SURFACE PARKING & DRIVEWAY	59,940 SF	57,064 SF
OTHER IMPERVIOUS SURFACES	5,358 SF	5,750 SF
NUMBER OF PARKING SPACES	73	35
IMPERVIOUS AREA WITHIN WETLAND BUFFER	29,452 SF	20,328 SF

TABLE OF ZONING REGULATIONS - PORTSMOUTH, NH

ZONE: GATEWAY CORRIDOR (G1)

DESCRIPTION	REQUIRED	PROVIDED
MINIMUM LOT AREA	1 ACRE	2.57 ACRES
MINIMUM FRONT YARD BUILDING SETBACK	70' TO 90' FROM CENTER OF LAFAYETTE RD	120' (CANOPY), 203' (C-STORE) *
MINIMUM SIDE YARD BUILDING SETBACK	10'	63' (CANOPY), 83' (C-STORE)
MINIMUM REAR YARD BUILDING SETBACK	15'	173' (C-STORE)
PARKING DIMENSIONS	8.5'x19', 24' DRIVE AISLE	9'x19', 24' DRIVE AISLE
MINIMUM NUMBER PARKING SPACES	RETAIL = 4,555 SF x 1 SPACE/300 SF GFA = 15.18 SPACES RESTAURANT = 1,000 SF x 1 SPACE/100 SF = 10 SPACES RETAIL FUEL = 2 SPACES + 0 SF x 1 SPACE/400 SF GFA = 2 SPACES TOTAL SPACES REQUIRED = 28 SPACES	35 SPACES (14 PARKING SPACES + 11 PARKING SPACES/CHARGING STATION SPACES + 10 PARKING SPACES AT THE PUMPS) *
MAXIMUM COVERAGE	70%	555,660 SF/111,998 SF = 49.7%
MINIMUM OPEN SPACE	10%	56,338 SF/111,998 SF = 50.3%
MAXIMUM BUILDING HEIGHT	40 FT OR 3 STORIES	<40 FT, 1 STORY

* SEE NOTE 17

LEGEND

- VGC — VERTICAL GRANITE CURB
- SSLW — SINGLE SOLID LINE WHITE
- G — GAS LINE
- UGT — UNDERGROUND COMM
- W — WATER LINE
- E — UNDERGROUND ELECTRIC
- CHAIN LINK FENCE
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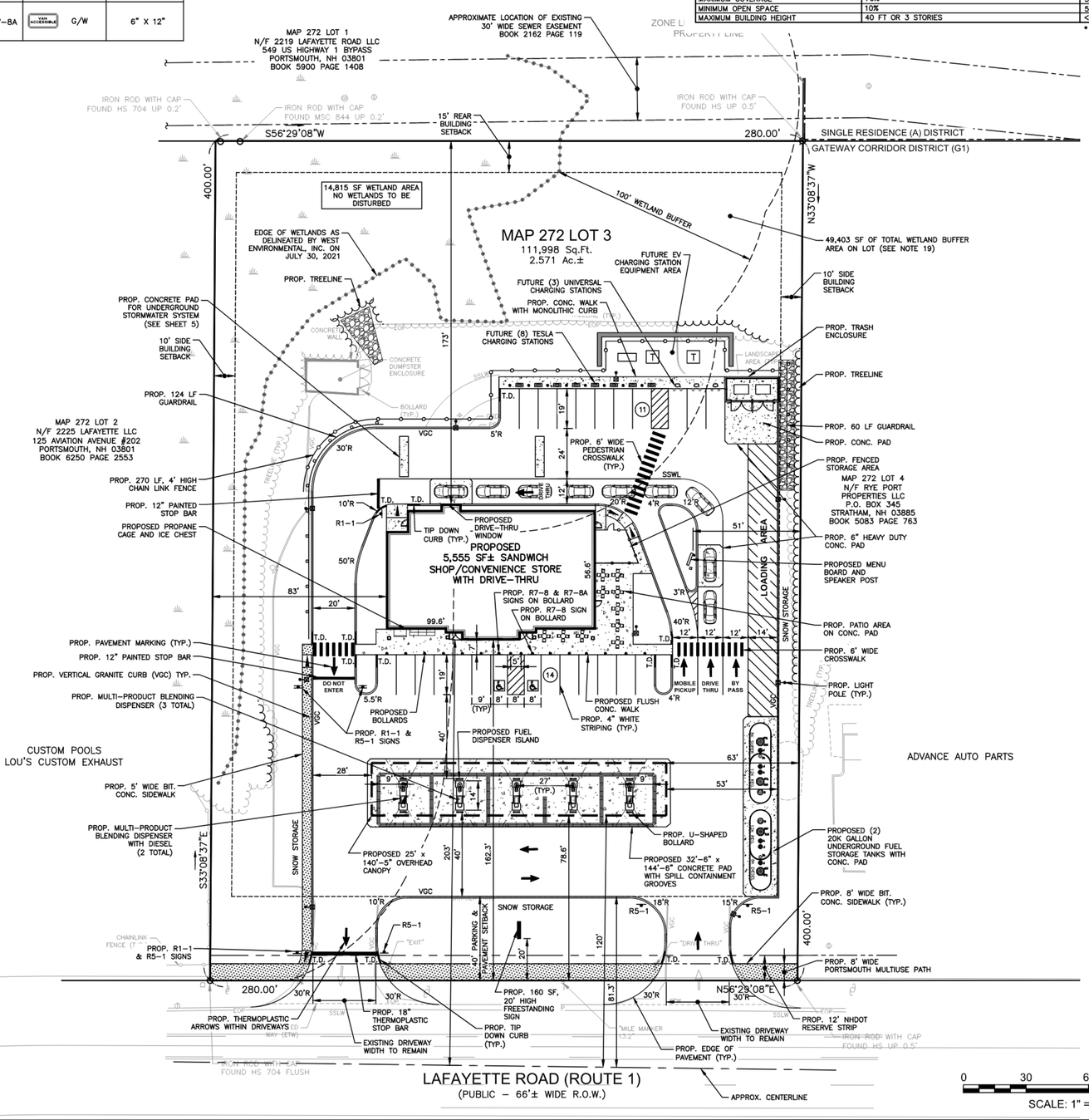
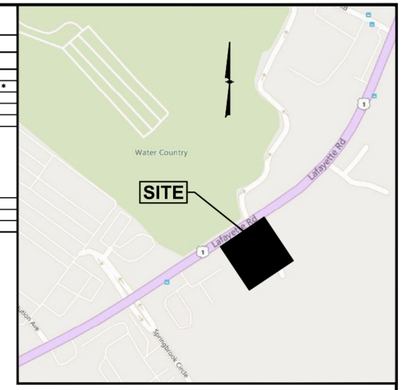
- SEWER MANHOLE
- TELEPHONE MANHOLE
- WATER SHUT OFF
- BOLLARD
- GM — GAS METER
- LIGHT POLE
- WETLAND LINE
- EASEMENT LINE
- PROPERTY LINE
- ABUTTER PROPERTY LINE
- ZONE LINE
- (1) — NUMBER OF PARKING SPACES





LOCATION MAP

(NOT TO SCALE)

NOTES:

1) TAX MAP 272 LOT 3
2) ZONING DISTRICT: GATEWAY CORRIDOR (G1)
3) LOT AREA = 111,988 Sq.Ft.
   = 2.571 Ac.±
4) EXISTING USE: FAST FOOD RESTAURANT WITH DRIVE-THRU

   PROPOSED USE: RETAIL MOTOR FUEL OUTLET WITH 5,555 SF CONVENIENCE STORE/SANDWICH SHOP WITH 6 SEATS INTERIOR & UP TO 40 EXTERIOR SEATS AND DRIVE-THRU AND 5 FUEL DISPENSER ISLANDS WITH OVERHEAD CANOPY.
5) ALL BUILDINGS AND SITE CONSTRUCTION SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT (ADA) AS REVISED IN 2010.
6) THE LOCATIONS OF EXISTING SUBSURFACE UTILITIES SHOWN ON THIS PLAN WERE COMPILED FROM AVAILABLE RECORD DRAWINGS AND ARE NOT WARRANTED TO BE CORRECT. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING SUBSURFACE UTILITIES PRIOR TO PERFORMING ANY WORK.
7) WRITTEN DIMENSIONS ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR.
8) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE 811 PRIOR TO ANY EXCAVATION.
9) ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE CITY OF PORTSMOUTH AND THE STATE OF NEW HAMPSHIRE.
10) THE SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA (100 YEAR FLOOD) PER FLOOD INSURANCE RATE MAP NUMBER 33015C0270F, WITH AN EFFECTIVE DATE OF JANUARY 29, 2021.
11) ALL CONSTRUCTION SHALL CONFORM TO THESE PLANS AND THE STANDARD CONSTRUCTION DRAWINGS AS SUPPLIED BY THE DEVELOPER.
12) A SIGN PERMIT SHALL BE OBTAINED PRIOR TO INSTALLATION.
13) PROPOSED SNOW STORAGE AREAS AS SHOWN. ANY EXCESS SNOW TO BE TRUCKED OFF-SITE.
14) THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY GREENMAN-PEDERSEN, INC., DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE SURVEYOR AND/OR ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE AND/OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
15) ALL UNDERGROUND STORAGE TANKS, PRODUCT PIPING AND VENT LINES SHALL COMPLY WITH CURRENT STATE AND E.P.A. REGULATIONS.
16) SELF-SERVICE APPROVAL IS REQUIRED FROM THE OFFICE OF THE STATE FIRE MARSHAL. SEE APPROVED FIRE SUPPRESSION PLAN FOR LAYOUT OF SPILL CONTAINMENT GROOVES (POSITIVE LIMING BARRIER).
17) RELIEF WAS GRANTED BY THE ZONING BOARD OF ADJUSTMENT ON FEBRUARY 15, 2022 TO ALLOW THE FOLLOWING:
   - PARKING SPACES BETWEEN PRINCIPAL BUILDING AND ROAD (ZONING 10.1113.20)
   - GREATER THAN 90' BUILDING SETBACK FROM LAFAYETTE ROAD (ZONING 10.5.B.22.40)
   - LESS THAN 75% FRONT LOT LINE BUILDOUT (SECTION 10.5.B.33.20)
   - MORE THAN ONE DRIVEWAY PER LOT (SECTION 10.1114.31)
   - TO ALLOW A 160 SF FREESTANDING SIGN (SECTION 10.1251.20)
18) RELIEF IS REQUESTED FROM THE PLANNING BOARD TO ALLOW THE FOLLOWING:
   - GREATER THAN ONE DRIVEWAY PER LOT. (SITE PLAN 3.3.2). EXISTING SITE HAS TWO DRIVEWAYS
19) A CONDITIONAL USE PERMIT IS REQUIRED FROM THE PLANNING BOARD TO ALLOW THE FOLLOWING:
   - A WETLAND BUFFER DISTURBANCE OF 33,555 SF PER SECTION 10.241.23. THIS TOTAL INCLUDES DISTURBANCE REQUIRED TO REMOVE EXISTING DISTURBANCES AND RETURN THEM TO A MORE NATURAL STATE.
   - A DRIVE-THRU FACILITY PER SECTION 10.440
20) APPROPRIATE EROSION CONTROL MEASURES (HAY BALES, SILT FENCE) SHALL BE INSTALLED PRIOR TO INITIATION OF ANY SITE WORK & SHALL BE MAINTAINED BY THE DEVELOPER UNTIL ADEQUATE VEGETATIVE COVER IS ESTABLISHED ON ALL GRADED AREAS. SEE EROSION & SEDIMENT CONTROL PLAN.
21) ELECTRIC CONDUIT TO BE INSTALLED FOR FUTURE CHARGING STATIONS.
22) ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
23) PERMITS REQUIRED:
   - NHDOT DRIVEWAY PERMIT
   - USEPA NPDES CONSTRUCTION GENERAL PERMIT

OWNER OF RECORD:

MAP 272 LOT 3
MASTORAN RESTAURANTS, INC.
822 LEXINGTON STREET
WALTHAM, MA 02154
BOOK 3572 PAGE 199

GPI Engineering Design Planning Construction Management
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PREPARED FOR
GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH

PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD PORTSMOUTH, NH 03801

DAVID R. JORDAN No. 7778 STATE OF NEW HAMPSHIRE PROFESSIONAL ENGINEER
3/22/22

REVISIONS		
2	REV. PER CITY COMMENTS	3/22/22
1	REV. FOR SITE PLAN APPROVAL	2/9/22
NO.	REVISION	DATE

JANUARY 26, 2022

DRAWN/DESIGN BY	CHECKED BY
CCC/NID	DRJ

SITE PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2021163

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DRAINAGE PIPE SCHEDULE

FROM: STRUCTURE NUMBER	PIPE SIZE (INCHES)	TYPE OF PIPE	APPROX. PIPE LENGTH (FEET)	SLOPE OF PIPE (FT./FT.)	TO: STRUCTURE NUMBER
CB–1	12	HDPE	51	0.011	DMH–1
CB–2	12	HDPE	139	0.005	CB–6
CB–3(FD)	12	HDPE	29	0.063	DET IN–1
CB–4(FD)	18	HDPE	81	0.005	DMH–2
CB–5	18	HDPE	70	0.005	CB–4(FD)
CB–6	15	HDPE	94	0.005	CB–5
DET OUT	24	HDPE	7	0.000	OCS–1
DMH–1	12	HDPE	66	0.014	CB–6
DMH–2	6	HDPE	10	0.010	OWS–IN
DMH–2	18	HDPE	29	0.032	DET IN–2
DMH–3	12	HDPE	30	0.010	CB–3(FD)
OCS–1	18	HDPE	26	0.019	FES–1
OWS–OUT	6	HDPE	7	0.013	DET IN–3

DRAINAGE STRUCTURES

CB–1
RIM=64.55
INV.OUT=61.05

CB–2
RIM=63.70
INV.OUT=60.10

CB–3(FD)
RIM=62.80
INV.IN=58.90(DMH–3)
INV.OUT=58.80

CB–4(FD)(DG)
RIM=61.70
INV.IN=58.05(CB–5)
INV.OUT=57.95

CB–5
RIM=63.05
INV.IN=58.65(CB–6)
INV.OUT=58.40

CB–6
RIM=63.90
INV.IN=59.40(CB–2)
INV.IN=59.50(DMH–1)
INV.OUT=59.15

DMH–1
RIM=65.30
INV.IN=60.50(CB–1)
INV.OUT=60.40

DMH–2
RIM=63.30
INV.IN=57.55(CB–4(FD))
INV.OUT=57.95 (18" BYPASS)
INV.OUT=57.45 (6" LOW FLOW)

DMH–3
RIM=64.00
INV.IN=59.25(RD)
INV.OUT=59.20

FES–1
INV.=56.50

4,000 GAL OIL/WATER SEPARATOR–1
(OWS–1)
RIM=63.75±
INV.IN=57.35
INV.OUT=57.10

UNDERGROUND DETENTION SYSTEM
(UG DET)
36"ø SOLID (WT) PIPES
4 ROWS + 2 HEADERS
67.00'L x 19.25'W
S=0.000 FT/FT
INV.PIPE=57.00
INV'S.IN=57.00
INV.OUT=57.00
(SEE DETAIL)

OUTLET CONTROL STRUCTURE (OCS–1)
RIM=63.70
INV.IN=57.00
INV.OUT=57.00
(SEE DETAIL)

(FD) DENOTES FIRST DEFENSE FD–4HC HYRODYNAMIC PARTICLE SEPARATOR OR APPROVED EQUAL.

(WT) DENOTES WATERTIGHT PIPE JOINTS

(DG) DENOTES DOUBLE CATCH BASIN FRAME AND GRATE

LEGEND

- VGC — VERTICAL GRANITE CURB
- SSLW — SINGLE SOLID LINE WHITE
- G — GAS LINE
- UG/C&T — UNDERGROUND COMM
- W — WATER LINE
- E — UNDERGROUND ELECTRIC
- CHAIN LINK FENCE
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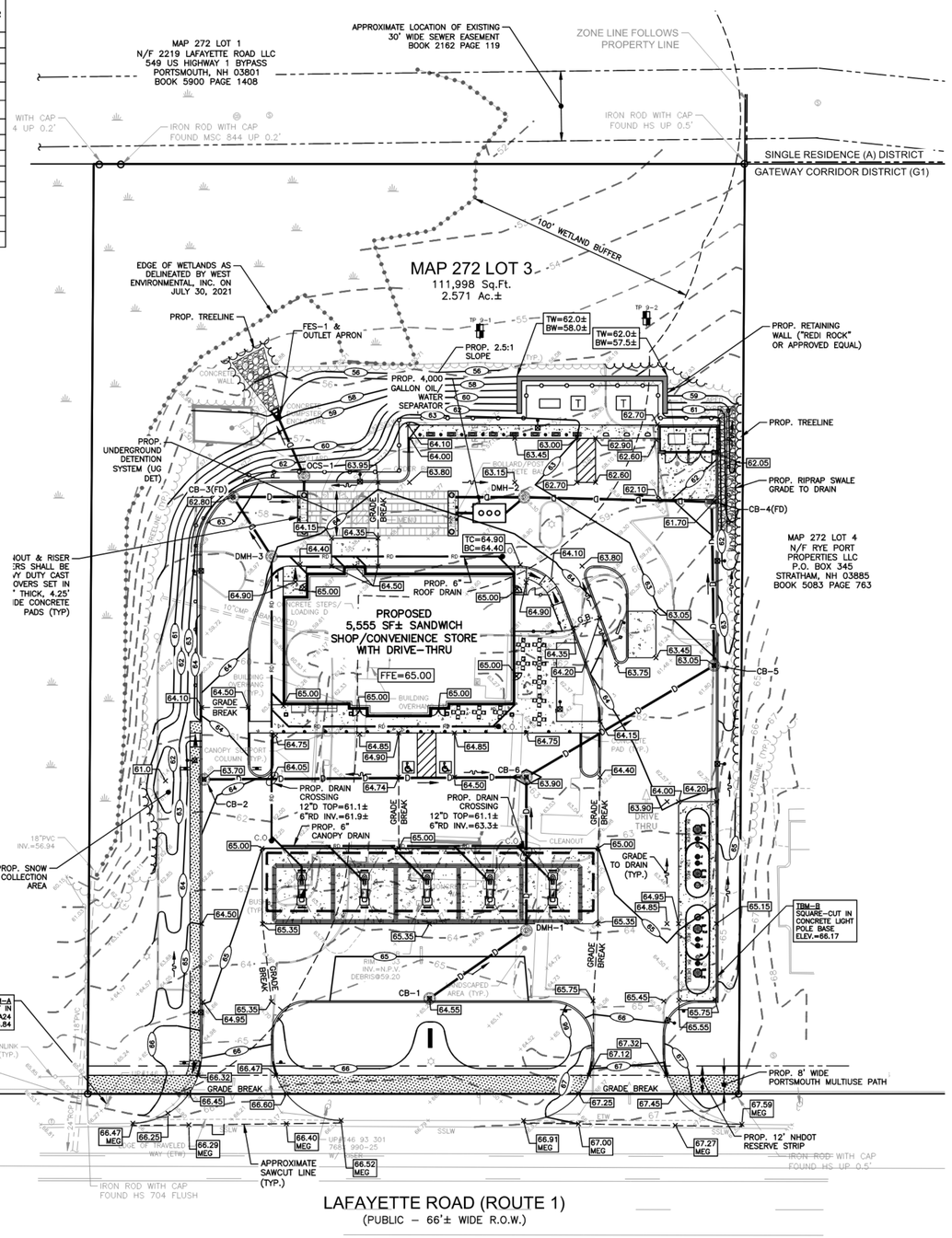
- TREE
- UTILITY POLE
- GUY WIRE
- OVERHEAD WIRE
- TREELINE
- SIGN
- SPOT ELEVATION
- CATCH BASIN
- CLEANOUT
- SEWER MANHOLE
- TELEPHONE MANHOLE
- WATER SHUT OFF
- BOLLARD
- GM — GAS METER
- LIGHT POLE
- WETLAND LINE
- EASEMENT LINE
- PROPERTY LINE
- ABUTTER PROPERTY LINE
- ZONE LINE
- C.O. — PROP. CLEANOUT
- CB–1 — PROP. CATCH BASIN
- DMH–1 — PROP. DRAIN MANHOLE
- MEG — MEET EXISTING GRADE
- 331.25 — PROP. SPOT ELEVATION
- 330 — PROP. CONTOUR ELEVATION
- TW= — TOP OF WALL ELEV.
- BW= — BOTTOM OF WALL ELEV.
- G.B. — GRADE BREAK
- TP — TEST PIT



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SCALE: 1" = 30'



LOCATION MAP

(NOT TO SCALE)

NOTES:

1) ALL SITE DRAINAGE PIPE SHALL BE CORRUGATED HIGH–DENSITY POLYETHYLENE PIPE WITH STANDARD JOINTS, DUAL–WALL, SMOOTH INTERIOR, AS MANUFACTURED BY ADS, INC., OR APPROVED EQUAL. UNLESS OTHERWISE NOTED ON PLAN. THE UNDERGROUND DETENTION SYSTEM SHALL HAVE WATER TIGHT JOINTS MEETING ASTM D3212 SPECIFICATIONS.
2) ALL ROOF AND CANOPY DRAIN PIPE SHALL BE 6" PVC (SDR–35).
3) ELEVATIONS ARE BASED ON NAVD88 DATUM.
4) ALL PROPOSED ELEVATIONS AS SHOWN ARE BOTTOM OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
5) ANY UTILITY FIELD ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER OF RECORD AND COORDINATED WITH THE APPROPRIATE LOCAL UTILITY COMPANY.
6) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR IS TO VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND INSTALLATIONS SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
7) ALL CONSTRUCTION SHALL CONFORM TO MUNICIPAL DPW AND ALL APPLICABLE STATE AND FEDERAL STANDARDS.
8) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIG–SAFE (DIAL 811) PRIOR TO COMMENCING ANY EXCAVATION.
9) THIS SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE SITE CONSTRUCTION SINCE THE DISTURBANCE EXCEEDS ONE ACRE (ACTUAL DISTURBANCE = 75,000 SF±). THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH SHALL REMAIN ON SITE AND MADE ACCESSIBLE TO THE PUBLIC. A COMPLETED NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET: FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
10) ANY UTILITIES TO BE TAKEN OUT OF SERVICE SHALL BE DISCONNECTED AS DIRECTED BY UTILITY COMPANY AND LOCAL DPW.
11) ALL TRAFFIC CONTROL AND TEMPORARY CONSTRUCTION SIGNAGE ARRANGEMENTS, ACCEPTABLE TO NHDOT AND THE CITY DEPARTMENT OF PUBLIC WORKS, SHALL BE EMPLOYED DURING OPERATIONS WITHIN THE PUBLIC RIGHT–OF–WAY.
12) ALL ADA ACCESSIBLE WALKWAYS CANNOT EXCEED 5% RUNNING SLOPE AND 2% CROSS SLOPE, RAMPS CANNOT EXCEED 8.33% RUNNING SLOPE AND 2% CROSS SLOPE, AND ACCESSIBLE PARKING STALLS AND ACCESS AISLES CANNOT EXCEED 2% SLOPE IN ANY DIRECTION. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
13) SEE UTILITY PLAN FOR DETAILED UTILITY LAYOUT.
14) ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS AND OUTLETS EQUIPPED WITH "ELIMINATOR" OIL HOODS OR APPROVED EQUAL.
15) ALL PIPE DATA IS CALCULATED TO CENTER OF STRUCTURE, TYP.
16) CONTRACTOR TO REFER TO THE INSPECTION & MAINTENANCE (I&M) MANUAL FOR STORMWATER MANAGEMENT SYSTEMS & SITE MAINTENANCE DURING AND AFTER CONSTRUCTION.
17) CONTRACTOR TO INSTALL RISER STRUCTURES AT EACH CORNER OF UNDERGROUND DETENTION SYSTEMS AND CLEANOUTS AT EACH END OF EACH ROW TO PROVIDE ACCESS POINTS FOR CLEANING AND MAINTENANCE.
   – TOTAL RISERS PROPOSED = 4
   – TOTAL CLEANOUTS PROPOSED = 4

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44 Stiles Road, Suite One
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PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD PORTSMOUTH, NH 03801

STATE OF NEW HAMPSHIRE — DAVID R. JORDAN No. 7778 LICENSED PROFESSIONAL ENGINEER — 3/22/22

REVISIONS		
1	REV. PER CITY COMMENTS	3/22/22
NO.	REVISION	DATE

JANUARY 26, 2022

DRAWN/DESIGN BY	CHECKED BY
CCC/NID	DRJ

GRADING & DRAINAGE PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2021163

5 OF 14

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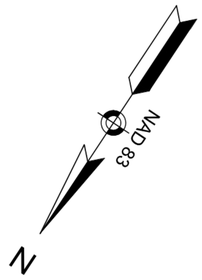

LEGEND

- VGC — VERTICAL GRANITE CURB
- SSLW — SINGLE SOLID LINE WHITE
- G — GAS LINE
- U/G&T — UNDERGROUND COMM
- W — WATER LINE
- E — UNDERGROUND ELECTRIC
- CHAIN LINK FENCE
- 90 — CONTOUR ELEVATION
- TREE
- UTILITY POLE
- GUY WIRE
- OVERHEAD WIRE
- TREELINE
- SIGN
- 118.69 — SPOT ELEVATION
- CATCH BASIN
- CLEANOUT
- SEWER MANHOLE
- TELEPHONE MANHOLE
- WATER SHUT OFF
- BOLLARD
- GM — GAS METER
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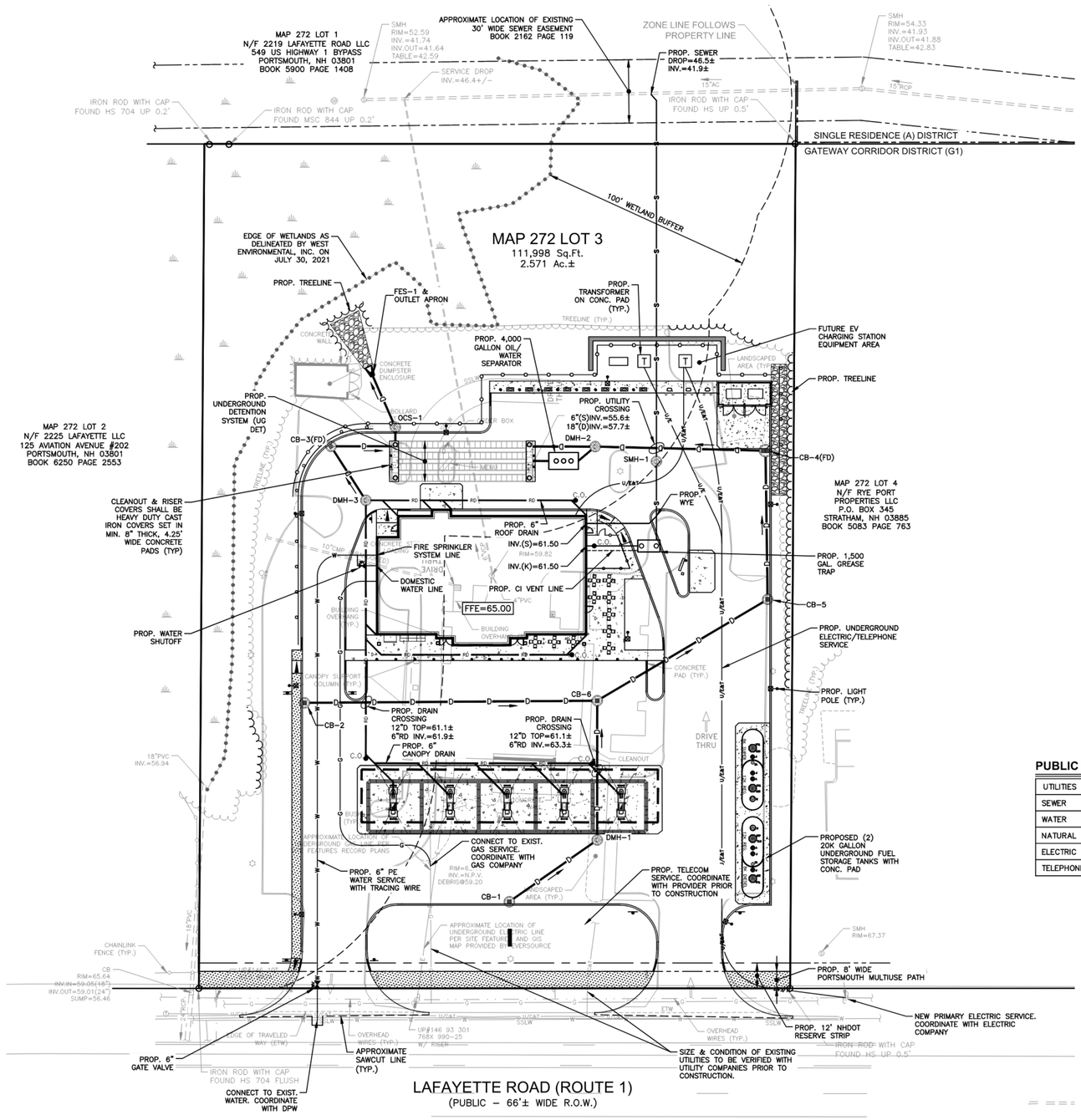
- PROPERTY LINE
- ABUTTER PROPERTY LINE
- ZONE LINE
- C.O. — PROP. CLEANOUT
- CB–1 — PROP. CATCH BASIN
- DMH–1 — PROP. DRAIN MANHOLE
- SMH–1 — PROP. SEWER MANHOLE
- PROP. GATE VALVE



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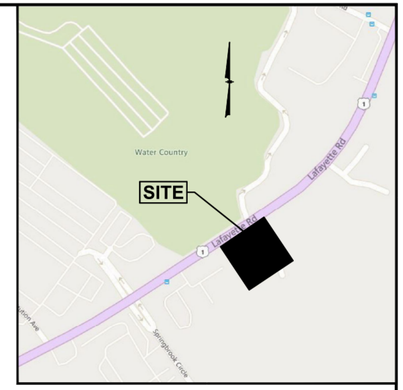
SCALE: 1" = 30'



LOCATION MAP

(NOT TO SCALE)

NOTES:

1) ALL SANITARY SEWER PIPE SHALL BE PVC (SDR–35), UNLESS OTHERWISE NOTED.
2) ALL WATER PIPE SHALL BE POLYETHYLENE, UNLESS OTHERWISE NOTED.
3) ANY UTILITY FIELD ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER OF RECORD AND COORDINATED WITH THE APPROPRIATE LOCAL UTILITY COMPANY.
4) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR IS TO VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.
5) ALL CONSTRUCTION SHALL CONFORM TO MUNICIPAL DPW AND ALL APPLICABLE STATE AND FEDERAL STANDARDS.
6) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIG–SAFE (1–888–344–7233) PRIOR TO COMMENCING ANY EXCAVATION.
7) ALL WATER AND SEWER CONSTRUCTION SHALL CONFORM TO DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS.
8) THIS SITE IS SERVED BY MUNICIPAL SEWER AND WATER.
9) ALL ELECTRIC, TELEPHONE AND CABLE TV LINES ARE TO BE UNDERGROUND AND INSTALLED IN CONFORMANCE WITH APPLICABLE UTILITY CO. SPECIFICATIONS.
10) ANY UTILITIES TO BE TAKEN OUT OF SERVICE SHALL BE DISCONNECTED AS DIRECTED BY UTILITY COMPANY AND LOCAL DPW.
11) ALL TRAFFIC CONTROL AND TEMPORARY CONSTRUCTION SIGNAGE ARRANGEMENTS, ACCEPTABLE TO NHDOT AND CITY DEPARTMENT OF PUBLIC WORKS, SHALL BE EMPLOYED DURING OPERATIONS WITHIN THE PUBLIC RIGHT–OF–WAY.
12) SEE GRADING & DRAINAGE PLAN FOR DETAILED DRAINAGE INFORMATION.
13) ELECTRICAL CONDUIT WITHIN 20' OF TANKS OR DISPENSERS MAY NEED TO BE RIGID METAL CONDUIT WITH CONCRETE ENCASEMENT. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY AND/OR TOWN ELECTRICAL INSPECTOR AS REQUIRED.
14) REFER TO DETAIL SHEETS FOR ALL UTILITY AND DRAINAGE STRUCTURE DETAILS AND ADDITIONAL INFORMATION.
15) ELECTRIC CONDUIT TO BE PROVIDED FOR FUTURE EV CHARGING STATIONS.
16) EXISTING WATER SERVICE LOCATION IS UNKNOWN. CONTRACTOR TO LOCATE AND DISCONTINUE SERVICE AT THE MAIN.

PUBLIC UTILITIES

UTILITIES		AVAILABLE
SEWER	CITY OF PORTSMOUTH PUBLIC WORKS DEPT., PETER RICE 603–427–1530	YES
WATER	CITY OF PORTSMOUTH PUBLIC WORKS DEPT., PETER RICE 603–427–1530	YES
NATURAL GAS	UNITIL, DAVE MACLEAN 603–294–5261	YES
ELECTRIC	EVERSOURCE, CASEY MCDONALD 603–519–0924	YES
TELEPHONE	CONSOLIDATED COMMUNICATIONS	YES

SEWER PIPE SCHEDULE

FROM: STRUCTURE NUMBER	PIPE SIZE (inches)	TYPE OF PIPE	APPROX. PIPE LENGTH (feet)	SLOPE OF PIPE (ft./ft.)	TO: STRUCTURE NUMBER
BLDG.	6	CI	20	0.056	GR. TRAP
GR. TRAP	6	PVC	35	0.081	SMH–1
BLDG.	6	PVC	38	0.067	WYE
SMH–1	6	PVC	178	0.052	SEWER MAIN

SEWER STRUCTURES

1,500 GAL. GREASE TRAP
RIM=64.10
INV.IN=60.10
INV.OUT=59.85

SMH–1 (DROP)
RIM=63.00
INV.IN=57.00
INV.OUT=55.70

PROP. WYE
INV.=58.95±

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UTILITY PLAN

SCALE: 1"=30'

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6 OF 14

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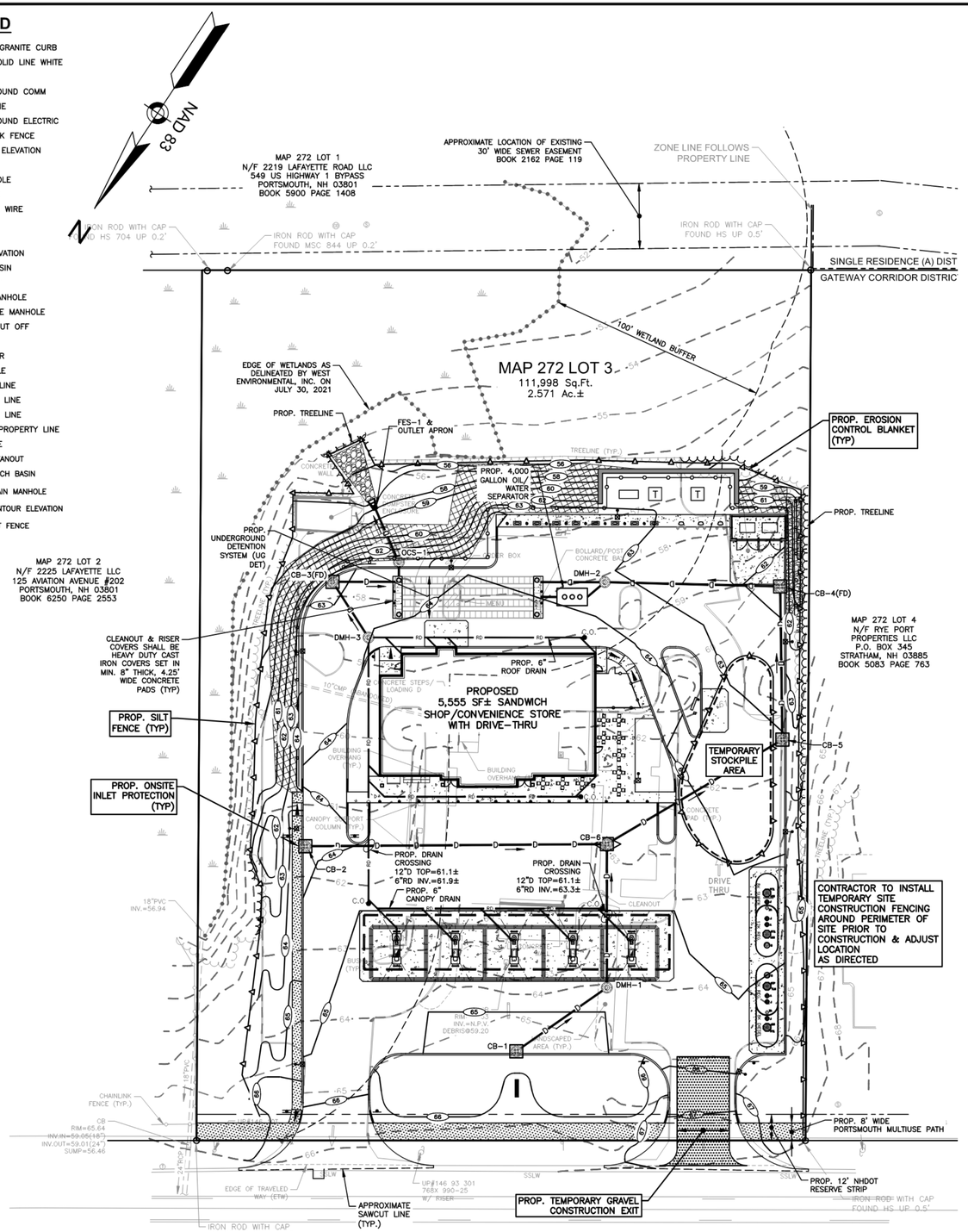
- PROP. SILT FENCE

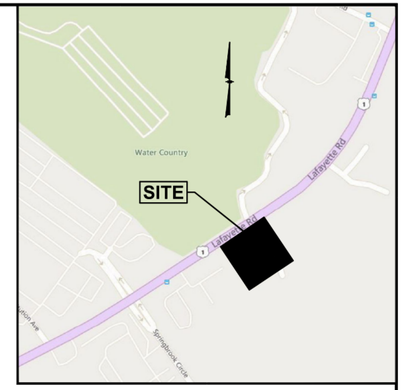


CONSTRUCTION SEQUENCE:

1) SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY ON–SITE CONSTRUCTION AS SHOWN. ADDITIONAL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED AS SOON AS PRACTICAL.
2) REMOVE AND STOCKPILE SOIL AS REQUIRED. STOCKPILE SHALL BE SURROUNDED WITH HAYBALES TO PREVENT EROSION.
3) CONSTRUCT DRIVEWAYS AND PERFORM SITE GRADING.
4) INSTALL UNDERGROUND UTILITIES & DRAINAGE.
5) BEGIN TEMPORARY AND PERMANENT SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED OR MULCHED IMMEDIATELY AFTER THEIR CONSTRUCTION.
6) DAILY, OR AS REQUIRED, CONSTRUCT, INSPECT, AND IF NECESSARY, RECONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SILT FENCES, HAYBALES AND SEDIMENT TRAPS INCLUDING MULCHING AND SEEDING.
7) BEGIN EXCAVATION FOR AND CONSTRUCTION OF BUILDINGS.
8) FINISH PAVING ALL DRIVES AND PARKING AREAS. CLEAN ALL DRAINAGE STRUCTURES.
9) COMPLETE PERMANENT SEEDING AND LANDSCAPING.
10) AFTER GRASS HAS BEEN FULLY GERMINATED IN ALL SEEDED AREAS, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

WINTER STABILIZATION NOTES:

MAINTENANCE REQUIREMENTS:
MAINTENANCE MEASURES SHOULD CONTINUE AS NEEDED THROUGHOUT CONSTRUCTION, INCLUDING THE OVER–WINTER PERIOD. AFTER EACH RAINFALL, SNOWSTORM, OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHOULD CONDUCT AN INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUING FUNCTION. FOR ANY AREA STABILIZED BY TEMPORARY OR PERMANENT SEEDING PRIOR TO THE ONSET OF THE WINTER SEASON, THE CONTRACTOR SHOULD CONDUCT AN INSPECTION IN THE SPRING TO ASCERTAIN THE CONDITION OF VEGETATION COVER, AND REPAIR ANY DAMAGE AREAS OR BARE SPOTS AND RESEED AS REQUIRED TO ACHIEVE AN ESTABLISHED VEGETATIVE COVER (AT LEAST 85% OF AREA VEGETATED WITH HEALTHY, VIGOROUS GROWTH).
SPECIFICATIONS:
TO ADEQUATELY PROTECT WATER QUALITY DURING COLD WEATHER AND DURING SPRING RUNOFF, THE FOLLOWING STABILIZATION TECHNIQUES SHOULD BE EMPLOYED DURING THE PERIOD FROM OCTOBER 15TH THROUGH MAY 15TH.
1) THE AREA OF EXPOSED, UNSTABILIZED SOIL SHOULD BE LIMITED TO ONE ACRE AND SHOULD BE PROTECTED AGAINST EROSION BY THE METHODS DESCRIBED IN THIS SECTION PRIOR TO ANY THAW OR SPRING MELT EVENT. SUBJECT TO APPLICABLE REGULATIONS, THE ALLOWABLE AREA OF EXPOSED SOIL MAY BE INCREASED IF ACTIVITIES ARE CONDUCTED ACCORDING TO A WINTER CONSTRUCTION PLAN, DEVELOPED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NEW HAMPSHIRE OR A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL AS CERTIFIED BY THE CSPESC COUNCIL OF ENVIROCERT INTERNATIONAL, INC.
2) STABILIZATION AS FOLLOWS SHOULD BE COMPLETED WITHIN A DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS:
A. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHOULD BE SEEDED AND COVERED WITH 3 TO 4 TONS OF HAY OR STRAW MULCH PER ACRE SECURED WITH ANCHORED NETTING, OR 2 INCHES OF EROSION CONTROL MIX (SEE DESCRIPTION OF EROSION CONTROL MIX BERMS FOR MATERIAL SPECIFICATION).
B. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF GREATER OOTHAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHOULD BE SEEDED AND COVERED WITH A PROPERLY INSTALLED AND ANCHORED EROSION CONTROL BLANKET OR WITH A MINIMUM 4 INCH THICKNESS OF EROSION CONTROL MIX, UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER. NOTE THAT COMPOST BLANKETS SHOULD NOT EXCEED 2 INCHES IN THICKNESS OR THEY MAY OVERHEAT.
3) ALL STONE–COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.
4) INSTALLATION OF ANCHORED HAY MULCH OR EROSION CONTROL MIX SHOULD NOT OCCUR OVER SNOW OF GREATER THAN ONE INCH IN DEPTH.
5) ALL MULCH APPLIED DURING WINTER SHOULD BE ANCHORED (E.G., BY NETTING, TRACKING, WOOD CELLULOSE FIBER).
6) STOCKPILES OF SOIL MATERIALS SHOULD BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A FOUR–INCH LAYER OF EROSION CONTROL MIX. MULCHING SHOULD BE DONE WITHIN 24 HOURS OF STOCKING, AND RE–ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. NO SOIL STOCKPILE SHOULD BE PLACED (EVEN COVERED WITH MULCH) WITHIN 100 FEET FROM ANY WETLAND OR OTHER WATER RESOURCE AREA.
7) FROZEN MATERIALS, (E.G., FROST LAYER THAT IS REMOVED DURING WINTER CONSTRUCTION), SHOULD BE STOCKPILED SEPARATELY AND IN A LOCATION THAT IS AWAY FROM ANY AREA NEEDING TO BE PROTECTED. STOCKPILES OF FROZEN MATERIAL CAN MELT IN THE SPRING AND BECOME UNWORKABLE AND DIFFICULT TO TRANSPORT DUE TO THE HIGH MOISTURE CONTENT IN THE SOIL.
8) INSTALLATION OF EROSION CONTROL BLANKETS SHOULD NOT OCCUR OVER SNOW OF GREATER THAN ONE INCH IN DEPTH OR ON FROZEN GROUND.
9) ALL GRASS–LINED DITCHES AND CHANNELS SHOULD BE CONSTRUCTED AND STABILIZED BY SEPTEMBER 1. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHOULD BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS, AS DETERMINED BY A QUALIFIED PROFESSIONAL ENGINEER OR A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL AS CERTIFIED BY THE CSPESC COUNCIL OF ENVIROCERT INTERNATIONAL, INC. IF A STONE LINING IS NECESSARY, THE CONTRACTOR MAY NEED TO RE–GRADE THE DITCH AS REQUIRED TO PROVIDE ADEQUATE CROSS–SECTION AFTER ALLOWING FOR PLACEMENT OF THE STONE.
10) ALL STONE–LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.
11) AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
12) SEDIMENT BARRIERS THAT ARE INSTALLED DURING FROZEN CONDITIONS SHOULD CONSIST OF EROSION CONTROL MIX BERMS, OR CONTINUOUS CONTAINED BERMS. SILT FENCES AND HAY BALES SHOULD NOT BE INSTALLED WHEN FROZEN CONDITIONS PREVENT PROPER EMBEDMENT OF THESE BARRIERS.



LOCATION MAP
(NOT TO SCALE)

EROSION CONTROL NOTES:

1) THE EROSION CONTROL PROCEDURES SHALL CONFORM TO THE NH STORMWATER MANUAL, VOLUME 3, EROSION & SEDIMENT CONTROLS DURING CONSTRUCTION, DECEMBER 2008, OR LATEST EDITION.
2) DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED: THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE EXPOSURE SHOULD BE KEPT TO THE SHORTEST PRACTICAL PERIOD OF TIME AS APPROVED BY THE ENGINEER. LAND SHOULD NOT BE LEFT EXPOSED DURING THE WINTER MONTHS.
3) LIMIT OF MAXIMUM AREA OF EXPOSED SOIL AT ANY ONE TIME TO LESS THAN 5 ACRES. THE EXPOSED AREA THAT IS BEING ACTIVELY WORKED DURING WINTER IS TO BE LESS THAN 3 ACRES DURING THE WINTER SEASON.
4) ALL PERMANENT STORM WATER STRUCTURES SHALL BE STABILIZED PRIOR TO DIRECTING FLOW INTO THEM. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURED:
A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
B) A MINIMUM OF 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED.
C) A MINIMUM OF 3 INCHES OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIP–RAP HAS BEEN INSTALLED.
D) OR, EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
5) SILT FENCE SHALL BE INSTALLED AND MAINTAINED DURING AND AFTER DEVELOPMENT TO REMOVE SEDIMENT FROM RUNOFF WATER AND FROM LAND UNDERGOING DEVELOPMENT. WHERE POSSIBLE, NATURAL DRAINAGE WAYS SHOULD BE UTILIZED AND LEFT OPEN TO REMOVE EXCESS SURFACE WATER. SILT FENCE TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE A HEALTHY STAND OF GRASS.
6) ALL DISTURBED AREAS AND SIDE SLOPES WHICH ARE FINISHED GRADED, WITH NO FURTHER CONSTRUCTION TO TAKE PLACE, SHALL BE LOAMED AND SEEDED WITHIN 72 HOURS AFTER FINAL GRADING. A MINIMUM OF 4" OF LOAM SHALL BE INSTALLED WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA. THE SEED MIX SHALL BE AS DESIGNATED BELOW.
7) ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION. THE MAXIMUM LENGTH OF TIME FOR THE EXPOSURE OF DISTURBED SOILS SHALL BE 45 DAYS. HAY OR STRAW MULCH SHALL BE APPLIED TO ALL FRESHLY SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE. BALES SHALL BE UNSPOILED, AIR DRIED, AND FREE FROM WEED, SEEDS AND ANY COARSE MATERIAL.
8) DURING GRADING OPERATIONS INSTALL HAY BALE BARRIERS ALONG TOE OF SLOPE OF FILL AREAS WHERE SHOWN. BARRIERS ARE TO BE MAINTAINED UNTIL DISTURBED AREAS ARE PAVED OR GRASSED.
9) THE FILL MATERIAL SHALL BE OF APPROVED SOIL TYPE FREE FROM STUMPS, ROOTS, WOOD, ETC. TO BE PLACED IN 12" LIFTS OR AS SPECIFIED. BULLDOZERS, TRUCKS, TRACTORS, OR ROLLERS MAY BE USED FOR COMPACTION BY ROUTING THE EQUIPMENT TO ALL AREAS OR EACH LAYER.
10) AVOID THE USE OF FUTURE OPEN SPACES (LOAM & SEED) WHEREVER POSSIBLE DURING CONSTRUCTION. CONSTRUCTION TRAFFIC SHALL USE THE ROADBEDS OF FUTURE ROADS.

TEMPORARY EROSION CONTROL MEASURES:

1) THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
2) HAY BALE BARRIERS AND SEDIMENT CONTROL FENCE SHALL BE INSTALLED AS REQUIRED. BARRIERS AND FENCE ARE TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE A HEALTHY STAND OF GRASS.
3) BALED HAY AND MULCH SHALL BE MOWINGS OF ACCEPTABLE HERBACEOUS GROWTH, FREE FROM NOXIOUS WEEDS OR WOODY STEMS, AND SHALL BE DRY. NO SALT HAY SHALL BE USED.
4) FILL MATERIAL SHALL BE FREE FROM STUMPS, WOOD, ROOTS, ETC.
5) STOCKPILED MATERIALS SHALL BE PLACED ONLY IN AREAS SHOWN ON THE PLANS. STOCKPILES SHALL BE PROTECTED BY HAY BALE BARRIERS AND SEEDED TO PREVENT EROSION. THESE MEASURES SHALL REMAIN UNTIL ALL MATERIAL HAS BEEN PLACED OR DISPOSED OFF SITE.
6) ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED. A MINIMUM OF 4 INCHES OF LOAM SHALL BE INSTALLED WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA.
7) SEED MIX SHALL BE EQUAL PARTS OF RED FESCUE (CREEPING), KENTUCKY BLUE GRASS, REDTOP, PERENNIAL RYEGRASS.
8) AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED.
9) PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES.
10) ALL CATCH BASIN INLETS WILL BE PROTECTED WITH INLET PROTECTION.
11) ALL STORM DRAINAGE OUTLETS WILL BE STABILIZED AND CLEANED AS REQUIRED, BEFORE THE DISCHARGE POINTS BECOME OPERATIONAL.
12) ALL DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTER AREA.
13) TO PREVENT TRACKING OF SEDIMENT ONTO THE EXISTING ROADS, ALL CONSTRUCTION TRAFFIC CAN ONLY EXIT THE SITE OVER THE CONSTRUCTION ENTRANCES SHOWN ON THIS PLAN.

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EROSION & SEDIMENT CONTROL PLAN

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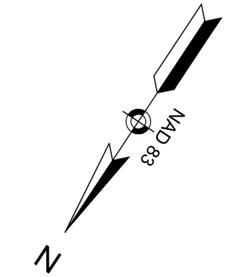
PLANTING SCHEDULE

PLANT	QNTY	BOTANICAL NAME	COMMON NAME	MIN. INSTALL SIZE	REMARKS
TREES					
GT	3	GLEDITSIA TRIACANTHOS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST	2"–2 1/2" CAL., B&B	THORNLESS VARIETY
MG	1	MALUS 'SPRING SNOW'	SPRING SNOW CRABAPPLE	2"–2 1/2" CAL., B&B	
QR	4	QUERCUS ROBUR 'KINDRED SPIRIT'	KINDRED SPIRIT ENGLISH OAK	3"–3 1/2" CAL., B&B	
SHRUBS					
CS	5	CORNUS SERICEA 'ALLEMAN'S COMPACTA'	COMPACT REDTWIG DOGWOOD	18"–24"HT., 3 GAL.	
IG	22	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	2'–3' HT., 3 GAL.	
PF	24	POTENTILLA FRUTICOSA 'GOLDSTAR'	GOLDSTAR POTENTILLA	18"–24"HT., 3 GAL.	
SJ	19	SPIREA JAPONICA 'MAGIC CARPET'	MAGIC CARPET SPIREA	15"–18" SPR., 3 GAL.	
TE	7	TAXUS X MEDIA 'EVER–LOW'	EVER–LOW YEW	18"–24" SPR., B&B	
PERENNIALS & GRASSES					
HD	46	HEMEROCALLIS 'STELLA DE ORO'	DWARF YELLOW DAYLILY	1 GAL.	
FE	22	FESTUCA GLAUCA 'ELIJAH BLUE'	ELIJAH BLUE FESCUE GRASS	1 GAL.	
PH	34	PENNISETUM ALOPECUROIDES 'HAMELN'	DWARF FOUNTAIN GRASS	1 GAL.	

1 / XX — PLANT QUANTITY / PLANT DESIGNATION

PROPOSED LANDSCAPE STONE WITH WEED BARRIER (SEE NOTES)



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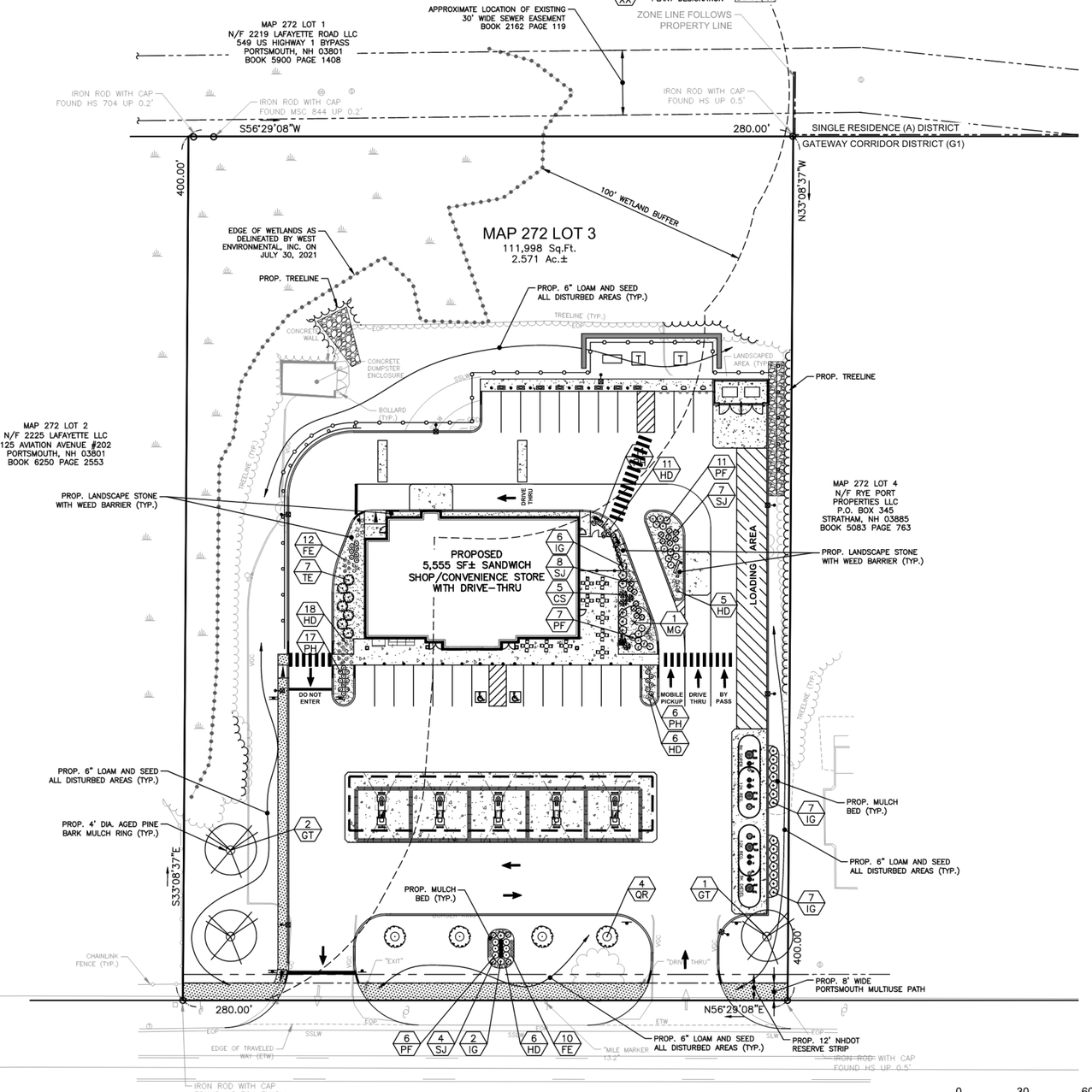
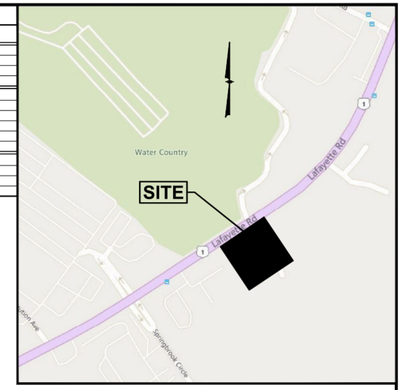
- ABUTTER PROPERTY LINE
- ZONE LINE





LOCATION MAP

(NOT TO SCALE)

NOTES:

1) ALL PLANT STOCK SHALL CONFORM TO ANSI Z260.1 – NURSERY STOCK, LATEST EDITION (AMERICAN ASSOCIATION OF NURSERYMEN, INC.).
2) A 4' DIA. TREE RING WITH 3" AGED PINE BARK MULCH TO BE INSTALLED AT BASE OF ALL TREES IN LAWN AREAS.
3) 3" AGED PINEBARK MULCH SHALL BE APPLIED TO ALL SHRUB AND GROUNDCOVER BEDS.
4) LANDSCAPE STONE SHALL BE TAN RIVERBED STONE. STONE SHALL BE (1½) INCHES IN DIAMETER AND APPLIED AT A THICKNESS OF (4) INCHES DEEP. ALL FINES SHALL BE SCREENED FROM THE AGGREGATE. THE MATERIAL SHALL BE FREE OF ORGANIC AND INORGANIC DEBRIS AND TRASH. SUBMIT SAMPLE IN A 5–GALLON BUCKET TO THE DEVELOPER FOR APPROVAL.
5) A WEED BARRIER (TY–PAR FABRIC OR APPROVED EQUAL) SHALL BE APPLIED TO ALL SHRUB AND GROUNDCOVER BEDS. INSTALL WEED BARRIER AS PER MANUFACTURERS RECOMMENDATIONS.
6) THE CONTRACTOR SHALL PROVIDE TESTING OF SOILS IN PLANTING LOCATIONS. THE CONTRACTOR SHALL PROVIDE TEST RESULTS AND RECOMMENDATIONS AS NECESSARY FOR SOIL AMENDMENT TO THE ENGINEER FOR THEIR APPROVAL. BACKFILL SHALL BE A BLEND OF ONE–PART LOAM BORROW, ONE PART ORGANIC MATERIAL AND TWO–PARTS EXISTING SUBSOIL.
7) ALL LANDSCAPED AREAS NOT PLANTED WITH TREES, SHRUBS OR GROUNDCOVER SHALL BE RESTORED WITH SEED AS INDICATED ON PLANS.
8) ALL SEED, SHRUB AND TREE AREAS SHALL RECEIVE 6" PH CORRECTED TOPSOIL. AFTER TOPSOIL IS SPREAD EVENLY OVER ENTIRE AREA, ALL CLODS, LUMPS, STONES AND OTHER DELETERIOUS MATERIAL SHALL BE RAKED UP AND REMOVED.
9) APPLICATION OF GRASS SEED, FERTILIZERS AND STRAW MULCH SHALL BE ACCOMPLISHED BY BROADCAST SEEDING OR HYDROSEEDING AT THE RATES OUTLINED BELOW:

LIMESTONE: 100 LBS./1,000 SQUARE FEET.
FERTILIZER: 500 LBS/ACRE OF 10–20–20 OR 1000 LBS/ACRE OF 5–10–10.
STRAW MULCH: APPROXIMATELY 3 TONS/ACRE

SEED MIX (SLOPES LESS THAN 4:1)	LBS/ACRE
CREEPING RED FESCUE	20
TALL FESCUE	15
PERENNIAL RYEGRASS	5
REDTOP	2
	42

SLOPE MIX (SLOPES GREATER THAN 4:1)	LBS/ACRE
CREEPING RED FESCUE	20
TALL FESCUE	20
BIRDSFOOT TREEFOIL	8
	48

10) FOR TEMPORARY EROSION CONTROL NOTES, SEE DETAIL SHEET.
11) NEWLY GRADED AREAS REQUIRING SLOPE PROTECTION OUTSIDE OF NORMAL SEEDING SEASON SHALL RECEIVE STRAW MULCH AT THE APPROXIMATE RATE OF NO MORE THAN 3 TONS PER ACRE.
12) ANY CHANGES IN PLANT LOCATIONS OR TYPES SHALL BE APPROVED BY THE DEVELOPER, LANDOWNER AND CITY PRIOR TO INSTALLATION.
13) CLEAR AND GRUB (TO LIMITS REQUIRED ON GRADING PLAN) TO REMOVE VEGETATION, TREES, ROCKS, DEBRIS, ROOTS, ETC. STUMPS SHALL BE REMOVED AND DISPOSED OF OFF SITE IN ACCORDANCE WITH STATE REGULATIONS. AFTER CLEARING, STRIP AND STOCKPILE ALL ON–SITE TOPSOIL FOR REUSE TO THE MAXIMUM EXTENT POSSIBLE.
14) FOR SEED AREAS USE EXISTING TOPSOIL, IF AVAILABLE, FOR A 4" DEPTH AND TOP DRESS WITH 2" OF SCREENED TOPSOIL, UNLESS OTHERWISE NOTED ON PLAN. ALL LOAM OR TOPSOIL IMPORTED OR RE–UTILIZED FROM ON SITE SHALL BE TESTED AND AMENDED AS DIRECTED BY DEVELOPER TO MEET MINIMUM REQUIREMENTS AND FREE FROM INVASIVE PLANTS.
15) PLANTINGS SHALL BE GUARANTEED BY THE CONTRACTOR FOR ONE YEAR AFTER WRITTEN ACCEPTANCE BY THE DEVELOPER.
16) EXPOSED SOILS SHALL BE SEEDED OR STRAW MULCHED WITHIN 72 HOURS OF FINAL GRADING.
17) ALL WORK SHALL BE COORDINATED WITH APPLICABLE EPA NPDES/SWPPP PERMIT WORK AS REQUIRED.
18) THE CONTRACTOR SHALL INSTALL AN IRRIGATION SYSTEM TO PROVIDE COMPLETE COVERAGE OF ALL SEED AREAS AND SHRUB BEDS SHOWN ON THIS PLAN. THE SYSTEM SHALL INCLUDE A TIMER AND SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODES.

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STATE OF NEW HAMPSHIRE — DAVID R. JORDAN No. 7778 — LICENSED PROFESSIONAL ENGINEER — 3/22/22

REVISIONS		
1	REV. PER CITY COMMENTS	3/22/22
NO.	REVISION	DATE

JANUARY 26, 2022

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LANDSCAPE PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2021163

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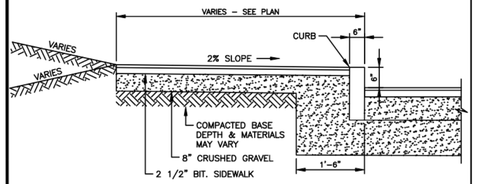
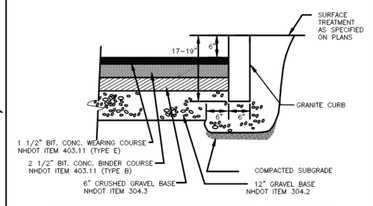
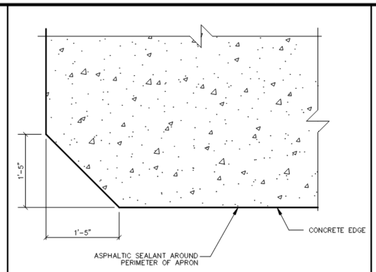


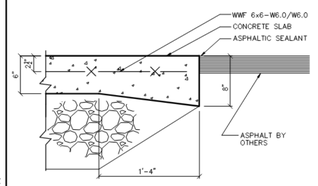
BITUMINOUS CONCRETE SIDEWALK
NOT TO SCALE



PAVEMENT AND VERTICAL GRANITE CURB SECTION ON-SITE
NOT TO SCALE



DISPENSER APRON CHAMFER DETAIL
NOT TO SCALE



DISPENSER APRON EDGE DETAIL
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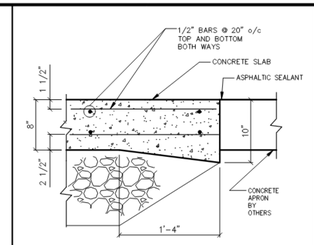

TANK APRON EDGE DETAIL
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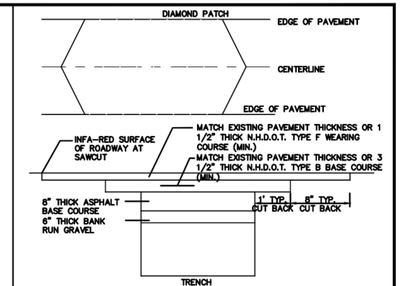


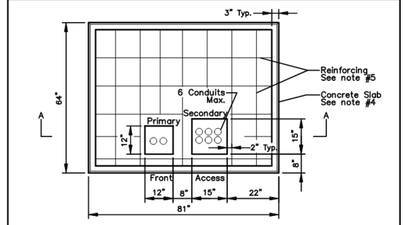
TYPICAL PAVEMENT REPAIR DETAIL
NOT TO SCALE

TRANSFORMER PAD NOTES

NOTES:

1) THIS STANDARD COVERS SPECIFICATIONS FOR THE CONSTRUCTION OF A CONCRETE FOUNDATION FOR PAD–MOUNTED TRANSFORMER.
2) INSTALL CONDUIT AS SHOWN BEFORE SLAB IS POURED. USE 36" RADIUS BENDS, WITH COUPLINGS, NIPPLES AND BUSHINGINGS AS REQUIRED. BENDS FOR PRIMARY CABLES SHALL BE GALVANIZED STEEL. TERMINATIONS OF CONDUITS SHALL BE LOCATED AS SHOWN IN SECTION A–A. THE NIPPLE AND BUSHING SHALL BE INSTALLED AFTER THE TRANSFORMER IS PLACED AND BEFORE THE CABLES ARE PULLED.
3) GRAVEL AND SAND SHALL BE PLACED AS SHOWN IN SECTION A–A; THE GRAVEL BEING COMPACTED AND THE SAND THOROUGHLY WETTED JUST BEFORE PLACING THE CONCRETE.
4) CONCRETE TO CONFORM TO GS 0211 OF LATEST DATE, (MIX M–4) FOR READY MIX CONCRETE. ALL EXPOSED EDGES TO HAVE A 3/4" CHAMFER.
5) REINFORCING TO BE #4 GRADE 60 BARS AND SHALL CONFORM TO ASTM STANDARD A–615 OF LATEST DATE. REINFORCING ROD TO BE LOCATED IN CENTER OF THE SLAB, WITH A MINIMUM OF 2" CLEARANCE FROM FACE OF CONCRETE.
6) GROUND GRID TO BE INSTALLED AS PER GS 2586.

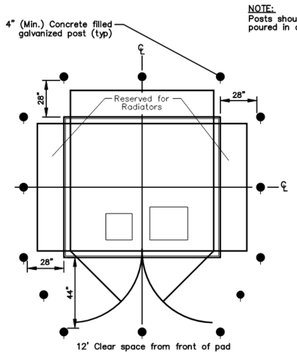
TRANSFORMER PAD DETAIL



N.T.S.

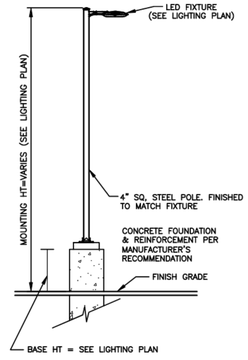
NOTE: REVISE TRANSFORMER PAD DETAILS AS DIRECTED BY LOCAL ELECTRIC COMPANY

TRANSFORMER PROTECTION DETAIL



N.T.S.

TRANSFORMER PAD DETAILS
NOT TO SCALE



LIGHT FIXTURE DETAIL
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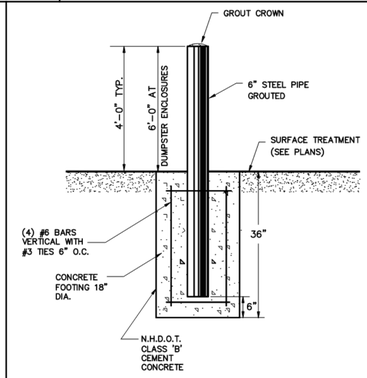

BOLLARD DETAIL
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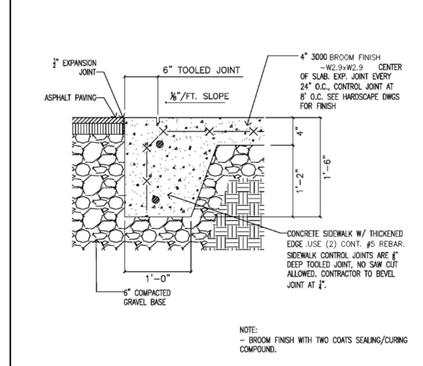
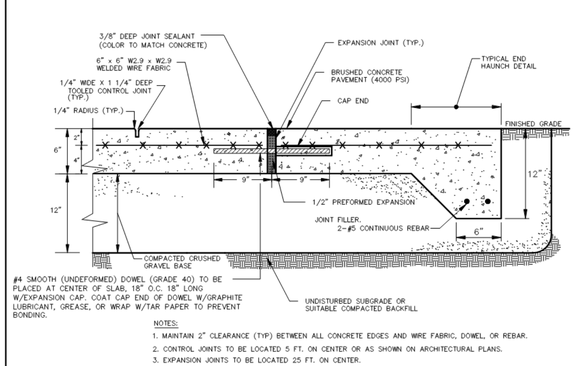


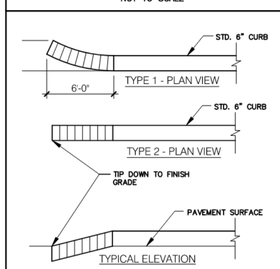
NOTE:
– BROOM FINISH WITH TWO COATS SEALING/CURING COMPOUND.

FLUSH CONCRETE SIDEWALK/PARKING DETAIL
NOT TO SCALE

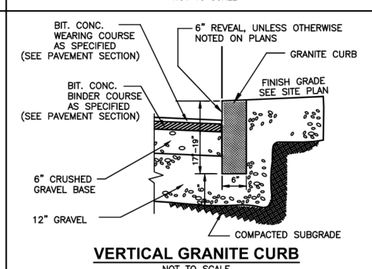


NOTES:
1. MAINTAIN 2" CLEARANCE (TYP) BETWEEN ALL CONCRETE EDGES AND WIRE FABRIC, DOWEL, OR REBAR.
2. CONTROL JOINTS TO BE LOCATED 5 FT. ON CENTER OR AS SHOWN ON ARCHITECTURAL PLANS.
3. EXPANSION JOINTS TO BE LOCATED 25 FT. ON CENTER.
4. WELDED WIRE FABRIC SHALL BE LAPSED A MINIMUM OF 2 WIRE SPACES.

6" HEAVY DUTY CONCRETE PAD DETAILS
NOT TO SCALE

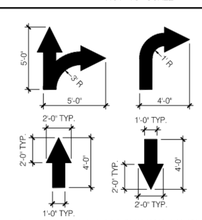


TYPICAL TIP DOWN CURB DETAIL
NOT TO SCALE



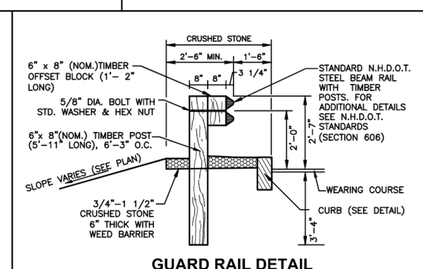
VERTICAL GRANITE CURB
NOT TO SCALE

NOTE: SAWCUT 1' OFF FACE OF CURB WHERE INSTALLED IN EXISTING PAVEMENT. PATCH PAVEMENT TO MATCH EXISTING THICKNESS.

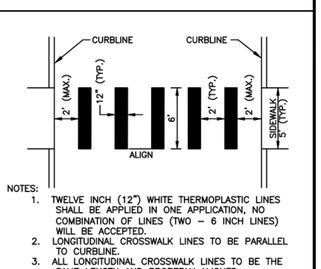


ALL PAVEMENT MARKINGS TO BE WHITE PAVEMENT PAINT, UNLESS STATED OTHERWISE.

ON-SITE PAVEMENT MARKING DETAILS
NOT TO SCALE

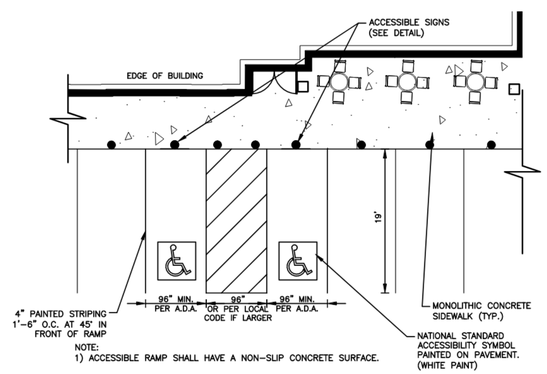


GUARD RAIL DETAIL
NOT TO SCALE



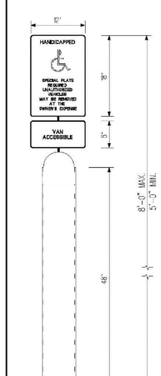
NOTES:
1. TWELVE INCH (12") WHITE THERMOPLASTIC LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO – 6 INCH LINES) WILL BE ACCEPTED.
2. LONGITUDINAL CROSSWALK LINES TO BE PARALLEL TO CURBLINE.
3. ALL LONGITUDINAL CROSSWALK LINES TO BE THE SAME LENGTH AND PROPERLY ALIGNED.

CROSSWALK
NOT TO SCALE



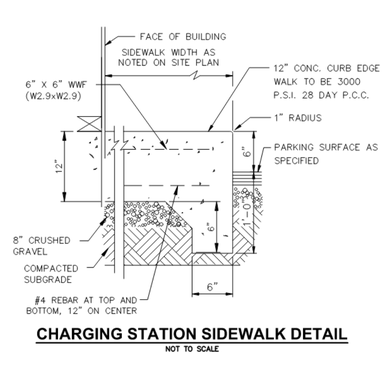
NOTE:
1) ACCESSIBLE RAMP SHALL HAVE A NON–SLIP CONCRETE SURFACE.

ACCESSIBLE PARKING STALLS
NOT TO SCALE

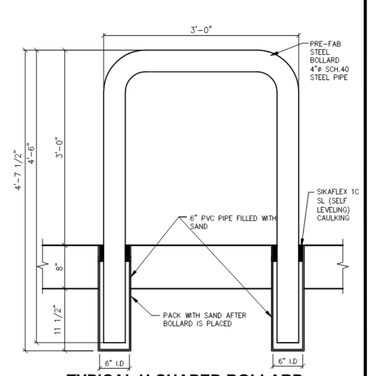


NOTES:
1. REFLECTIVE BLUE BACKGROUND WHITE LETTERING AND SYMBOL LETTERING MINIMUM 1" HEIGHT
2. SIGN TO BE MOUNTED ON 2" METAL POST CENTERED ON 4" CONCRETE BOLLARD. USE CAULKING @ THE CONNECTION POINT
3. ONE SIGN PER HANDICAPPED SPACE.

ACCESSIBLE SIGN DETAIL
NOT TO SCALE



CHARGING STATION SIDEWALK DETAIL
NOT TO SCALE



TYPICAL U–SHAPED BOLLARD
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DAVID R. JORDAN No. 7778 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE
3/22/22

REVISIONS		
1	REV. PER CITY COMMENTS	3/22/22
NO.	REVISION	DATE

JANUARY 26, 2022

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DETAIL SHEET

SCALE: NOT TO SCALE

PROJECT NO. NEX-2021163

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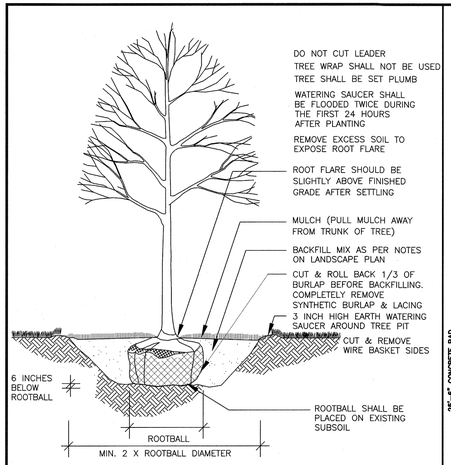
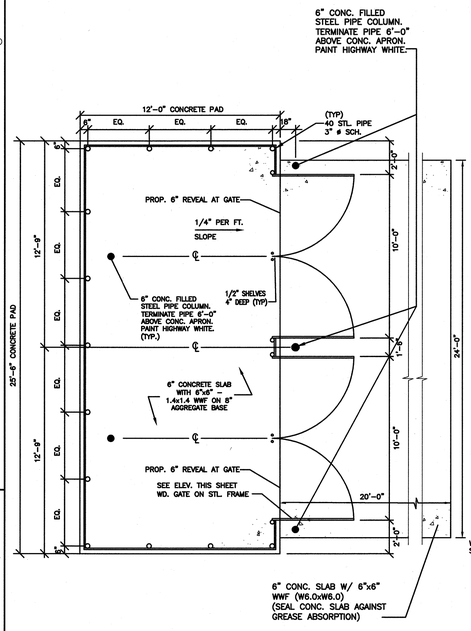


TYPICAL TREE PLANTING

NOT TO SCALE



CHAINLINK TRASH ENCLOSURE

NOT TO SCALE

TRASH ENCLOSURE FENCE DETAIL

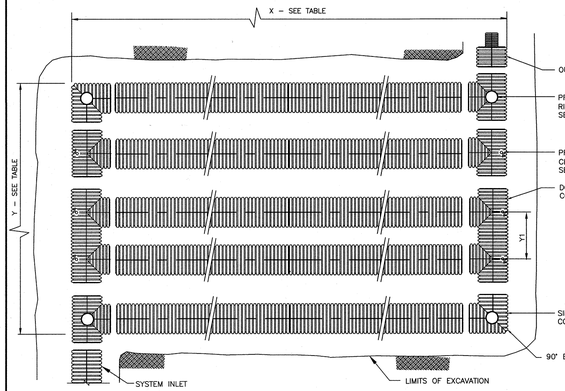
NOT TO SCALE

FENCE NOTES:

1) FENCE FABRIC SHALL BE STANDARD 2" CHAIN LINK GALVANIZED MESH WITH PRIVACY SLATS (FOREST GREEN).
2) ALL POSTS SHALL BE GALVANIZED SCHEDULE 40 STEEL PIPE
3) ALL LINE POSTS TO BE 2.375" O.D. PIPE. MAXIMUM SPACING TO BE 10' ON CENTER.
4) ALL END AND CORNER POSTS TO BE 2.875" O.D. PIPE.
5) ALL TOP AND MIDDLE RAILS TO BE 1.66" O.D. PIPE.
6) ALL FITTINGS AND ACCESSORIES SHALL BE GALVANIZED.

DETENTION SYSTEM NOTES:

1) ALL SITE DRAINAGE PIPE SHALL BE CORRUGATED HIGH-DENSITY POLYETHYLENE PIPE, DUAL WALL, SMOOTH INTERIOR AS MANUFACTURED BY ADS, INC., OR APPROVED EQUAL, UNLESS OTHERWISE NOTED ON PLAN.
2) CONTRACTOR SHOULD CONFIRM SYSTEM PARTS AND OBTAIN SHOP DRAWINGS FROM MANUFACTURER. SUBSTITUTIONS AND SHOP DRAWINGS SHOULD BE APPROVED BY THE ENGINEER.
3) PARTS SPECIFICATIONS SHOWN ARE AS PROVIDED BY ADS, INC., OR APPROVED EQUAL. ANY CHANGES TO THESE SPECIFICATIONS SHOULD BE APPROVED BY DESIGN ENGINEER FOR PERFORMANCE.



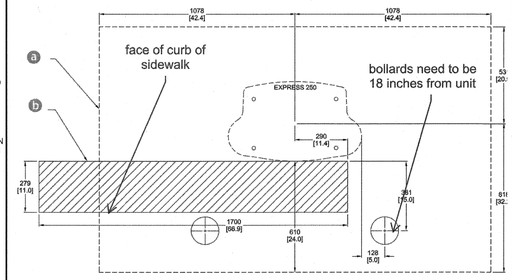
NOTE: FOR ADDITIONAL DETAILS, SEE ADS STD-702 & STD-703.

UNDERGROUND STORMWATER DETENTION SYSTEM TABLE					
UG DETENTION SYSTEM	LENGTH (X)	WIDTH (Y)	SPACING (Y1) (O.C. TYP.) *	PIPE SIZE (INCHES) SOLID	INV. PIPE ELEV. (A)	# PIPE ROWS
UG-DET	67'	19.25'	63"	36"SOLID(WT)	57.00	4

* SEE TYPICAL CROSS SECTIONS BELOW
WT = WATERTIGHT JOINTS

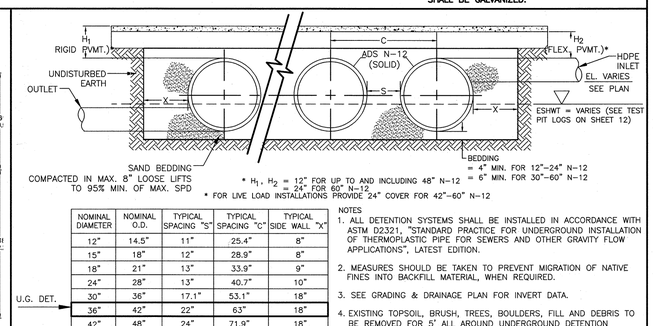
TYPICAL UNDERGROUND DETENTION SYSTEM LAYOUT

NOT TO SCALE



EV CHARGING STATION DETAIL

NOT TO SCALE



NOMINAL DIAMETER	NOMINAL O.D.	TYPICAL SPACING "S"	TYPICAL SPACING "C"	TYPICAL SIDE WALL "X"
12"	14.5"	11"	25.4"	8"
15"	18"	12"	28.9"	8"
18"	21"	13"	33.9"	9"
24"	28"	13"	40.7"	10"
30"	36"	17.1"	53.1"	18"
36"	42"	22"	63"	18"
42"	48"	24"	71.9"	18"

U.G. DET.

NOTES

1. ALL DETENTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. SEE GRADING & DRAINAGE PLAN FOR INVERT DATA.
4. EXISTING TOPSOIL, BRUSH, TREES, BOULDERS, FILL AND DEBRIS TO BE REMOVED FOR 5' ALL AROUND UNDERGROUND DETENTION SYSTEM DOWN TO NATIVE MATERIAL. BACKFILL WITH STONE BEDDING MATERIAL (CLASS 1A OR 1B).

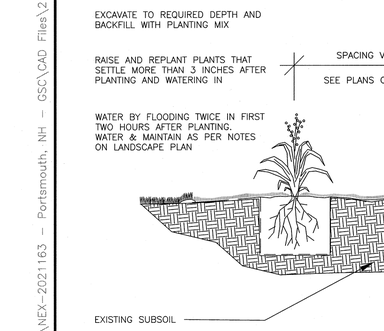
TYPICAL UNDERGROUND DETENTION SYSTEM CROSS SECTION

NOT TO SCALE

Table 5-2
Classes of Embedment and Backfill Materials

ASTM D2321[3] Class	Description	Notation	ASTM D2487 Description	AASHTO M43 Notation	Min. Compaction Required (Std. Proctor Density %)[4]	ASTM D2321[3] Percentage Passing Sieve Sizes 1 ½ in. (40mm)	No. 4 (4.75mm)	No. 200 (0.075mm)	Atterberg Limits LL	PI	Coefficients Uniformity Cu	Curvature Cc
IA[5]	Open-graded, clean manufactured aggregates	N/A	Angular crushed stone or rock, crushed gravel, crushed slag; large voids with little or no fines	5 56	Dumped to slight	100%	≤10%	<5%	Non Plastic		N/A	
IB	Dense-graded, clean, manufactured, processed aggregates	N/A	Angular crushed stone or other Class IA material and well-graded mixtures with gradations selected to minimize migration of adjacent soils; little or no fines			100%	≤20%	<5%	Non Plastic			
II	Clean, coarse-grained soils	GW	Well-graded gravel, gravel-sand mixtures; little or no fines	57 6 67	Moderate (85%)	100%	<50% of "Coarse Fraction"	<5%	Non Plastic		>4	1 to 3
		GP	Poorly-graded gravels, gravel-sand mixtures; little or no fines								<4	<1 or >3
		SW	Well-graded sands, gravelly sands; little or no fines				>50% of "Coarse Fraction"				>6	1 to 3
		SP	Poorly-graded sands, gravelly sands; little or no fines								<6	<1 or >3
	Coarse-Grained Soils, borderline clean to w/fines	GW-GC, SP-SM	Sands and gravels which are borderline between clean and with fines	N/A		100%	Varies	5% to 12%	Non Plastic		Same as for GW, GP, SW and SP	
III	Coarse-grained soils with fines	GM	Silty gravels, gravel-sand-silt mixtures	Gravel & sand with >10% fines	Moderate to High (90%)	100%	<50% of "Coarse Fraction"	12% to 50%	N/A	<4 or below "A" Line	N/A	
		GC	Clayey gravels, gravel-sand-clay mixtures							>7 & >"A" Line		
		SM	Silty sands, sand-silt mixtures				>50% of "Coarse Fraction"			<4 or below "A" Line		
		SC	Clayey sands, sand-clay mixtures							>7 & >"A" Line		
IVA[6]	Inorganic fine-grained soils	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, silts with slight plasticity	N/A	N/R	100%	100%	>50%	<50	<4 or below "A" Line	N/A	
		CL	Inorganic clays of low to medium plasticity, gravelly, sandy, or silty clays; lean clays	N/A						>7 & >"A" Line		
IVB	Inorganic fine-grained soils	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	N/A	N/R	100%	100%	>50%	>50	<"A" Line	N/A	
		CH	Inorganic clays of high plasticity, fat clays	N/A						>"A" Line		
V	Organic soils or highly organic soils	OL	Organic silts and organic silty clays of low plasticity	N/A	N/R	100%	100%	>50%	<50	<4 or below "A" Line	N/A	
		OH	Organic clays of medium to high plasticity, organic silts	N/A						>"A" Line		
		PT	Peat and other high organic soils	N/A					>50			

Notes:
1) Refer to ASTM D2321 for more complete soil descriptions.
2) Class IVA material has limited applications and can be difficult to place and compact; use ONLY with the approval of a soil expert. Contact ADS for additional information regarding suitability of this backfill material.
3) N/R indicates that use of this material and/or compaction level is not recommended by ASTM D2321 for the backfill envelope.
4) When using open-graded material, additional precaution must be taken to reduce or eliminate the risk of migration of fines from adjacent material. Refer to ASTM D2321 for more complete information.



TYPICAL SHRUB PLANTING

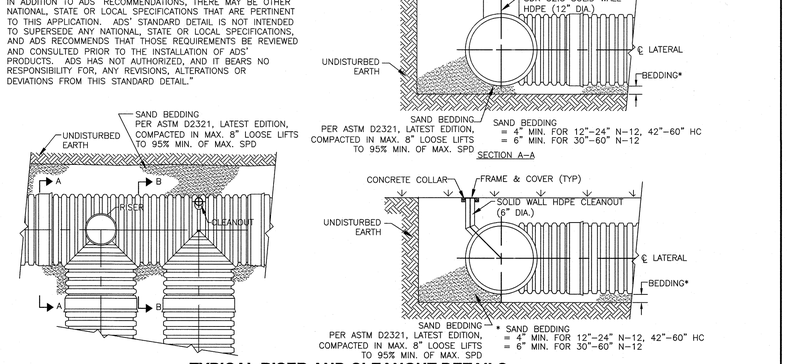
NOT TO SCALE

TYPICAL PERENNIAL PLANTING

NOT TO SCALE

ADS STANDARD DETAILS DISCLAIMER

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS STANDARD DETAIL TO DEMONSTRATE ADS' RECOMMENDED INSTALLATION OF ITS PRODUCTS FOR THE DEPICTED APPLICATION. IN ADDITION TO ADS' RECOMMENDATIONS, THERE MAY BE OTHER NATIONAL, STATE OR LOCAL SPECIFICATIONS THAT ARE PERTINENT TO THIS APPLICATION. ADS' STANDARD DETAIL IS NOT INTENDED TO SUPERSEDE ANY NATIONAL, STATE OR LOCAL SPECIFICATIONS, AND ADS RECOMMENDS THAT THOSE REQUIREMENTS BE REVIEWED AND CONSULTED PRIOR TO THE INSTALLATION OF ADS' PRODUCTS. ADS HAS NOT AUTHORIZED, AND IT BEARS NO RESPONSIBILITY FOR, ANY REVISIONS, ALTERATIONS OR DEVIATIONS FROM THIS STANDARD DETAIL."



TYPICAL RISER AND CLEANOUT DETAILS

NOT TO SCALE

GPI
Engineering
Design
Planning
Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH

PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD PORTSMOUTH, NH 03801

STATE OF NEW HAMPSHIRE
CORY N. MASON No.17099 LICENSED PROFESSIONAL ENGINEER
9/10/22

REVISIONS		
NO.	REVISION	DATE

JANUARY 26, 2022

DRAWN/DESIGN BY	CHECKED BY
CCC/NID	DRJ

DETAIL SHEET

SCALE: NOT TO SCALE

PROJECT NO. NEX-2021163

10 OF 14

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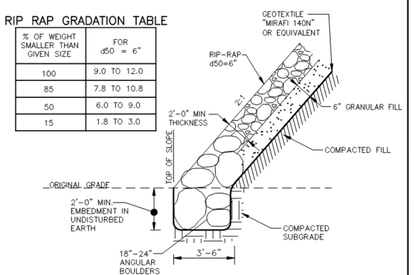
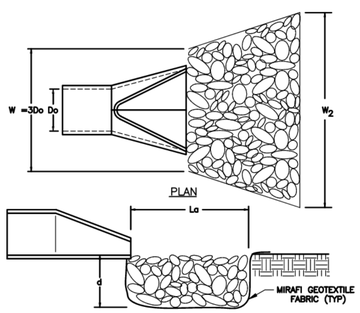


RIP RAP GRADATION TABLE

% OF WEIGHT SMALLER THAN GIVEN SIZE	FOR d50 = 6"
100	9.0 TO 12.0
85	7.8 TO 10.8
50	6.0 TO 9.0
15	1.8 TO 3.0

RIP RAP SLOPE DETAIL

NOT TO SCALE



OUTLET	Do	La	W_1	W_2	d_{50}	d
FES-1	18"	26'	4.5'	15'	4"	10"

***PLACE OUTLET APRON STONE ON ENTIRE SEDIMENT FOREBAY BOTTOM. SEE GRADING & DRAINAGE PLAN.**

ROCK RIP-RAP GRADATION

% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE IN INCHES
100	4.5 TO 6.0
85	3.9 TO 5.4
50	3.0 TO 4.5
15	0.9 TO 1.5

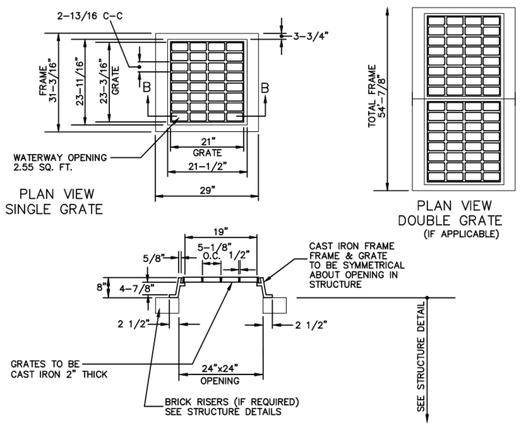
FORMULAS USED (REFERENCE NHDES STORMWATER MANUAL, VOL. 2, PAGE 174)

CONSTRUCTION NOTES:

1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIP-RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OR RIP-RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP-RAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP-RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. THE MEDIAN STONE DIAMEMETER FOR THE RIP-RAP APRON IS d50. FIFTY PERCENT BY WEIGHT OF THE RIP-RAP MIXTURE SHALL BE SMALLER THAN THE MEDIAN STONE SIZE. THE LARGEST STONE SIZE IN THE MIXTURE SHALL BE 1.5 d50.

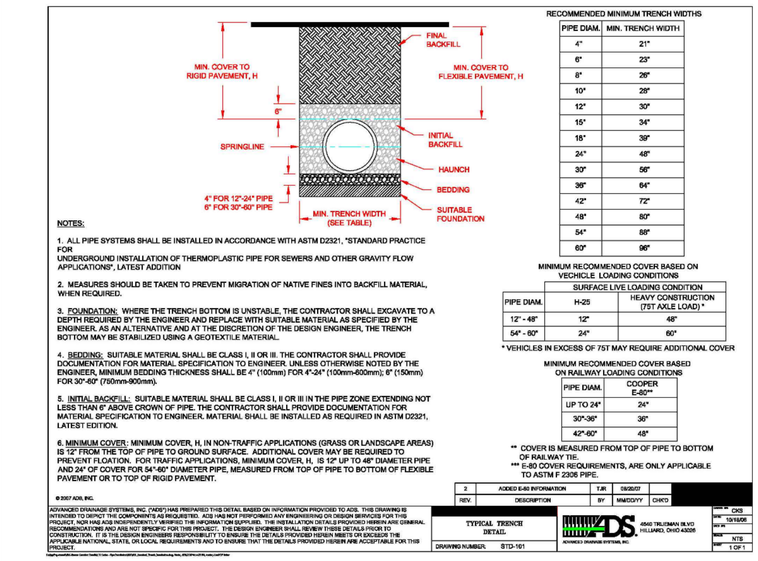
OUTLET PROTECTION-FLAT DETAIL

NOT TO SCALE



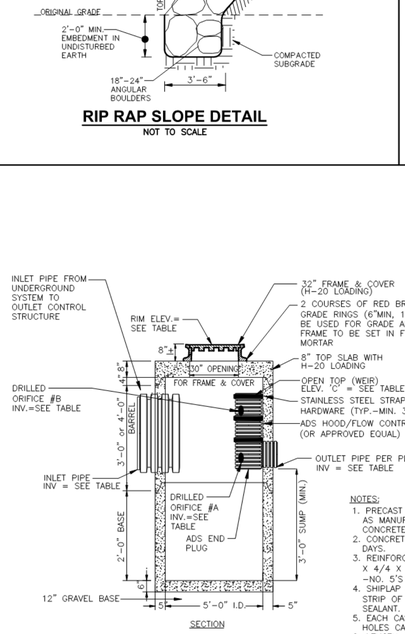
FRAME AND GRATE - TYPE B

NOT TO SCALE



HDPE PIPE TRENCH

NOT TO SCALE



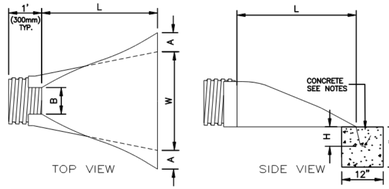
NOTES:

1. PRECAST CONCRETE MAN HOLE AS MANUFCTURED BY SUPERIOR CONCRETE OR APPROVED EQUAL.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. REINFORCING: H-20 LOADING, 4 X 4/4 X 4 W.W.M. SLAB TOP -NO. 5'S @ 8" O.C.
4. SHIPLAP JOINTS SEALED WITH 1 STRIP OF 1" DIA BUTYL RUBBER SEALANT.
5. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
6. LENGTH AND DIAMETER OF TEE VARIES WITH PIPE.

OUTLET CONTROL STRUCTURE TABLE								
OCS	RIM	ORIFICE	SIZE (IN.)	ELEV.	INV.IN (SIZE)	INV.IN (ELEV)	INV.OUT (SIZE)	INV.OUT (ELEV)
#1	63.70	A	5" DIA. x3	57.00	24"	57.00	18"	57.00
		B	5" DIA. x2	57.50				
		C	18" DIA.	59.00				

PRECAST CONCRETE OUTLET CONTROL STRUCTURE (OCS) FOR UNDERGROUND SYSTEMS

NOT TO SCALE



	DIMENSIONS, INCHES (mm)						
PIPE DIAMETER	PART NO.	A, ±1 (25)	B MAX	H, ±1 (25)	L, ±1/2 (13)	W, ±2 (50)
12", 15" (300,375)	1210 NP	6.5 (165)	10 (254)	6.5 (165)	25 (635)	29 (736)
18" (450)	1810 NP	7.5 (190)	15 (380)	6.5 (168)	32 (812)	35 (890)
24" (600)	2410 NP	7.5 (190)	18 (450)	6.5 (165)	36 (900)	45 (1140)
30" (750)	3010 NP	10.5 (266)	NA	7.0 (178)	53 (1346)	68 (1725)
36" (900)	3610 NP	10.5 (266)	NA	7.0 (178)	53 (1346)	68 (1725)

CONSTRUCTION SPECIFICATIONS:

PREPARE BEDDING:
BACKFILL MATERIAL AROUND THE END SECTION MAY BE THE SAME AS THE MATERIAL AROUND THE PIPE, PLACE A FEW INCHES OF BACKFILL MATERIAL IN THE TRENCH OR DITCH WHERE THE END SECTION WILL BE PLACED. COMPACT AND CONTOUR THIS BEDDING MATERIAL TO GENERALLY MATCH THE END SECTION, EXCAVATE AN AREA IN THE BEDDING WHERE TOE TROUGH WILL SEAT SO THAT THE END SECTION WILL BE LEVEL WITH THE BOTTOM OF THE TRENCH OR DITCH IN THE FINISHED INSTALLATION.

PLACE END SECTION OF PIPE:
OPEN THE END SECTION COLLAR AND SEAT IT OVER THE TWO PIPE CONNECTIONS. ONCE THE END SECTION IS POSITIONED, CHECK TO MAKE SURE THAT THE INVERT OF THE END SECTION MATCHES THE INVERT OF THE PIPE AND THAT THE END SECTION IS LEVEL WITH THE TRENCH OR DITCH BOTTOM.

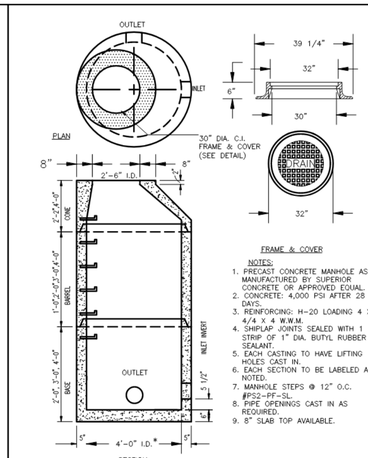
SECURE THE END SECTION:
SLIP THE STAINLESS STEEL ROD THROUGH THE PRE-DRILLED HOLES AT THE TOP OF THE COLLAR. THE ROD SHOULD BE BETWEEN THE CROWNS OF THE TWO PIPE CONNECTIONS. PLACE A WASHER ON EITHER END OF THE ROD. PLACE A NUT ON EITHER END OF THE ROD AND TIGHTEN WITH A WRENCH.

SECURE THE TOE TROUGH:
TO PREVENT WASHOUTS FROM HIGH VELOCITY FLOW, IT IS RECOMMENDED THAT THE TROUGH BE SECURED WITH CONCRETE. POUR CONCRETE IN THE TROUGH UP TO THE LEVEL OF THE TRENCH OR DITCH BOTTOM AND ALONG THE ENTIRE LENGTH OF THE TROUGH.

FINISH BACKFILL:
SHOVEL BACKFILL AROUND THE END SECTION IN 6 TO 9 INCH LAYERS EQUALLY ON BOTH SIDES, KNIFING IT TO ELIMINATE VOIDS. TAMP WITH A SMALL-FACED COMPACTOR OR OTHER EQUIPMENT SUITABLE FOR SMALL AREAS. CONTINUE PLACING, KNIFING, AND COMPACTING BACKFILL LAYERS TO THE TOP OF THE END SECTION TO SEAT IT WELL INTO THE BACKFILL.

FLARED END SECTION HIGH DENSITY POLYETHYLENE (HDPE)

NOT TO SCALE



PRECAST CONCRETE DRAIN MANHOLE

MAXIMUM PIPE DIAMETER 30"
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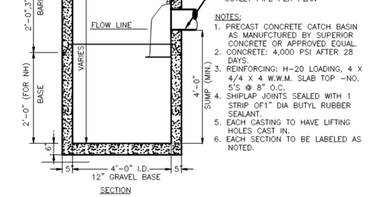
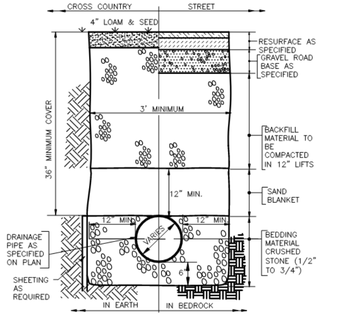


NOTES:

1. PRECAST CONCRETE CATCH BASIN AS MANUFCTURED BY SUPERIOR CONCRETE OR APPROVED EQUAL.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. REINFORCING: H-20 LOADING, 4 X 4/4 X 4 W.W.M. SLAB TOP -NO. 5'S @ 8" O.C.
4. SHIPLAP JOINTS SEALED WITH 1 STRIP OF1" DIA BUTYL RUBBER SEALANT.
5. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
6. EACH SECTION TO BE LABELED AS NOTED.

PRECAST CONCRETE CATCH BASIN WITH HOOD

NOT TO SCALE



TYPICAL TRENCH SECTION FOR STORM DRAIN

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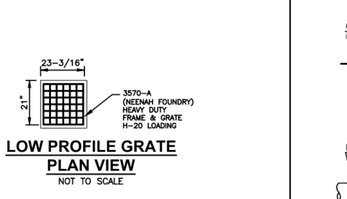
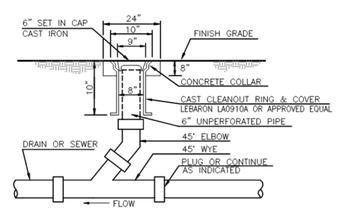


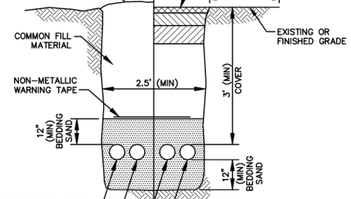
LOW PROFILE GRATE PLAN VIEW

NOT TO SCALE



TYPICAL CLEANOUT

NOT TO SCALE



UTILITY TRENCH

NOT TO SCALE

GPI Engineering Design Planning Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH

PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD PORTSMOUTH, NH 03801

DAVID R. JORDAN No. 7778 REGISTERED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
3/22/22

REVISIONS		
1	REV. PER CITY COMMENTS	3/22/22
NO.	REVISION	DATE

JANUARY 26, 2022

DRAWN/DESIGN BY	CHECKED BY
CCC/NID	DRJ

DETAIL SHEET

SCALE: NOT TO SCALE

PROJECT NO. NEX-2021163

11 OF 14

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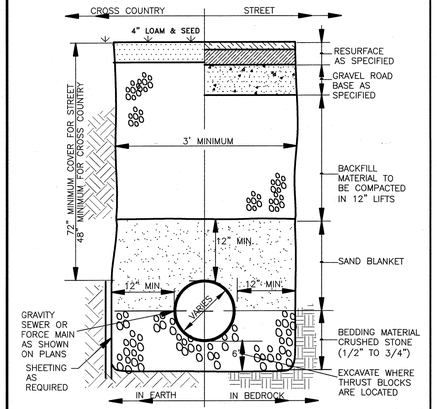
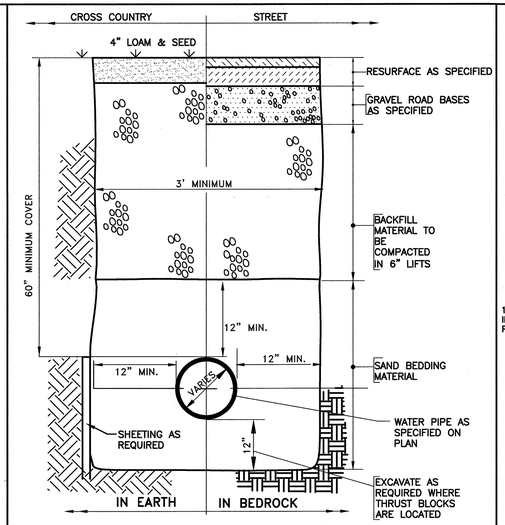


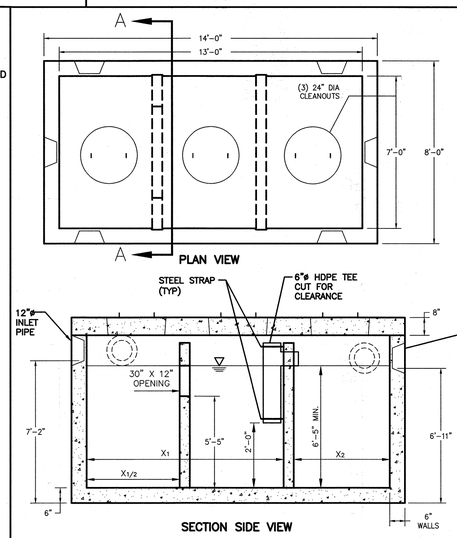
TYPICAL TRENCH SECTION FOR SANITARY SEWER SERVICE

NOT TO SCALE



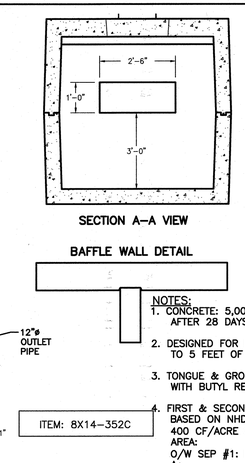
TYPICAL TRENCH SECTION FOR WATER SERVICE

NOT TO SCALE



4,000 GAL. OIL/WATER SEPARATOR DETAIL (OWS-1)

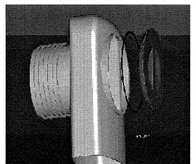
NOT TO SCALE



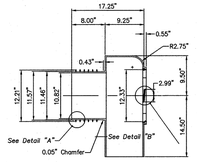
ITEM: 8X14-352C

NOTES:

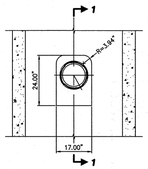
1. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGNED FOR H-20 LOADING. 1 TO 5 FEET OF COVER.
3. TONGUE & GROOVE JOINT SEALED WITH BUTYL RESIN.
4. FIRST & SECOND CHAMBER SIZING BASED ON NHDES CRITERIA OF 400 CF/ACRE OF IMPERVIOUS AREA:
   O/W SEP #1: IMP. AREA = 1.03 Ac.
   400 CF/Ac. x 1.03 Ac.= 412 CF
   X1 = 412 CF/(6'-5" x 7') = 9'-2"
   X2 = 3'-6"
5. CONTRACTOR TO SUBMIT SHOP DRAWING FOR APPROVAL.



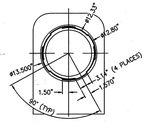
Enlarged Section 2-2



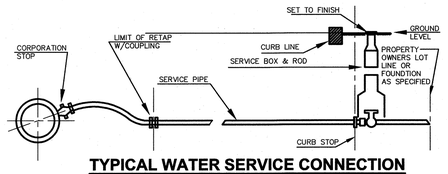
Enlarged Section 1-1



THE ELIMINATOR CATCH BASIN OIL & DEBRIS TRAP

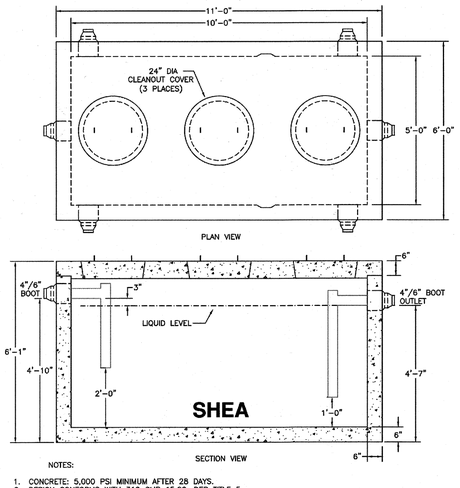


Enlarged Front View



TYPICAL WATER SERVICE CONNECTION

NOT TO SCALE



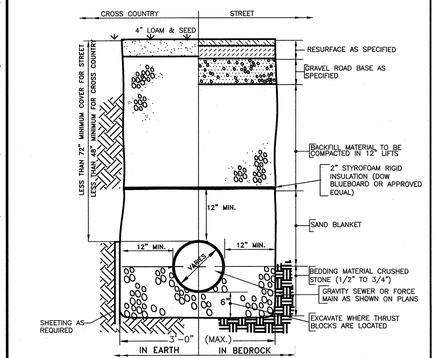
NOTES:

1. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGN CONFORMS WITH 310 CMR 15.00, DEP TITLE 5 REGS. FOR GREASE TRAPS.
3. ALL REINFORCEMENT PER ASTM C1227.
4. DESIGNED FOR AASHTO HS-20 LOADING, 1 TO 5 FT COVER.
5. TONGUE & GROOVE JOINT SEALED WITH BUTYL RESIN
6. TEES AND BAFFLES SOLD SEPARATELY

	WEIGHT	TOP	BOTTOM
ITEM NO. TK-M1500C	22,600#	5,400#	17,200#
TK-M1500C2C	24,400#	5,400#	19,000#

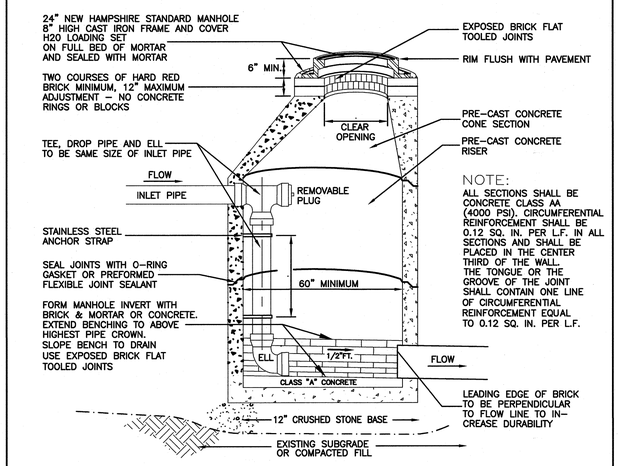
1,500 GALLON GREASE TRAP DETAIL (H-20 LOADING)

NOT TO SCALE



TYPICAL TRENCH SECTION FOR SANITARY SEWER SERVICE WITH LESS THAN 6' OF COVER

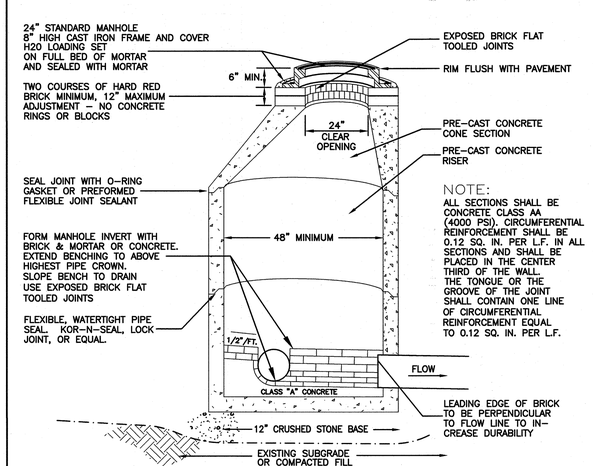
NOT TO SCALE



MORTAR SHALL CONSIST OF:
1 PART BY VOLUME PORTLAND CEMENT, 2 PARTS BY VOLUME, DAMP WASHED COARSE SAND AND POTABLE WATER TO PRODUCE A CONSISTENCY OF STIFF PASTE. SEAL ALL PRECAST JOINTS WITH MORTAR.

DROP SEWER MANHOLE

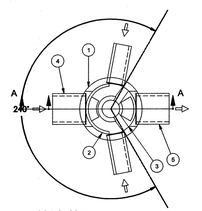
NOT TO SCALE



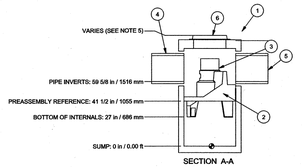
MORTAR SHALL CONSIST OF:
1 PART BY VOLUME PORTLAND CEMENT, 2 PARTS BY VOLUME, DAMP WASHED COARSE SAND AND POTABLE WATER TO PRODUCE A CONSISTENCY OF STIFF PASTE. SEAL ALL PRECAST JOINTS WITH MORTAR.

SEWER MANHOLE

NOT TO SCALE



Inlet pipe(s) can enter anywhere within 240° arc.



Parts List		
ITEM	SIZE (in)	DESCRIPTION
1	48	I.D. PRECAST MANHOLE
2		LEDGER SUPPORT
3		SEPARATION MODULE
4	12	INLET PIPE (BY OTHERS)
5	15	OUTLET PIPE (BY OTHERS)
6	30	FRAME AND COVER (OR GRATE) (ROUND)

GENERAL NOTES:
1. GENERAL ARRANGEMENT DRAWINGS ONLY. CONTACT HYDRO INTERNATIONAL FOR SITE SPECIFIC FABRICATION DRAWINGS.
2. THE DIAMETER OF THE INLET & OUTLET PIPES MAY BE NO MORE THAN 24".
3. MULTIPLE INLET PIPES POSSIBLE (REFER TO PROJECT PLANS).
4. INLET/OUTLET PIPE ANGLE CAN VARY TO ALIGN WITH DRAINAGE NETWORK (REFER TO PROJECT PLANS).
5. PEAK FLOW RATE AND MINIMUM HEIGHT LIMITED BY AVAILABLE COVER AND PIPE DIAMETER.
6. LARGER SEDIMENT STORAGE CAPACITY MAY BE PROVIDED WITH A DEEPER SUMP DEPTH.

PRODUCT SPECIFICATIONS:
A. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.
B. THE TREATMENT SYSTEM SHALL FIT WITHIN THE LIMITS OF EXCAVATION (AREA AND DEPTH) AS SHOWN IN THE PROJECT PLANS AND WILL NOT EXCEED THE DIMENSIONS FOR THE DESIGN FLOW RATES SPECIFIED HEREIN.
C. THE TREATMENT SYSTEM SHALL REMOVE GREATER THAN OR EQUAL TO 80% OF TSS BASED ON THE TARGET PARTICLE SIZE (D50) OF 125 MICRONS AND/OR 80% OF TSS BASED ON THE TPS OF 230 MICRONS AT 0.7 CFS/SQ FT OF SURFACE LOADING.
D. THE TREATMENT SYSTEM SHALL CONVEY THE PEAK ON-LINE FLOW RATES OF UP TO 18 CFS WITHOUT CAUSING UPSTREAM SURCHARGE CONDITIONS. FULL-SCALE INDEPENDENT LABORATORY SCOUR TESTING SHALL DEMONSTRATE EFFLUENT CONTROL OF LESS THAN OR EQUAL TO 5 MG/L FOR ALL FLOWS UP TO THE SCOUR POINT.
E. THE TREATMENT SYSTEM SHALL BE CAPABLE OF CAPTURING AND RETAINING FINE SILT AND SAND SIZE PARTICLES. ANALYSIS OF CAPTURED SEDIMENT FROM FULL-SCALE FIELD INSTALLATIONS SHALL DEMONSTRATE PARTICLE SIZES PREDOMINATELY IN THE 20-MICRON RANGE.

"FIRST DEFENSE" UNIT DETAIL - FD-4HC

(OR APPROVED EQUAL)
NOT TO SCALE

NOTE: CONTRACTOR SHOULD CONFIRM SYSTEM PARTS AND OBTAIN SHOP DRAWINGS FROM MANUFACTURER PRIOR TO CONSTRUCTION.

GPI
Engineering
Design
Planning
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603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH

PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD PORTSMOUTH, NH 03801

STATE OF NEW HAMPSHIRE
CORY N. MASON
No.17099
LICENSED PROFESSIONAL ENGINEER
2/10/22

REVISIONS		
NO.	REVISION	DATE

JANUARY 26, 2022

DRAWN/DESIGN BY	CHECKED BY
CCC/NID	DRJ

DETAIL SHEET

SCALE: NOT TO SCALE

PROJECT NO. NEX-2021163

12 OF 14

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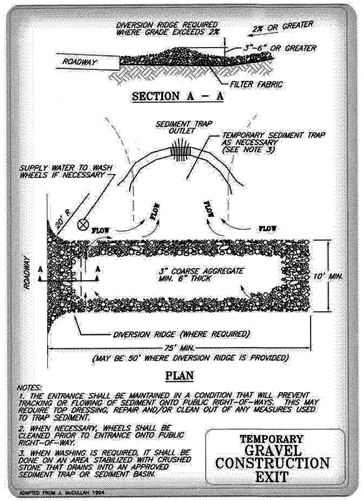
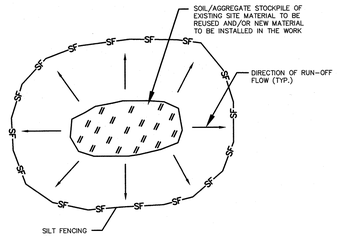


GRAVEL CONSTRUCTION EXIT

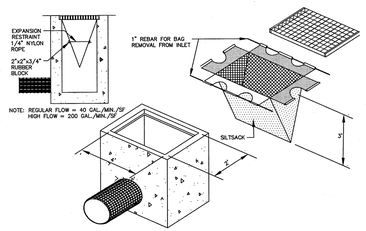
NOT TO SCALE



NOTES:
1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.
2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.
3. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.
4. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

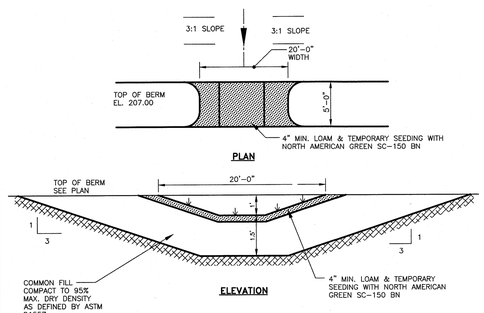
MATERIALS STOCKPILE DETAIL

NOT TO SCALE



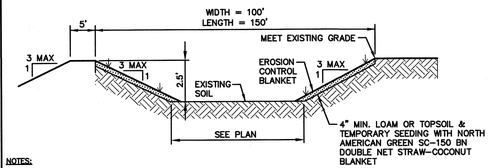
SILTSACK DETAIL-ON OR OFF SITE

NOT TO SCALE



SEDIMENT TRAP SPILLWAY DETAIL

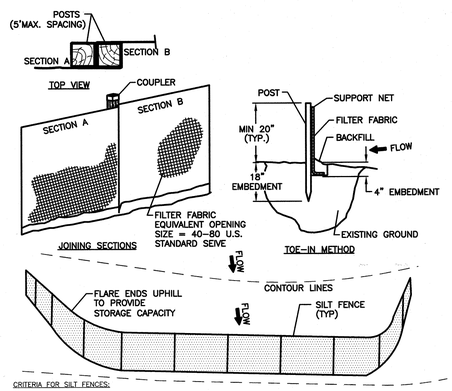
NOT TO SCALE



NOTES:
1. SIDE SLOPES OF THE TRAP SHALL BE 3:1 OR FLATTER, AND SHALL BE STABILIZED IMMEDIATELY AFTER CONSTRUCTION.
2. THE SPILLWAY ON THE TRAP SHOULD BE A MINIMUM OF 1 FOOT BELOW THE CREST OF THE TRAP AND SHALL DISCHARGE TO A STABILIZED AREA.
3. THE TRAP SHALL BE CLEANED WHEN 50% OF THE ORIGINAL VOLUME IS FILLED. MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.

TEMPORARY SEDIMENT TRAP TYPICAL CROSS SECTION

NOT TO SCALE



CRITERIA FOR SILT FENCES:

1) SILT FENCE FILTER CLOTH: THE FABRIC FOR THE SILT FENCE SHALL MEET THE FOLLOWING SPECIFICATIONS:

FABRIC PROPERTIES:	MINIMUM ACCEPTABLE VALUES	TEST METHOD
GRAB TENSILE STRENGTH (lbs)	90	ASTM D1682
ELONGATION AT FAILURE (%)	50	ASTM D1682
MULLEN BURST STRENGTH (PSI)	190	ASTM D3786
PUNCTURE STRENGTH (lbs)	40	ASTM D751
EQUIVELANT OPENING SIZE	40-80	US STD SIEVE

2) FENCE POSTS (FOR FABRICATED UNITS) – THE POSTS SHALL BE A MINIMUM OF 36 INCHES LONG. WOOD POSTS WILL BE OF SOUND QUALITY HARDWOOD WITH A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQUARE INCHES. STEEL POSTS WILL BE STANDARD T OR U SECTIONS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT. MAXIMUM SPACING SHALL BE 6 LINEAR FEET.

3) WIRE FENCE (FOR FABRICATED UNITS) – WIRE FENCING SHALL BE A MINIMUM 14.5 GUAGE WITH A MAXIMUM 6 INCH MESH OPENING.

4) PREFABRICATED UNITS – PREFABRICATED UNITS MAY BE USED IN LIEU OF THE ABOVE METHOD PROVIDING: (1) THE FILTER CLOTH AND FENCE POSTS MEET THE ABOVE CRITERIA; AND (2) THE UNIT IS INTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

MAINTENANCE:

1) SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.

2) IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.

3) SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMITELY ONE-HALF THE HEIGHT OF THE BARRIER.

4) SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

CONSTRUCTION SPECIFICATIONS:

1) THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR SILT FENCES.

2) THE FABRIC SHALL BE EMBEDDED A MINIMUM OF 8 INCHES INTO THE GROUND (4" DEEP & 4" WIDE) AND THE SOIL COMPACTED OVER THE EMBEDDED FABRIC.

3) WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES.

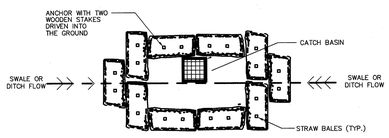
4) FILTER CLOTH SHALL BE FASTENED SECURELY TO THE WOVEN WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, MID-SECTION AND BOTTOM.

5) WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EAC OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES (24" IS PREFERRED), FOLDED, AND STAPLED.

6) POSTS TO BE SPACED AT A MAXIMUM OF 6' ON CENTER.

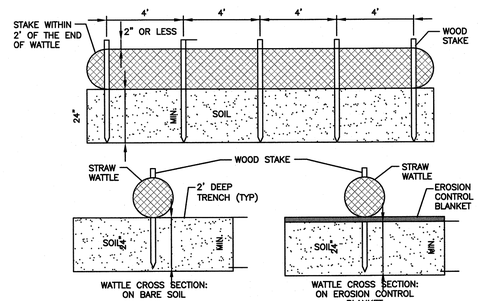
SEDIMENT CONTROL FENCE

NOT TO SCALE



LOW POINT SEDIMENTATION CONTROL BARRIER

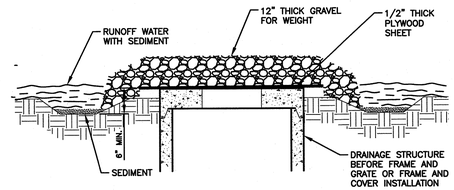
NOT TO SCALE



NOTES:
1. ENDS OF WATTLES SHALL BE TURNED SLIGHTLY UP.
2. RECCOMMENDED STAKES ARE 1 1/8" WIDE x 1 1/8" THICK x 30" LONG. STAKES SHALL NOT EXCEED ABOVE THE STRAW WATTLE MORE THAN 2".

STRAW WATTLE DETAIL

NOT TO SCALE

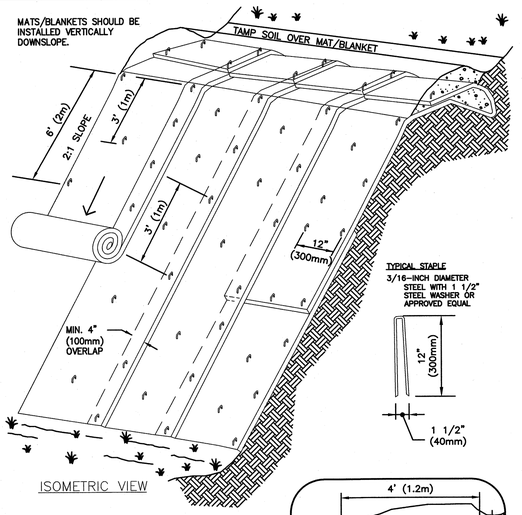


MAINTENANCE

1. ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAIN STORM AND REPAIRS MADE AS NECESSARY.
2. SEDIMENT SHOULD BE REMOVED FROM THE TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF OF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED OF IN A SUITABLE AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURAL OR VEGETATIVE MEANS.
3. THE TEMPOARARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.
4. ALL STRUCTURES WITH INLET PROTECTION MUST BE CLEANED AT THE END OF CONSTRUCTION AND WHEN THE SITE IS FULLY STABILIZED.

INLET PROTECTION DETAIL

NOT TO SCALE

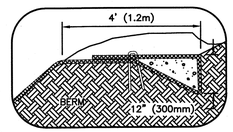


ISOMETRIC VIEW

TYPICAL SLOPE SOIL STABILIZATION

NOTES:
1. BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" DEEP TRENCH. BACKFILL AND COMPACT TRENCH AFTER STAPLING.
2. ROLL THE BLANKET DOWN THE SWALE IN THE DIRECTION OF THE WATER FLOW. LAY BLANKETS LOOSELY & MAINTAIN DIRECT CONTACT WITH SOIL – DO NOT STRETCH.
3. THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4 INCH OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
4. WHEN BLANKETS MUST BE SPLICED DOWN THE SWALE, PLACE BLANKET END OVER END WITH 6 INCH (MIN.) OVERLAP AND ANCHOR DOWN SLOPE BLANKET IN A 6 INCH DEEP TRENCH.
5. BLANKETS SHALL BE STAPLED ENOUGH TO ANCHOR BLANKET WHILE MAINTAINING CONTACT WITH SOIL. STAPLES SHALL BE PLACED DOWN THE CENTER & STAGGERED WITH THE STAPLES PLACED ALONG EDGES. PATTERN & AMOUNT OF STAPLES VARIES BY MANUFACTURER, SO FOLLOW MANUFACTURERS RECOMMENDATIONS.
6. BLANKET SHALL BE NORTH AMERICAN GREEN SC-150 OR APPROVED EQUAL.

MAINTENANCE & MATS
1. BLANKETS SHALL BE INSPECTED WEEKLY DURING CONSTRUCTION & AFTER A RAINFALL IN EXCESS OF 1/2" IN A 24-HOUR PERIOD.
2. FAILURES SHALL BE REPAIRED IMMEDIATELY. IF ANY OF THE FOLLOWING OCCUR; SLOPE WASHOUT, MAT DISPLACEMENT, DAMAGE TO MAT, THE AFFECTED AREA SHALL BE REPAIRED & RESEEDED & MAT SHALL BE REPLACED OR RE-INSTALLED.



TYPICAL INSTALLATION OF EROSION CONTROL BLANKETS FOR SLOPES

NOT TO SCALE

NOTE: DO NOT USE PRODUCTS THAT CONTAIN WELDED PLASTIC OR THAT ARE "PHOTODEGRADABLE". USE PRODUCTS WITH BIODEGRADABLE NETTING AND NATURAL FIBER MATERIAL (I.E. STRAW OR COCONUT FIBER).

BLANKET SLOPE PROTECTION FOR EROSION CONTROL

NOT TO SCALE

TEST PIT DATA

Test Pit No. 9-1 SCS Soil: Pipestone
ESHWT: >48" Standing Water: None
Refusal: 48" Roots: None

Depth	Horizon	Soil Texture	Color	Consistence	Mottles; Quantity/Contrast
0-30"	A	Loamy Sand	10yr 2/2	FR	
30-48"	B	Loamy Sand	10yr 4/4	FR	
48"	R				

Test Pit No. 9-2 SCS Soil: Pipestone
ESHWT: 36" Standing Water: None
Refusal: 38" Roots: None

Depth	Horizon	Soil Texture	Color	Consistence	Mottles; Quantity/Contrast
0-24"	A	Loamy Sand	10yr 3/2	FR	
24-33"	B	Loamy Sand	10yr 5/8	FR	
33-38"	C	Loamy Sand	2.5y 7/4	FR	@ 36" Distinct
38"	R				

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PREPARED FOR
GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH

PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD PORTSMOUTH, NH 03801

STATE OF NEW HAMPSHIRE – CORY N. MASON No.17099 – LICENSED PROFESSIONAL ENGINEER
2/10/22

REVISIONS		
NO.	REVISION	DATE

JANUARY 26, 2022

DRAWN/DESIGN BY	CHECKED BY
CCC/NID	DRJ

DETAIL SHEET

SCALE: NOT TO SCALE

PROJECT NO. NEX-2021163

13 OF 14

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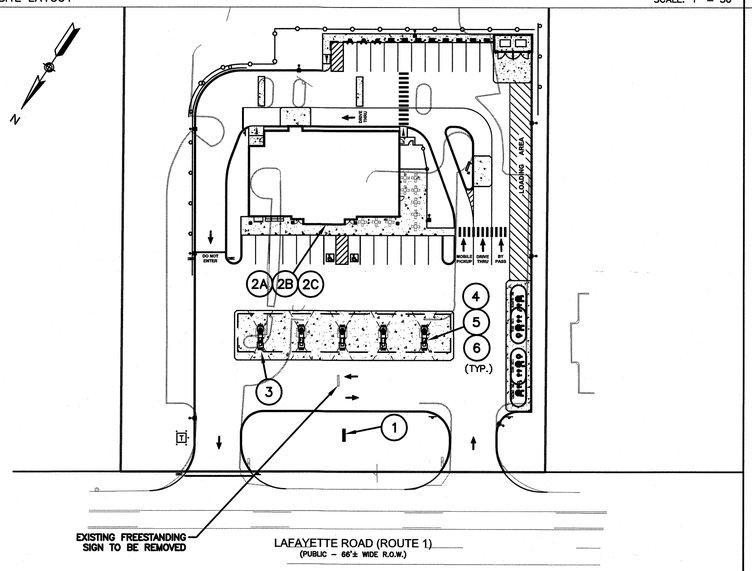
01 SITE LAYOUT

SCALE: 1" = 50'

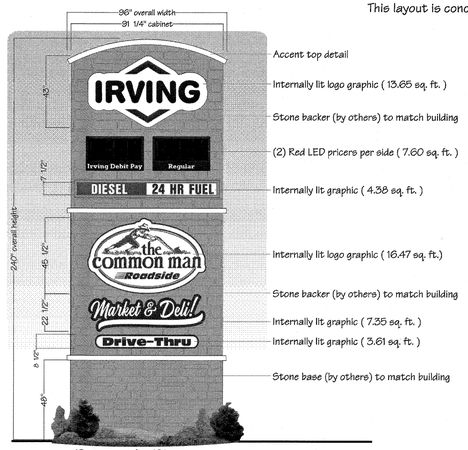


02 PROPOSED FREESTANDING SIGN ELEVATION

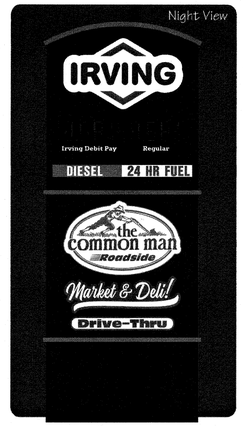
NOT TO SCALE

Common Man Roadside - Irving Epsom, NH Pylon ID Sign CONCEPTUAL — SHEET 01

This layout is conceptual only, all details to be verified and subject to change



Proposed - P1
Option 1.5a



Total area of signage: 53.06 sq. ft.

DATE: 04-26-21	JOB NAME: Common Man Roadside - Irving
REP: J.S.	
CONTACT: Brad Pernaw (617) 821-5604	
AUTHORIZED SIGNATURE REQUIRED TO BEGIN PRODUCTION	

SOUSA Signs
225 East Industrial Park Dr. Manchester, NH 03109
603-622-5067 FAX 603-624-6188

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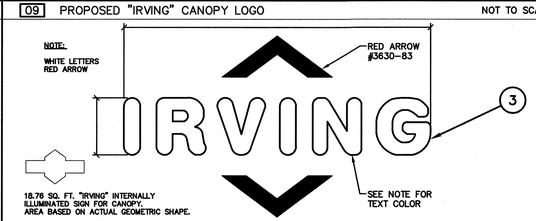
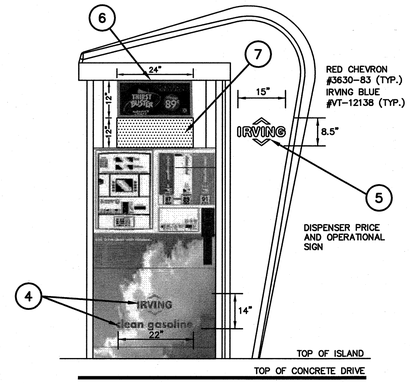
09 PROPOSED "IRVING" CANOPY LOGO

NOT TO SCALE



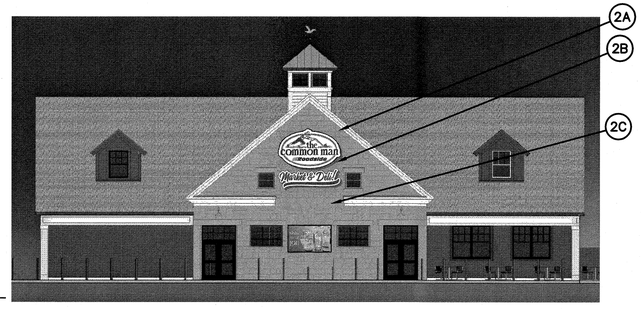
10 PROPOSED MULTI-PRODUCT DISPENSER

NOT TO SCALE



05 PROPOSED STORE ELEVATIONS

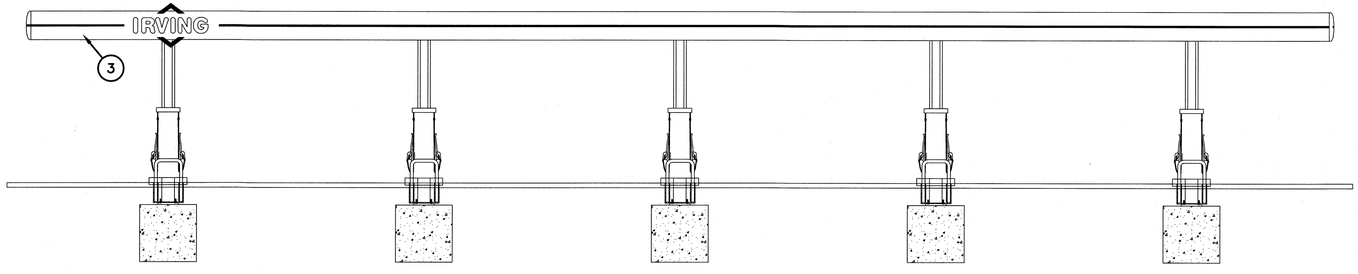
NOT TO SCALE



FRONT ELEVATION
N.T.S.

08 PROPOSED CANOPY ELEVATIONS

SCALE: 1/8"=1'-0"



AUTO FUELING CANOPY- NORTH ELEVATION
1/8" = 1'-0"

06 PROPOSED SIGN SCHEDULE

NOT TO SCALE

PROPOSED SIGN SCHEDULE

MARK	DESCRIPTION	SIZE	AREA	QTY.	TOTAL SF	ILLUM'D.
1	FREESTANDING SIGN	SEE DETAIL 2	100.0*	1	100.0	YES (INTERNAL)
2A	C-STORE WALL SIGN	SEE LOGO DETAIL 4	63.5	3	190.5	YES (INTERNAL)
2B	C-STORE WALL SIGN	SEE LOGO DETAIL 4	28.4	3	85.2	YES (INTERNAL)
2C	C-STORE WALL SIGN	SEE LOGO DETAIL 5	40.0	3	120.0	YES (INTERNAL)
3	"IRVING" CANOPY – LOGO SIGN	SEE LOGO DETAIL 9	18.76	3	56.28	YES (INTERNAL)
4	"IRVING" MPD DOOR GRAPHIC	SEE DISPENSER DETAIL 10	2.14	10	21.4	NO
5	"IRVING" DISPENSER SHROUD LOGO	SEE DISPENSER DETAIL 10	0.89	10	8.9	NO
6	"IRVING" DISPENSER ADVERTISING SIGN	SEE DISPENSER DETAIL 10	2.0	10	20.0	NO
7	DISPENSER PRICE SIGN	SEE DISPENSER DETAIL 10	2.0	10	20.0	NO

* INCLUDES BASE & STRUCTURE PER PORTSMOUTH REGULATIONS

04 C-STORE BUILDING WALL SIGN

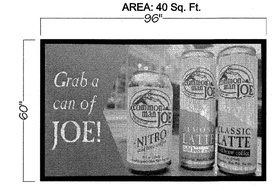
NOT TO SCALE



05 C-STORE BUILDING WALL SIGN

NOT TO SCALE

AREA: 40 Sq. Ft.



GPI Engineering Design Planning Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH

PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD PORTSMOUTH, NH 03801

REVISIONS

NO.	REVISION	DATE

JANUARY 26, 2022

DRAWN/DESIGN BY	CHECKED BY
CCC/NID	DRJ

SIGN & GRAPHICS PLAN

SCALE: AS SHOWN

PROJECT NO. NEX-2021163

14 OF 14

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NAD 83

N

MAP 272 LOT 1
N/F 2219 LAFAYETTE ROAD LLC
549 US HIGHWAY 1 BYPASS
PORTSMOUTH, NH 03801
BOOK 5900 PAGE 1408

SINGLE RESIDENCE (A) DISTRICT
GATEWAY CORRIDOR DISTRICT (G1)

EDGE OF WETLANDS AS DELINEATED BY WEST ENVIRONMENTAL, INC. ON JULY 30, 2021

PROP. TREELINE

MAP 272 LOT 3
111,998 Sq.Ft.
2.571 Ac.±

PROP. TREELINE

MAP 272 LOT 2
N/F 2225 LAFAYETTE LLC
125 AVIATION AVENUE #202
PORTSMOUTH, NH 03801
BOOK 6250 PAGE 2553

MAP 272 LOT 4
N/F RYE PORT PROPERTIES LLC
P.O. BOX 345
STRATHAM, NH 03885
BOOK 5083 PAGE 763

PROPOSED
5,555 SF± SANDWICH
SHOP/CONVENIENCE STORE
WITH DRIVE-THRU

DRIVE THRU

LOADING AREA

DO NOT ENTER

MOBILE PICKUP

DRIVE THRU

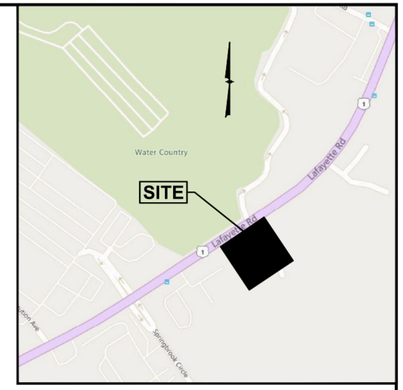
ISY PASS

LAFAYETTE ROAD (ROUTE 1)
(PUBLIC – 66'± WIDE R.O.W.)

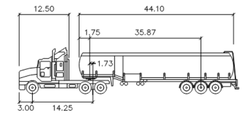
0 30 60 100
SCALE: 1" = 30'

LEGEND

- VGC — VERTICAL GRANITE CURB
- SSLW — SINGLE SOLID LINE WHITE
- G — GAS LINE
- UGC/T — UNDERGROUND COMM
- W — WATER LINE
- E — UNDERGROUND ELECTRIC
- CHAIN LINK FENCE
- 90 — CONTOUR ELEVATION
- TREE
- UTILITY POLE
- GUY WIRE
- OVERHEAD WIRE
- TREELINE
- SIGN
- 98.89 — SPOT ELEVATION
- CATCH BASIN
- CLEANOUT
- S — SEWER MANHOLE
- T — TELEPHONE MANHOLE
- WATER SHUT OFF
- BOLLARD
- GM — GAS METER
- LIGHT POLE
- WETLAND LINE
- EASEMENT LINE
- PROPERTY LINE
- ABUTTER PROPERTY LINE
- ZONE LINE

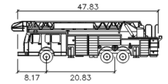


LOCATION MAP
(NOT TO SCALE)



FUEL TANKER — feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 40.0
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.50		



Portsmouth Fire Truck — feet

Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 38.0

811 DigSafe MA-ME-NH-RI-VT

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GPI Engineering Design Planning Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH

PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD PORTSMOUTH, NH 03801

STATE OF NEW HAMPSHIRE — DAVID R. JORDAN No. 7778 LICENSED PROFESSIONAL ENGINEER
3/22/22

REVISIONS		
1	REV. PER CITY COMMENTS	3/22/22
NO.	REVISION	DATE

JANUARY 26, 2022

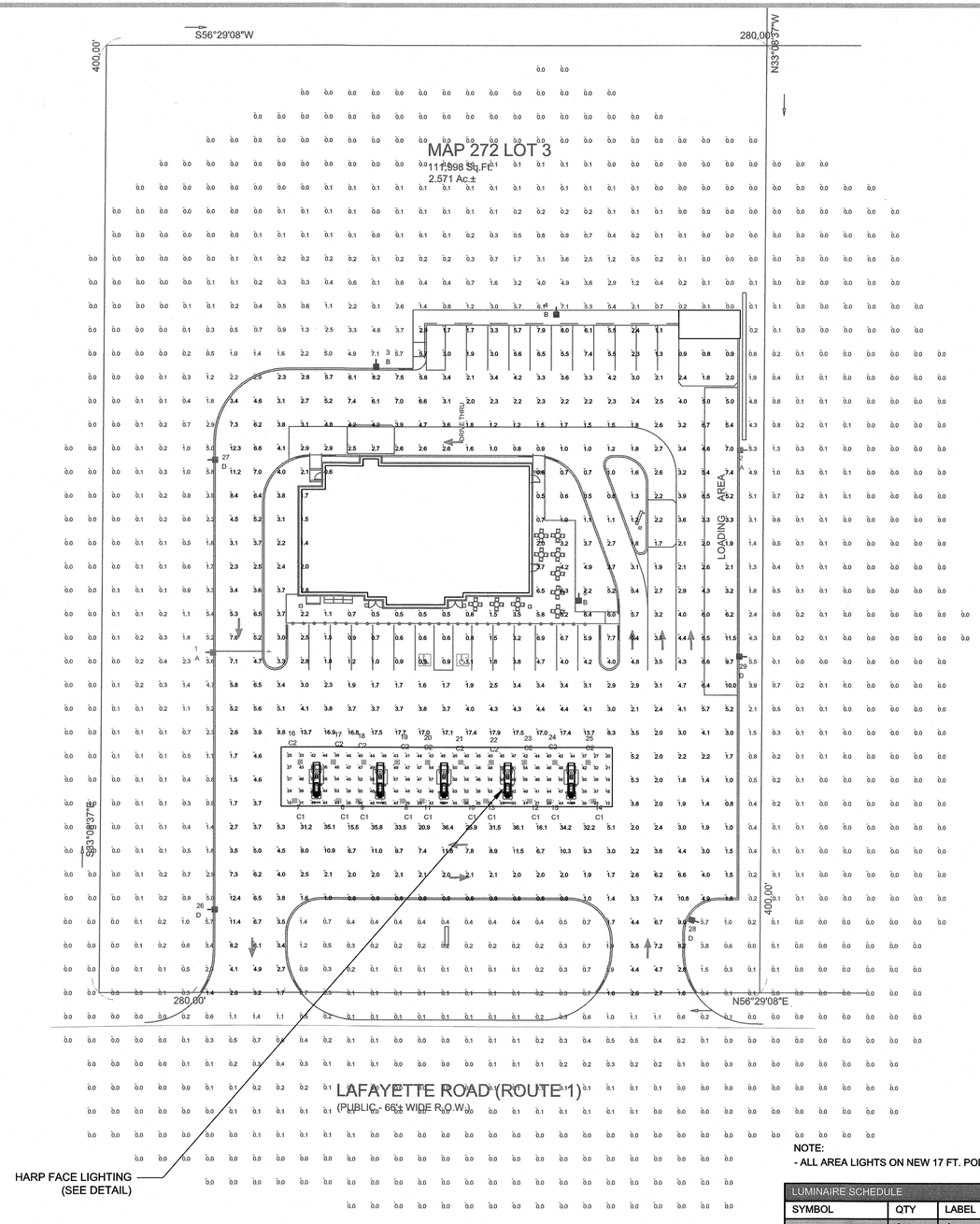
DRAWN/DESIGN BY	CHECKED BY
CCC/NID	DRJ

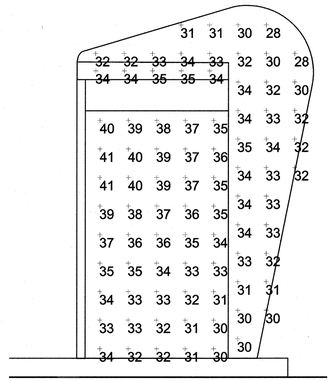
TRUCK TURN PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2021163

1 OF 1





HARP FACE
VERTICAL LIGHTING DETAIL
SCALE: 1/2" = 1 '

THIS SITE IS LOCATED IN A REGION WHERE
LIGHTING IS REGULATED BY LOCAL ORDINANCES

NOTE:
- ALL AREA LIGHTS ON NEW 17 FT. POLE MOUNTED ON 2-1/2 FT. CONCRETE BASE

LUMINAIRE LOCATION SUMMARY		
LUM NO.	LABEL	MTG. HT.
1	A	19.5
2	A	19.5
3	B	19.5
4	B	19.5
5	B	19.5
6	C1	14.5
7	C1	14.5
8	C1	14.5
9	C1	14.5
10	C1	14.5
11	C1	14.5
12	C1	14.5
13	C1	14.5
14	C1	14.5
15	C1	14.5
16	C2	14.5
17	C2	14.5
18	C2	14.5
19	C2	14.5
20	C2	14.5
21	C2	14.5
22	C2	14.5
23	C2	14.5
24	C2	14.5
25	C2	14.5
26	D	19.5
27	D	19.5
28	D	19.5
29	D	19.5

FOOTCANDLE LEVELS CALCULATED AT GRADE USING INITIAL LUMEN VALUES					
LABEL	AVG	MAX	MIN	AVG/MIN	MAX/MIN
IRVING HARP FACE (VERTICAL)	33.88	41	28	1.21	1.46
PAVED AREA	4.78	36.4	0.5	9.56	72.80
UNDEFINED	0.35	7.1	0.0	N.A.	N.A.
UNDER CANOPY	42.73	58	12	3.56	4.83

LUMINAIRE SCHEDULE										
SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS	LLF	BUG RATING	WATTS/LUMINAIRE	TOTAL WATTS	MANUFACTURER	CATALOG LOGIC
	2	A	SINGLE	16998	1.030	B2-U0-G3	132	264	Cree Inc	OSQ-ML-B-DA-XX + OSQL-B-22L-57K7-4M-UL-NM--XX + OSQ-BLSLF
	3	B	SINGLE	22098	1.030	B3-U0-G3	132	396	Cree Inc	OSQ-ML-B-DA-XX + OSQL-B-22L-57K7-4M-UL-NM-XX
	10	C1	SINGLE	12862	1.030	B2-U1-G1	141	1410	RUUD LIGHTING, INC., A CREE COMPANY	CAN-304-AF-RS-06-E-UL-WH-700-57K
	10	C2	SINGLE	13251	1.030	B3-U0-G1	134	1340	CREE, INC.	CAN-304-SL-RS-06-E-UL-XX-700-57K
	4	D	Single	17499	1.030	B2-U0-G3	132	528	Cree Inc	OSQ-ML-B-DA-XX + OSQL-B-22L-57K7-3M-UL-NM-XX + OSQ-BLSLF

REDLEONARD ASSOCIATES
1340 Kemper Meadow Dr, Forest Park, OH 45240
513-574-9500 | redleonard.com

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SCALE: 1" = 30'
LAYOUT BY: JSG
DWG SIZE: D
DATE: 1/10/22

PROJECT NAME:
IRVING OIL
GRANITE STATE C-STORE
DRAWING NUMBER:
RL-7838-S1

IRVING

AREA	QTY	LABEL	DESCRIPTION
	2	A	OSQ-ML-B-DA-XX + OSQL-B-22L-57K7-4M-UL-NM--XX + OSQ-BLSLF
	3	B	OSQ-ML-B-DA-XX + OSQL-B-22L-57K7-4M-UL-NM-XX
	4	D	OSQ-ML-B-DA-XX + OSQL-B-22L-57K7-3M-UL-NM-XX + OSQ-BLSLF

CANOPY	QTY	LABEL	DESCRIPTION
	10	C1	CAN-304-AF-RS-06-E-UL-WH-700-57K
	10	C2	CAN-304-SL-RS-06-E-UL-XX-700-57K

OSQ Series

OSQ™ LED Area/Flood Luminaire featuring Cree TrueWhite® Technology - Medium & Large

Rev. Date: V4 04/14/2021

Product Description

The OSQ™ Area/Flood luminaire blends extreme optical control, advanced thermal management and modern, clean aesthetics. Built to last, the housing is rugged cast aluminum with an integral, weathertight LED driver compartment. Versatile mounting configurations offer simple installation. Its slim, low-profile design minimizes wind load requirements and blends seamlessly into the site. The 57L lumen package is a suitable upgrade for 400 applications up to 250 Watt, and the 22L lumen package is a suitable upgrade for HID applications up to 100 Watt. The 22L lumen package is a suitable upgrade for HID applications up to 750 Watts, and the 30L lumen package is a suitable upgrade for HID applications up to 1000 Watts.
Applications: Parking lots, walkways, campuses, car dealerships, office complexes, tunnels, underpasses, and internal roadways

Performance Summary

Utilizes Cree TrueWhite® Technology on 5000K Luminaires

NanoOptic® Precision Delivery Shell™ optic

Assembled in the U.S.A. of U.S. and imported parts

Initial Delivered Lumens: 6,000 - 30,000

Efficacy: Up to 173 LPW

CRI: Minimum 70 CRI (3000K, 4000K & 5000K); 90 CRI (5000K)

CCT: 3000K, 4000K, 5000K, 5700K

Limited Warranty*: 10 years on luminaire; 10 years on ColorFast DeltaGuard® finish; up to 3 years for Synapse® accessories; 1 year on luminaire accessories

* See http://creelighting.com/warranty for warranty terms. For Synapse accessories, consult Synapse spec sheets for details on warranty terms.

Ordering Information

Fully assembled luminaire is composed of two components that must be ordered separately:
Example: **Mount:** OSQ-ML-B-AA-BK + **Luminaire:** OSQM-B-4L-30K7-2M-UL-NM-BK

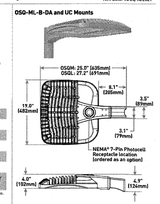
Mount (Luminaire must be ordered separately)*		
OSQ-		
OSQ-ML-B-AA Adjustable Arm **OSQ-ML-B-DA** Direct Arm **OSQ-ML-B-TSP** Transportation Mount (seamless steel; do not specify color) **OSQ-ML-B-UC** Universal Mount	**Color Options:**	**SV** Silver **BZ** Bronze **BK** Black **WH** White

* Mount Luminaire separately (see ordering info beginning on page 3)

Luminaire	Weight
OSQM	28.9 lbs. (13.1kg)
OSQL	33.6 lbs. (14.7kg)

Note: Refer to page 11 for fixture mounting drill pattern. For additional mounts, refer to drawings beginning on page 19

OSQ-ML-B-DA and UC Mounts



Luminaire (Mount must be ordered separately)															
OSQ-	**B**														
Family	Size	Series	Lumen Package	ZERO-10	Optic	Voltage	Mount	Color Options	Finish	Factory Options*		Options			
OSQ-	**M** Medium **L** Large	**B**	**Medium** **4L** 4,000 Lumens **5L** 5,000 Lumens **7L** 7,000 Lumens **10L** 10,000 Lumens **Large** **15L** 15,000 Lumens **20L** 20,000 Lumens **30L** 30,000 Lumens	**30K7** 3000K, 70 CRI **40K7** 4000K, 70 CRI **50K7** 5000K, 70 CRI **57K7** 5700K, 70 CRI	**Asymmetric** **2M*** Type II Medium **3M*** Type III Medium **4M** Type IV Medium **Symmetric** **5M** Type V Medium **5W** Type V Wide **6M** Type V Square Medium **6W** Type V Square Wide **Narrow Flood** **8M** 90x90° 2nd Gen **8W** 90x90° 2nd Gen **9M** 90x90° 5th Gen **9W** 90x90° 5th Gen	**UL** Universal 120-277V **UH** Universal 347-480V	**WM** No Mount **AA** Arm mount; field adjustable **UC** Universal Mount Accessories: Mounts available with AA or UC mounts **SSMMBOX** Square Surface Mount Box **Direct Mounts** **SM** Square Mount **RM** Round Mount **SSMMBOX** Square Surface Mount Box **Arm Mounts** **SA** 42" Utility Arm w/8' Cable (20' Max Span Cable) **SB** 42" Utility Arm w/8' SJTW 4x60 Cord **SC** 42" Utility Arm w/8' SJTW 4x60 Cord **SD** 90x90° 2nd Gen Direct Arm Mount (Standard 3" Round Pole Adapter Included) **SE** 90x90° 5th Gen Direct Arm Mount (Standard 3" Round Pole Adapter Included) **SF** 180° Direct Arm Mount (Standard 3" Round Pole Adapter Included) **SG** Direct Arm Mount (Standard 3" Round Pole Adapter Included) **SH** Trunnion Mount **SJ** Sportlite Mount Shipped separately **SK** Sportlite Mount Shipped installed **SL** Sportlite Petroleum **SS** Trunnion Mount **ST** Trunnion Mount Refer to page 12-14 for arm/mount accessories Includes N option	**DB** Black **DN** Natural Bronze **DW** White **DY** Silver **WH** White	**PML** Programmable Multi-Level, up to 12' Mounting Height Refer to PML spec sheet for details Intended for downlight applications at 0°-15° **PML2** Programmable Multi-Level, 16-30' Mounting Height Refer to PML spec sheet for details Intended for downlight applications at 0°-15° **SV/SG/SB/SW/SN/SH/SR/SU/SQ/SS** **Field Adjustable Relays** Must select SP, SW, ST, SN, SS, SH, SQ, SU, or SV - Requires NEMA/ANSI C136.41 7-Pin Dimming Receptacle - Shipped separately - Not for use with PML or PML2 options - Provides On/Off switching, dimming, power metering, digital sensor input, and status monitoring of luminaire - Refer to SCR-SQ spec sheet for details **SVF/SGF/SBF/SWF/SNF/SHF/SRF/SUF/SQF/SSF** **Locked Lumen Output** - Must select SB, ST, SN, SS, SH, SQ, SU, or SV - Not available with CSS, or SRL lumen packages - Not available with PML or PML2 options - Lumen output is permanently scaled to the selected value - Refer to page 12-14 for power and lumen values	**F** Fuse - Compatible with 120V, 277V or 347V (please to source) - Consult factory if finding is required for 700V, 240V or 480V (phase to phase) - Refer to FUSE_480_415VAC for availability with PML options - When ruin-in-place, factory, use time delay fuse **N** Utility Label and NEMA® 7-Pin Photocell Receptacle - Included with UA, UB, UC and ST mounts - External voltage label per ANSI C136.15 - Photocell receptacle per ANSI C136.41 - Intended for downlight applications with minimum 0.5° tilt - Factory-connected 0-10V dim leads - 7-conductor 18AWG mated, 3-connector (UA/UB mounts), or 5-conductor 14/2+12 mounted, 5-connector (UC/ST mounts) cord with luminaire - Requires photocell or shorting cap by others **R** NEMA® 7-Pin Photocell Receptacle - Twist-receptacle per ANSI C136.41 - Required for 480VAC applications with maximum 40° tilt - Factory-connected 0-10V dim leads - Refer to SCR-SQ spec sheet for details on compatible controls - Requires photocell or shorting cap by others **RL** Retain Lens - Lens and hardware are retained to the luminaire - Refer to RETAIN_configuration diagram on page 19 for optic directionality - Not for use with symmetric optics **RR** Retain Right - Lens and hardware are retained to the right - Refer to RETAIN_configuration diagram on page 19 for optic directionality - Not for use with symmetric optics	**DIM** 0-10V Dimming - Comes by others - Refer to Dimming spec sheet for details - Requires 2 twisted non-filled drive current **F** Fuse - Compatible only with 120V, 277V or 347V (please to neutral) - Consult factory if finding is required for 700V, 240V or 480V (phase to phase) - Refer to FUSE_480_415VAC for availability with PML options - When ruin-in-place fusing, use time delay fuse **PML** Programmable Multi-Level - Refer to PML spec sheet for details **40K** 4000K Color Temperature - Minimum 70 CRI - Color temperature per luminaire **TRL** Tool-less Retain Lens - Available only with 30K lens - Lumen multiplier from 5700K, 0.92 (350mA) - Minimum 70 CRI - 450nm dominant wavelength - Additional shielding (by others) may be required for Florida Fish and Wildlife Conservation Commission compliance

* Available with Backlight Shield when ordered with field-installed accessory (see table above)
** Luminaire comes standard with 0-10V dimming

US: creelighting.com (800) 236-4800
Canada: creelighting-canada.com (800) 473-1234

CREE LIGHTING

304 Series™

LED Recessed Canopy Luminaire

Rev. Date: V7 04/05/2021

Product Description

Luminaire housing is constructed from rugged die cast aluminum components (RS Mount) or die cast and extruded aluminum components (RD Mount). LED driver is mounted in a sealed weathertight center chamber that allows for access from below the fixture. Luminaire mounts directly to the canopy deck and is secured in place with die cast aluminum trim frame. Luminaire housing is provided with factory applied foam gasket that provides a watertight seal between luminaire housing and canopy deck. Suitable for use on single or double sized canopies with 16" (406mm) wide panels. Designed for canopies of 19-22 gauge (maximum 0.044" [1mm] thickness).
Applications: Petroleum stations, convenience stores, drive-thru banks and restaurants, retail and grocery

Performance Summary

Patented NanoOptic® Product Technology

Assembled in the U.S.A. of U.S. and imported parts

CRI: Minimum 70 CRI

CCT: 4000K (+/- 300K), 5700K (+/- 500K) standard

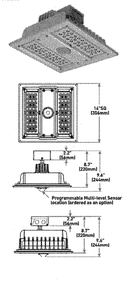
Limited Warranty*: 10 years on luminaire/10 years on ColorFast DeltaGuard® finish

* See http://creelighting.com/warranty for warranty terms

Accessories

Field-Installed
Hand-Held Remote XA-SENSREM - For successful implementation of the programmable multi-level system, a minimum of one hand-held remote is required

RS Mount



Weight
22.0 lbs. (9.9kg)

Ordering Information

Example: CAN-304-SM-RS-06-E-UL-XX-350

CAN-304				E				
Product	Optic	Mounting	LED Count (x10)	Series	Voltage	Color Options	Drive Current	Options
CAN-304	**DM** Type V Medium **DW** Type V Wide **SM** Type V Short Throw **SP** Petroleum Symmetric **SL** Sportlite Petroleum	**RD** Recessed Single **RM** Recessed Double **RS** Recessed Deck	**04** **06**	**E**	**UL** Universal 120-277V **UH** Universal 347-480V	**BK** Black **BZ** Bronze **SI** Silver **WH** White	**350** 350mA **525** 525mA **700** 700mA	**DIM** 0-10V Dimming - Comes by others - Refer to Dimming spec sheet for details - Requires 2 twisted non-filled drive current **F** Fuse - Compatible only with 120V, 277V or 347V (please to neutral) - Consult factory if finding is required for 700V, 240V (phase to phase) - Refer to FUSE_spec sheet for availability with PML options - When ruin-in-place fusing, use time delay fuse **PML** Programmable Multi-Level - Refer to PML spec sheet for details **40K** 4000K Color Temperature - Minimum 70 CRI - Color temperature per luminaire **TRL** Tool-less Retain Lens - Available only with 30K lens - Lumen multiplier from 5700K, 0.92 (350mA) - Minimum 70 CRI - 450nm dominant wavelength - Additional shielding (by others) may be required for Florida Fish and Wildlife Conservation Commission compliance

* All LED luminaire require marked spacing: 48" x 24" x 6" (1.2219mm x 610mm x 152mm); 48" (1.2219mm) center-to-center of adjacent luminaires, 24" (610mm) luminaire center to walls building member, 6" (152mm) top of luminaire to overhead building member

US: creelighting.com (800) 236-4800
Canada: creelighting-canada.com (800) 473-1234

CREE LIGHTING

OSQ™ LED Area/Flood Luminaire featuring Cree TrueWhite® Technology - Medium & Large

Product Specifications

CREE TRUEWHITE® TECHNOLOGY
Delivering the best in class high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics and lifelong color consistency, all while maintaining high luminous efficacy - a true no compromise solution.

CONSTRUCTION & MATERIALS
- Slim, low profile design minimizes wind load requirements and blends seamlessly into the site
- Luminaire housing is rugged die cast aluminum with an integral, weathertight LED driver compartment. Versatile mounting configurations offer simple installation. Its slim, low-profile design minimizes wind load requirements and blends seamlessly into the site
- Downward interlocking mounting method on direct arm and UC mounts. Mounting adapter is rugged die cast aluminum and mounts to 3" (76mm) or larger round pole. Luminaire mounts to 4" (102mm) bolt circle spaced on 2" (51mm) centers. Refer to page 11 for fixture mounting drill pattern.
- Mounting for the adjustable arm mount adapter is rugged die cast aluminum and grooves to 3" (76mm) O.D. tenon. SA and SB mounts are provided with 8' cable.
- Luminaire on mount can be adjusted 180° in 5° increments. UA and UB mounts be field-adjusted in 0.25° increments to a maximum tilt of 45°
- Transportation mount is constructed of 316 stainless steel and mounts to surface with (6) 3/8" fasteners by others.
- Trunnion mount is constructed of A500 and A1011 steel and is adjustable from 0-180° in 5° increments. Mounting bolts are provided for 1" to 2" conduit. The mounting bolt pattern and is factory preset to 45°. Trunnion mount secures to surface with (3) 1/4" bolt or (3) 1/2" bolt by others.
- Luminaire ordered with NM mount include 18" (460mm) SJTW or 14/3 cord exiting the luminaire; when combined with 10 ft or 9 poles, 18" (460mm) 16/3 or 14/3 cord is provided. UA and UB mounts include 8' (2.4m) 14/3 AWG SJTW black cord exiting the side of the arm. Luminaire ordered with NM, UA, UB, UC or ST mount include a 3/4" NPT hub. UC mount includes 12" (305mm) 18/5 or 14/5 leads exiting the luminaire. SJ mount includes 8' (2.4m) 14/3 cord exiting the luminaire
- Terminal block is provided with 10 position terminal block. Label per ANSI C136.15 and 7-pin NEMA® Photocell Receptacle per ANSI C136.41
- Designed for uplight and downlight applications
- Exclusive ColorFast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, bronze, black, and white are available

Weight		
Mount	Housing Medium	Large
OSQ-ML-B-AA	29.4 lbs. (13.1kg)	33.8 lbs. (15.3kg)
OSQ-ML-B-DA	29.9 lbs. (13.1kg)	32.4 lbs. (14.7kg)
OSQ-ML-B-TSP	42.8 lbs. (19.1kg)	44.8 lbs. (20.3kg)
OSQ-ML-B-TM	32.6 lbs. (14.8kg)	36.1 lbs. (16.4kg)
UA	29.8 lbs. (13.6kg)	33.1 lbs. (15.0kg)
UB	29.3 lbs. (13.4kg)	33.1 lbs. (15.0kg)
UC	28.9 lbs (13.1kg)	32.4 lbs. (14.7kg)
UD	32.4 lbs. (14.8kg)	36.1 lbs. (16.4kg)

ELECTRICAL SYSTEM
- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- Designed with 0-10V dimming capabilities. Controls by others
- Refer to Dimming spec sheet for details
- **Maximum 10V Source Current:** 1.0mA
- **Operating Temperature Range:** -40°C (-40°F) - +50°C (+122°F)

REGULATORY & VOLUNTARY QUALIFICATIONS
- cULus Listed (UL1598)
- Suitable for wet locations
- Meets NEMA-OSQ.77 standards
- Drivers are IP66 rated and designed in accordance with UL8750
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2010, 3G bridge and enveloppe vibration standards
- ANSI C136.2 10kV surge protection, tested in accordance with IEEE/ANSI C62.41.2
- Meets Buy American requirements within ARRA
- RoHS compliant. Consult factory for additional details
- Dark Sky Friendly, IDA Approved when ordered with 30K CCT and direct or transportation mount. Refer to http://darksky.org/lighting/lighting-for-citizens/lighting-basics/#fullcutoff-vs-unshielded for more information
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm - www.p65warnings.ca.gov

Product Specifications

SYNAPSE® SIMPLYSNAP INTELLIGENT CONTROL
The Synapse SimplySNAP platform is a highly intuitive connected lighting solution featuring zone control, scheduling, and monitoring capabilities. Each luminaire is equipped with a wireless node capable of up to 1000 nodes per gateway. The system features a reliable and robust self-healing mesh network with a browser-based interface that runs on smartphones, tablets, and PCs. The Twist-Lock Lighting Controller (TLT-SQ) and Site Controller (SSASS-002) take the OSQ Series to a new performance plateau, providing extreme energy productivity, code compliance and a better light experience.

Electrical Data*								
Input Power Designator	Optic	System Watts 120-480V	Utility Labeled Wattage	Total Current (A)				
				120V	208V	240V	277V	347V	480V
z_{1}**	All	29	30	0.25	0.14	0.12	0.11	N/A	N/A
z_{2}**	Asymmetric	48	50	0.41	0.23	0.20	0.17	N/A	N/A
	Symmetric	39	40	0.33	0.19	0.17	0.14	N/A	N/A
h_{L}	All	60	60	0.51	0.29	0.25	0.22	0.18	0.13
$1L_{L}$	All	73	70	0.62	0.36	0.31	0.27	0.21	0.16
$1xL_{L}$	All	104	100	0.89	0.51	0.43	0.39	0.31	0.22
$2L_{L}$	All	148	150	1.12	0.65	0.55	0.42	0.39	0.28
$3L_{L}$	All	252	200	1.72	0.96	0.84	0.72	0.60	0.43

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V or 347-480V

** Available with XL voltage only

OSQ Series Ambient Adjusted Lumen Maintenance†						
Ambient	Optic	Initial LMF	25K hr Reported‡ LMF	50K hr Reported‡ LMF	75K hr Reported‡/ Estimated§ LMF	100K hr Reported‡/ Estimated§ LMF
5°C (41°F)	Asymmetric	1.04	1.03	1.01	0.99	0.97
	Symmetric	1.05	1.05	1.05	1.02	1.00
10°C (50°F)	Asymmetric	1.03	1.02	1.00	0.98	0.96
	Symmetric	1.04	1.03	1.03	1.00	1.00
15°C (59°F)	Asymmetric	1.02	1.01	0.99	0.97	0.95
	Symmetric	1.02	1.02	1.02	1.00	1.00
20°C (68°F)	Asymmetric	1.01	1.00	0.98	0.96	0.94
	Symmetric	1.01	1.01	1.01	1.00	1.00
25°C (77°F)	Asymmetric	1.00	0.99	0.97	0.95	0.93
	Symmetric	1.00	1.00	1.00	1.00	1.00

* Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LAMF) have been applied to all lumen maintenance values. Please refer to the Temperature Zone Reference Document for ambient average nighttime ambient conditions.

† In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to the tested duration in the IES LM-80 report for the LED.

‡ Estimated values are calculated and represent time durations that exceed the tested duration of the LED.

Accessories

Field-Installed		
Hand-Held Remote (Front Facing Optics) XA-SENSREM OSQ-BLSLF (Large) **Backlight Shield (Rotated Optics)** OSQ-BLSMR (Medium) OSQ-BLSLF (Large) **Bird Spikes** OSQ-MED-BRDSPK OSQ-LG-BRDSPK	**Hand-Held Remote** XA-SENSREM - For successful implementation of the programmable multi-level system, a minimum of one hand-held remote is required	**Shorting Cap** XA-XSLSHRT

Synapse Wireless Control Accessories	
Twist-Lock Lighting Controller TLT-SQ - Suitable for 120-277V (UL) voltage only - Requires NEMA/ANSI C136.41 7-Pin Dimming Receptacle - Not for use with PML or PML2 options - Provides On/Off switching, dimming, power metering, digital sensor input, and status monitoring of luminaire - Refer to TLT-SQ spec sheet for details	**Synapse Wireless Sensor** NEMA-CPM - Motion and light sensor - Control multiple zones - Refer to NEMA-CPM spec sheet for details **Synapse Wireless Site Controller** SSASS-002 - Verizon® LTE-enabled - Up to 1000 nodes per application - Refer to SSASS-002 spec sheet for details
SimplySNAP Control Base Station CBS5W-450-002 - Synapse Site Controller (SSASS-002) and 5- button switch - Indoor and Outdoor rated - Refer to CBS5W-450-002 spec sheet for details	**Building Management System (BMS) Gateway Options** - Required for BACnet integration - Refer to BMS-GW-002 spec sheet for details
	Optional, Not Included (requ. 4M5 gate) KIT-ANT5205M - M5 includes antenna, 25' cable and bracket KIT-ANT5405M - M5 includes antenna, 50' cable and bracket KIT-ANT5410 - M5 includes antenna, 50' cable and bracket Refer to Outdoor antenna spec sheet for details

US: creelighting.com (800) 236-4800
Canada: creelighting-canada.com (800) 473-1234

CREE LIGHTING

304 Series™ LED Recessed Canopy Luminaire

Product Specifications

CONSTRUCTION & MATERIALS
- RS Mount luminaire housing is constructed from rugged die cast aluminum and incorporates integral, high performance heatsink fins specifically designed for LED canopy applications
- RD Mount luminaire housing is constructed from rugged die cast aluminum and features high performance extruded aluminum heatsinks specifically designed for LED canopy applications
- LED driver is mounted in a sealed weathertight center chamber that allows for access from below the luminaire
- Field adjustable 350mA, 525mA and 700mA on Non-IC rated luminaires
- Luminaire housing provided with factory applied foam gasket and provides for a watertight seal between luminaire housing and canopy deck
- Mounts directly to the canopy deck and is secured in place with a die cast aluminum trim frame
- RS mount includes integral junction box which allows ease of installation without need to open luminaire
- Suitable for use in single (RS Mount) or double (RD Mount) skin canopies with 16" (406mm) wide panels
- Designed for canopies of 19-22 gauge (maximum 0.044" [1mm] thickness)
- See 228 Series™ canopy luminaires for canopies using 12" (305mm) deck sections
- Exclusive ColorFast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Black, bronze, silver, and white are available

ELECTRICAL SYSTEM
- **Input Voltage:** 120-277V or 347-480V, 50/60Hz. Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral weathertight electrical box with terminal strips (120a-208a) for easy power hookup
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- **10V Source Current:** 0.15mA

REGULATORY & VOLUNTARY QUALIFICATIONS
- cULus Listed
- Suitable for wet locations
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Enclosure meets IP66 requirements per IEC 60529
- ANSI C136.2 10kV surge protection, tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- DLC qualified with select SKUs. Please refer to www.designlights.org for most current information
- RoHS-Compliant. Consult factory for additional details
- Meets Buy American requirements within ARRA
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm - www.p65warnings.ca.gov

Electrical Data*						
LED Count (x10)	System Watts 120-480V	Total Current (A)				
		120V	208V	240V	277V	347V	480V
350mA							
04	44	0.39	0.24	0.22	0.21	0.15	0.12
06	69	0.57	0.34	0.30	0.27	0.21	0.14
525mA							
04	71	0.59	0.35	0.31	0.28	0.21	0.16
06	101	0.84	0.49	0.43	0.36	0.30	0.22
700mA							
04	94	0.79	0.46	0.40	0.34	0.28	0.21
06	135	1.14	0.65	0.57	0.50	0.40	0.29

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V or 347-480V

304 Series™ Ambient Adjusted Lumen Maintenance†						
Ambient	CCT	Initial LMF	25K hr Reported‡ LMF	50K hr Reported‡ LMF	75K hr Estimated§ LMF	100K hr Estimated§ LMF
5°C (41°F)	30K/40K/50K/57K	1.04	1.01	0.99	0.98	0.96
	TRL	1.04	1.04	1.04	1.04	1.04
10°C (50°F)	30K/40K/50K/57K	1.03	1.00	0.98	0.97	0.95
	TRL	1.04	1.04	1.04	1.04	1.04
15°C (59°F)	30K/40K/50K/57K	1.02	0.99	0.97	0.96	0.94
	TRL	1.03	1.03	1.03	1.02	1.02
20°C (68°F)	30K/40K/50K/57K	1.01	0.98	0.96	0.95	0.93
	TRL	1.01	1.01	1.01	1.01	1.01
25°C (77°F)	30K/40K/50K/57K	1.00	0.97	0.95	0.94	0.92
	TRL	1.00	1.00	1.00	1.00	1.00

* Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LAMF) have been applied to all lumen maintenance values. Please refer to the Temperature Zone Reference Document for ambient average nighttime ambient conditions.

† In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to the tested duration in the IES LM-80 report for the LED.

‡ Estimated values are calculated and represent time durations that exceed the tested duration of the LED.

REDLEONARD ASSOCIATES
1340 Kemper Meadow Dr, Forest Park, OH 45240
513-574-9500 | redleonard.com

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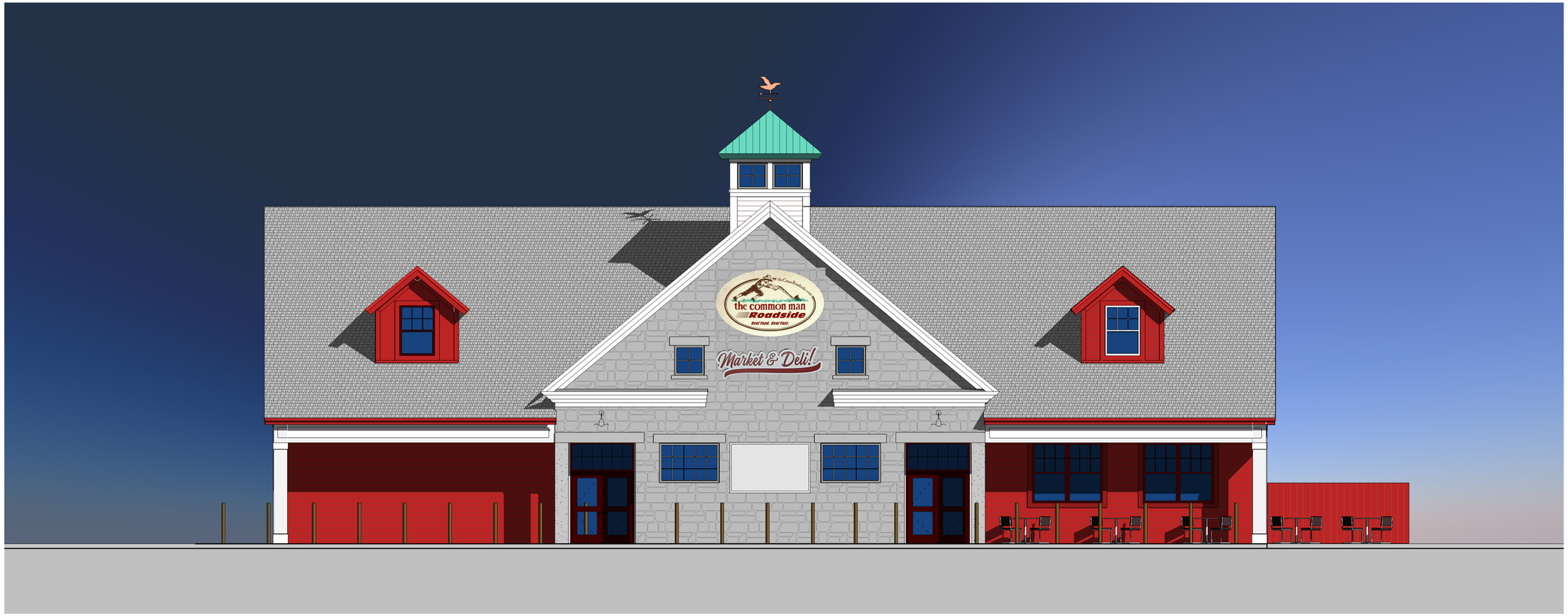
PROJECT NAME:
IRVING OIL
GRANITE STATE C-STORE
DRAWING NUMBER:
RL-7838-S1

IRVING



1 NORTH ELEVATION - PRESENTATION
Scale: 3/16" = 1'-0"



2 EAST ELEVATION - PRESENTATION
Scale: 3/16" = 1'-0"

SAMYN – D'ELIA
ARCHITECTS, P.A.

CONSULTANTS / DESIGN TEAM:

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HVAC, ELEC. & PLUMB. ENGINEER:
Charles P. Buckley, P.E.
500 Depot Street
Rumney, NH 03266
T: (603) 786-9992

SCHEMATIC DESIGN
1/20/2022

KEY PLAN & NORTH ARROW:

DRAWN BY: MR
CHECKED BY: WD

PROJECT:
PORTSMOUTH ROADSIDE

PORTSMOUTH, NEW HAMPSHIRE

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DRAWING TITLE:
EXTERIOR ELEVATIONS - PRESENTATION

ISSUED:
Schematic Design

PROJECT NO: 2130
DATE: Jan. 20, 2022

REVISION	DATE	COMMENTS

SHEET NUMBER:
P201

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1 SOUTH ELEVATION - PRESENTATION
Scale: 3/16" = 1'-0"



2 WEST ELEVATION - PRESENTATION
Scale: 3/16" = 1'-0"

SAMYN – D'ELIA
ARCHITECTS, P.A.

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T: (603) 786-9992

SCHEMATIC DESIGN
1/20/2022

KEY PLAN & NORTH ARROW:

DRAWN BY: MR

CHECKED BY: WD

PROJECT:
PORTSMOUTH ROADSIDE

PORTSMOUTH, NEW HAMPSHIRE

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DRAWING TITLE:
EXTERIOR ELEVATIONS - PRESENTATION

ISSUED:
Schematic Design

PROJECT NO: 2130 DATE: Jan. 20, 2022

REVISION	DATE	COMMENTS

SHEET NUMBER:
P202

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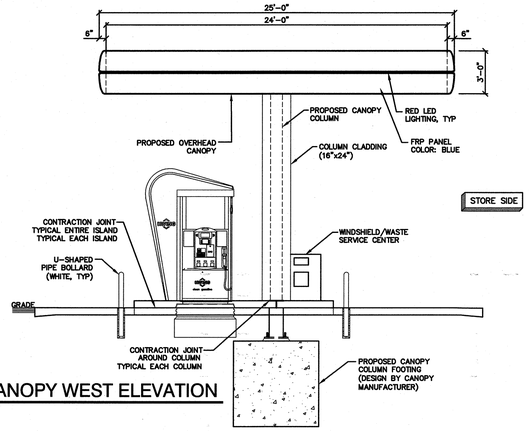

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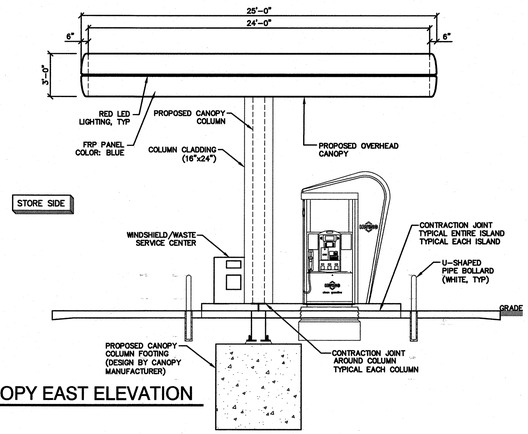
3/16" = 1'-0"



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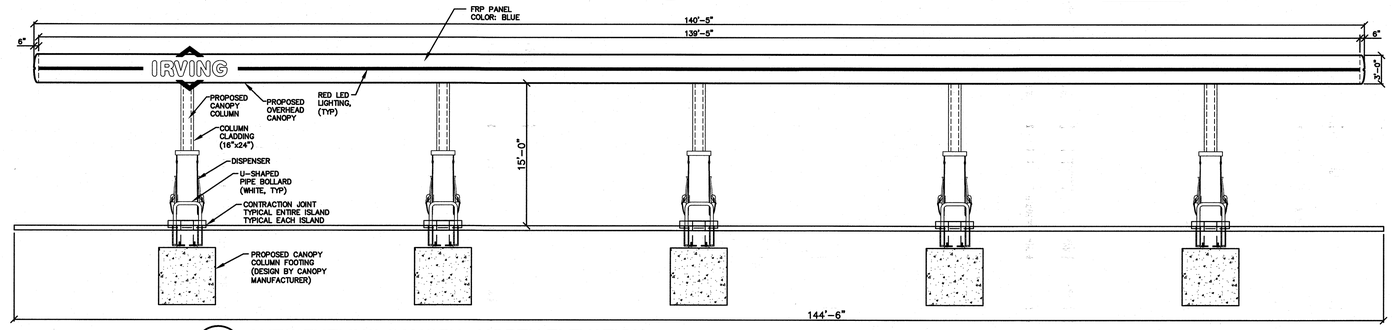
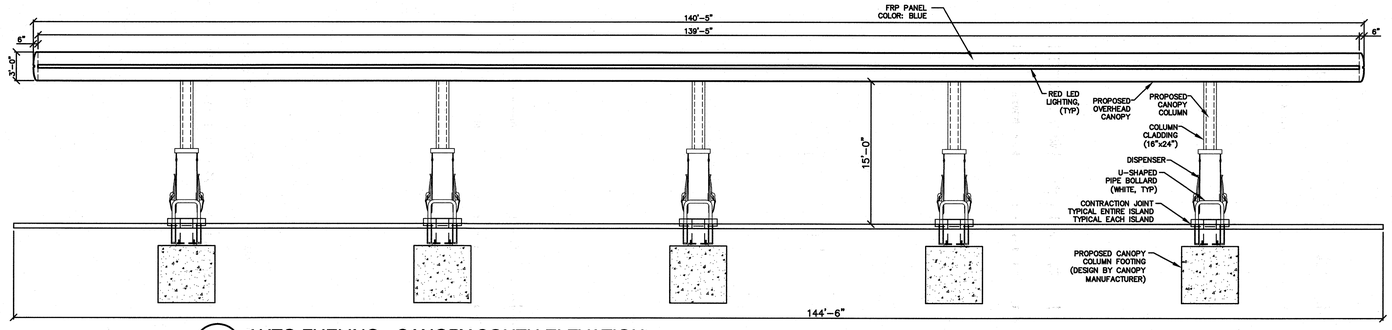
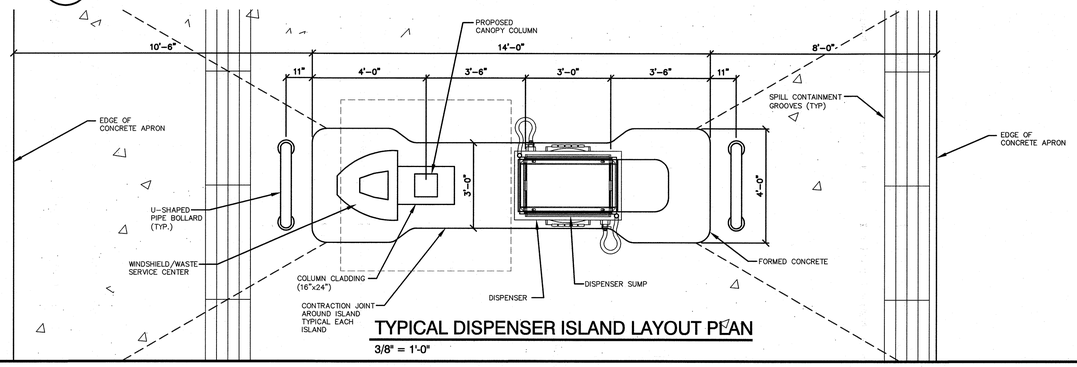
3/16" = 1'-0"



1 AUTO FUELING CANOPY - NORTH ELEVATION
1/8" = 1'-0"



2 AUTO FUELING - CANOPY SOUTH ELEVATION
1/8" = 1'-0"



TYPICAL DISPENSER ISLAND LAYOUT PLAN
3/8" = 1'-0"

GPI Engineering Design Planning Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
GRANITE STATE CONVENIENCE, LLC
25 SPRINGER ROAD
HOOKSETT, NH

PROPOSED RETAIL MOTOR FUEL OUTLET
2255 LAFAYETTE ROAD PORTSMOUTH, NH 03801

REVISIONS		
NO.	REVISION	DATE

JANUARY 26, 2022

DRAWN/DESIGN BY	CHECKED BY
CCC/NID	DRJ

PROPOSED CANOPY ELEVATIONS

SCALE: AS SHOWN

PROJECT NO. NEX-2021163

1 OF 1

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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: Granite State Convenience Date Submitted: February 14, 2022

Application # (in City's online permitting): LU-22-13

Site Address: 2255 Lafayette Road Map: 272 Lot: 3

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☒	Complete application form submitted via the City's web-based permitting program (2.5.2.1**(2.5.2.3A)**		N/A
☒	All application documents, plans, supporting documentation and other materials uploaded to the application form in viewpoint in digital Portable Document Format (PDF). One hard copy of all plans and materials shall be submitted to the Planning Department by the published deadline. **(2.5.2.8)**		N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Statement that lists and describes "green" building components and systems. **(2.5.3.1B)**		
☒	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)**	Sheet 2 & 4	N/A
☒	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	Sheet 2 & 4	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1E)**	Sheet 2 & 4	N/A
☒	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. **(2.5.3.1F)**	Sheet 2	N/A
☒	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Title Sheet	N/A
☒	List of reference plans. **(2.5.3.1H)**	Sheet 2	N/A
☒	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	Sheet 4	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. **(2.5.4.1A)**	Required on all plan sheets	N/A
☒	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. **(2.5.4.1B)**	Required on all plan sheets	N/A
☒	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. **(2.5.4.1C)**	Sheet 2	N/A
☒	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. **(2.5.4.1D)**	Required on all plan sheets	N/A
☒	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. **(2.5.4.1E)**	Sheet 2	N/A
☒	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**		N/A
☒	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**		N/A
☒	Individual plan sheet title that clearly describes the information that is displayed. **(2.5.4.2C)**	Required on all plan sheets	N/A
☒	Source and date of data displayed on the plan. **(2.5.4.2D)**		N/A

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	**1. Existing Conditions: (2.5.4.3A)** • Surveyed plan of site showing existing natural and built features; • Existing building footprints and gross floor area; • Existing parking areas and number of parking spaces provided; • Zoning district boundaries; • Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre; • Existing impervious and disturbed areas; • Limits and type of existing vegetation; • Wetland delineation, wetland function and value assessment (including vernal pools); • SFHA, 100-year flood elevation line and BFE data, as required.	Sheet 2	
☒	**2. Buildings and Structures: (2.5.4.3B)** • Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation; • Elevations: Height, massing, placement, materials, lighting, façade treatments; • Total Floor Area; • Number of Usable Floors; • Gross floor area by floor and use.	Sheet 4, Arch Elevations	
☒	**3. Access and Circulation: (2.5.4.3C)** • Location/width of access ways within site; • Location of curbing, right of ways, edge of pavement and sidewalks; • Location, type, size and design of traffic signing (pavement markings); • Names/layout of existing abutting streets; • Driveway curb cuts for abutting prop. and public roads; • If subdivision; Names of all roads, right of way lines and easements noted; • AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	Sheet 4	
☒	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	Sheet 4	
☒	**5. Water Infrastructure: (2.5.4.3E)** • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii).	Sheet 6	
☒	**6. Sewer Infrastructure: (2.5.4.3F)** • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period.	Sheet 6	

☒	**7. Utilities: (2.5.4.3G)** • The size, type and location of all above & below ground utilities; • Size type and location of generator pads, transformers and other fixtures.	Sheet 6	
☒	**8. Solid Waste Facilities: (2.5.4.3H)**	Sheet 4	
	• The size, type and location of solid waste facilities.		
☒	**9. Storm water Management: (2.5.4.3I)** • The location, elevation and layout of all storm-water drainage. • The location of onsite snow storage areas and/or proposed off-site snow removal provisions. • Location and containment measures for any salt storage facilities • Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.	Sheet 5	
☒	**10. Outdoor Lighting: (2.5.4.3J)** • Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.	Lighting Plan	
☒	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**	Lighting Plan	
☒	**12. Landscaping: (2.5.4.3K)** • Identify all undisturbed area, existing vegetation and that which is to be retained; • Location of any irrigation system and water source.	Sheet 8	
☒	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	Sheet 5	
☒	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	Sheet 4	
☒	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	Sheet 2 & 4	
☐ N/A	**16. Character/Civic District (All following information shall be included): (2.5.4.3P)** • Applicable Building Height (10.5A21.20 & 10.5A43.30); • Applicable Special Requirements (10.5A21.30); • Proposed building form/type (10.5A43); • Proposed community space (10.5A46).		
☐ N/A	**17. Special Flood Hazard Areas (2.5.4.3Q)** • The proposed development is consistent with the need to minimize flood damage; • All public utilities and facilities are located and construction to minimize or eliminate flood damage; • Adequate drainage is provided so as to reduce exposure to flood hazards.		

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐ N/A	Traffic Impact Study or Trip Generation Report, as required. **(3.2.1-2)**		
☒	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	Sheet 5	
☐ N/A	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)**		
☒	Stormwater Management and Erosion Control Plan. **(7.4)**	Sheet 7	
☒	Inspection and Maintenance Plan **(7.6.5)** Stormwater	Management Report	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	All local approvals, permits, easements and licenses required, including but not limited to: • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. **(2.5.3.2A)**	Sheet 4 notes 17, 18, 23	
☒	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: • Calculations relating to stormwater runoff; • Information on composition and quantity of water demand and wastewater generated; • Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; • Estimates of traffic generation and counts pre- and post-construction; • Estimates of noise generation; • A Stormwater Management and Erosion Control Plan; • Endangered species and archaeological / historical studies; • Wetland and water body (coastal and inland) delineations; • Environmental impact studies. **(2.5.3.2B)**	Stormwater Management Report	
☒	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)**		

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**	Sheet 4 note 23	
☒	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
☐ N/A	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. **(2.5.4.2F)**		
☒	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: Nicole Duran **Date:** 2/14/22

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

NEW HAMPSHIRE 200

March 22, 2022

Beverly M. Zendt, Planning Director
Portsmouth Planning Department
1 Junkins Ave, 3rd Floor
Portsmouth, NH 03801

via e-mail: bmzendt@cityofportsmouth.com

RE: TAC Response to Comments & Rev 5 Plan Submission
325 Little Harbor Road, Portsmouth, NH – Tax Map 205 Lot 2
Project #47099.01

Dear Gloria:

On behalf of our client, ALD 325 Little Harbor Road Trust, TF Moran, Inc. (TFM) respectfully submits the following letter in response to the comments made by the Portsmouth Technical Advisory Committee, in the e-mail titled "325 Little Harbor Rd – TAC Staff Comments", dated February 28, 2022. The following materials are included in this revised electronic submission:

- **MEP Letter of Intent (1 copy);**
- **Draft Access Easement for Water Services (Granted to City of Portsmouth for Utility Access for Leak Detection and Metering) (1 copy); and**
- **Site Development Plans entitled "Site Development Plans, Tax Map 205 Lot 2, Lady Isle Site Renovations, 325 Little Harbor Road, Portsmouth New Hampshire", prepared by TFMoran, Inc., dated September 29, 2021, revised March 22, 2022 (1 copy at 22"x34"and 1 copy at 11"x17").**

To facilitate your review, we have provided your comments along with our responses, which are shown in ***bold italics***.

REVIEW COMMENTS:

1. 1½" Diameter force main is the minimum the City will recommend.

   All cleanout/flushing manholes and air vacuum released manholes provided by EOne include assemblies within the structure that are 1.5". While TFM's plan show a 1.25" diameter force main per the direction of the EOne designer, the pipe transitions to 1.25" diameter before and after the manhole.

For this project, the EOne designer recommends using force main pipe no larger than 1.25". This is the maximum size recommended for this design to reduce the length and volume of retention of sewage in the approximately 0.6 mile line. Increasing the entire force main line to 1.5" would increase retention time and the possibility of sewage turning septic.

The E-One designer confirms that 1.25" force mains are common. Force main cleanouts and flushing manholes have been located throughout the force main sewer at intervals greater than the 1,000 FT recommended by EOne. The cleanout/flushing manholes are designed to effectively flush water through the system to clear blockages, if any blockage should occur. Additionally, cleanout/flushing manholes are located at all low points. As discussed with FRMA, because EOne force main pumps include a grinder to reduce solid sizes, any blockages would likely occur directly at the pump or closer to the island. The majority of the sewer force main is upon private property, so only a quarter of the force main line is within the public ROW. In summary, the E-One designer does not have concerns regarding blockages with the proposed design.

2. Permission for sewer connection is conditional on sufficient flow that the contents of the main do not turn septic and cause off site issues for the COP. If the service becomes problematic, a septic system on site will need to be constructed.

   The force main's double sewer pump is designed to grind solids and pump at every 10 gallons. The tank holds 150 gallons and the length of the force main can store 190 gallons. The air vacuum manhole is located at a high point within the Belle Isle Road private driveway to vent, as needed. Additionally, to prevent odors before extended leave from the property, the homeowner can simply fill a couple bathtub with water and drain it to displace sewage.

   Regardless, if the service does not contain sufficient flow, a water pump can be installed to release domestic water into the force main system to displace the sewage. If the services continue to be problematic and there is no other solution, a septic system may be constructed.

3. There can be no meter pits on the water main. The main must go directly into the principle structure for metering.

   The water main has been reconfigured to remove the proposed water meter pit and redirect the water main towards the garage with mounted water meters: one for domestic and one for irrigation.

4. If chlorine injection is required, it will be inside the principle structure after the backflow device.

   The intent of the chlorine injection is to flush the installed water service after construction to clean and disinfect the water service prior to being placed into service. Chlorine injection has been removed from the plan so as not to be confused as a permanent feature.

   If it is determined by the MEP that private water treatment is necessary due to extended chlorine residual times in the proposed water service, the MEP will provide appropriate

domestic water treatment. If required, this water treatment will be provided after the backflow device and permitted as necessary via NHDES Drinking Water & Groundwater Bureau. This analysis will be determined later in the design and permitting process and the responsibility of the private owner's design team.

5. Reclamation and replacement of the new binder on Little Harbour Road will be complete to DPW standards. Permanent repairs in Sagamore Ave will need to be approved by the DPW and will include milling and repaving the disturbed areas.

   The site contractor is aware of this requirement. The plans reflect the general note on Sheets C-09 and C-13 for the contractor to "Restore disturbed surfaces & subgrade within ROW to original condition" and to coordinate with DPW. We recommend that this be included as a condition of approval.

6. The existing water service needs to be abandoned at the main

   The existing water service has been revised to reflect that the existing service should be abandoned, rather than removed. Notes have been added to Sheet C-07 to turn off the corporation stop for the service at the main and to cut and cap the existing water service line. Additionally, a note has been added to fill the existing meter pit.

7. The current layout of the force main crosses the permeable pavement parking area. Instead, continue up Little Harbour Road until approximately the stop sign. Install new manhole at this location and then flow gravity into the city sewer with a wye connection.

   The layout of the force main has been revised to avoid the permeable pavement parking area on Little Harbor Road. The force main instead continues within the pavement of Little Harbor Road until just beyond the stop sign, where it converts to gravity using eccentric reducers prior to discharging into a sewer manhole. The sewer then discharges via gravity into the municipal gravity sewer city with a wye connection.

8. A clean out manhole will be required for the sewer every 1000' of force main so it can be cleaned with a 500' hose assembly. The manhole must be able to flush the main in both directions.

   Cleanout/flushing manholes, where previously located just over 1000 FT, have been relocated to be spaced less than 1,000 FT away from one another. The manholes have the ability to be cleaned and flushed in both directions.

9. An 8" gravity line may be oversized and cause clogging issues. Consider moving the pump chamber closer to the last sewer connection point. Consider using 6" pipe with greater slope.

   The proposed 8" gravity sewer lines have been revised to 6" pipes with a slope of 0.01. Please not that NHDES Sewer Bureau will be reviewing the design.

10. Abandon existing water in place unless required by other permits or authority.

    The existing water service has been revised to reflect that the existing service should be abandoned, rather than removed. Notes have been added to Sheet C-07 to turn off the corporation stop for the service at the main and to cut and cap the existing water service line. Additionally, a note has been added to fill the existing meter pit.

11. The applicant will need a license from the City for the private mains and primary voltage electricity in Little Harbour Road and Sagamore Avenues.

    The project attorney with Hoefle, Phoenix, Gormley, & Roberts, PLLC has been in contact with the Trevor McCourt of the City's Legal Department regarding this matter. The applicant understands that a license from the City for private mains and primary voltage electricity will be required for connections within Little Harbor Road and Sagamore Avenue. We understand our electrician will have to coordinate with Eversource to request the electric license. The applicant respectfully requests that the licenses may be obtained in the future as a condition of approval.

12. Leak detection and metering easement will be required.

    The project attorneys with Hoefle, Phoenix, Gormley, & Roberts, PLLC have provided a draft Access Easement for Water Service for the City's review. The applicant respectfully requests that the leak detection and metering easements may be established in the future as a condition of approval.

13. 2.5" water lines are not allowed. Use standard sizes.

    All 2.5" water line sizes have been revised to either 2" or 4" lines.

We trust that the above responses satisfy the concerns expressed in the Technical Advisory Committee's comments. Should you wish to further discuss any of the above please contact us so that we may resolve any outstanding concerns.

We appreciate your consideration of these matters and look forward to discussing this project to you in the near future. We respectfully request that we be placed on the upcoming agenda for the TAC meeting on April 5, 2022.

Respectfully,
TFMoran, Inc.

Corey Colwell, LLC
Division Manager | *Vice President*

Hannah Giovannucci, PE
Civil Project Manager

JCC/heg

cc: Anthony Dilorenzo, ADL 325 Little Harbor Road Trust (via e-mail)
Jim Youngblood, Youngblood Builders (via jim@youngbloodbuilders.com)
Bernie Lee, Severino Construction (via blee@severinotrucking.com)
Mickey Benson, GPSchafer (via mbenson@gpschafer.com)
Matthew Cunningham, MCLD (via matthew@matthew-cunningham.com)
Stephen Roberts, Hoefle, Phoenix, Gormley & Roberts (via sroberts@hpgrlaw.com)

TE2 ENGINEERING, LLC.
200 Reservoir St. Suite 204 Needham, MA 02494
(P) 781-334-8323 (F) 877-360-4269
www.te2engineering.com

March 21, 2022

Portsmouth DPW
Attn: DPW Representative

Re: 325 Little Harbor Rd.
Portsmouth, NH 03801

To whom it may concern,

TE2 Engineering LLC has been hired to design the mechanical, electrical, plumbing and fire protection (MEPFP) systems for the project addressed above. TE2 Engineering, LLC is working in close contact with many team members including but not limited to the architect (GP Schafer), the civil engineer (TF Moran), and general contractor (Youngblood Builders) to design safe, effective and code compliant MEPFP systems.

The water service has been designed based on the current list of plumbing fixtures and building layouts. This calculation has yielded a 4" domestic water line for the property. Our intent is to design an automatic sprinkler system based on the NPFA 13 D standard for the main house, the guest cottage and pool cabana buildings. Each of these buildings would be provided with a tank & pump system to be independent of the domestic water supply. Each fire pump would be powered by utility power, but also backed up on emergency power from a standby generator. In addition, each fire tank will have an automatic fill valve based on the relative water level in the tank, should additional water be required.

We will continue to design the MEPFP systems and look forward to working with you on this project.

Sincerely,

Drew Domnarski, P.E.
TE2 Engineering, LLC.

ACCESS EASEMENT FOR WATER SERVICES

KNOW ALL PERSONS BY THESE PRESENTS, that STEPHEN H. ROBERTS, ESQ. TRUSTEE OF THE ADL 325 LITTLE HARBOR ROAD TRUST, with a mailing address of 127 Parrott Avenue, Portsmouth, New Hampshire 03801 ("Grantor"), for consideration received, grants to the CITY OF PORTSMOUTH, a municipal body politic having a mailing address of 1 Junkins Avenue, Portsmouth, County of Rockingham and State of New Hampshire 03801 ("Grantee"), with QUITCLAIM COVENANTS an easement over, below, along, and across Grantor's real property situate on the northerly side of Little Harbor Road, also known as Lady Isle, in the City of Portsmouth, State of New Hampshire, further identified as 325 Little Harbor Road, Portsmouth, Rockingham County, New Hampshire, City of Portsmouth Tax Assessor's Map No. 205, Lot 2.

Meaning and intending to convey an easement over the premises conveyed to the within Grantor by deed of Stephen H. Roberts, Esq., Trustee of The ADL Portsmouth Residence Trust dated November 1, 2018 and recorded in Book 5959, Page 1244 of the Rockingham County Registry of Deeds.

Purpose and Rights: The Grantee shall have a perpetual, permanent uninterrupted and unobstructed nonexclusive easement for the purpose of enabling the City of Portsmouth to access private water infrastructure including mains, water shutoffs, and valves for the limited purpose of leak detection and similar infrastructure inspection services and for access to valves for purposes of turning on and shutting off municipal water service. Grantee shall have no responsibility for installation, maintenance, operation, or replacement of the water infrastructure.

Retained Rights: Grantor retains the right to freely use and enjoy its interest in the easement area insofar as the exercise thereof does not interfere with the purpose of this instrument.

Easement To Run With Land: All rights and privileges, obligations and liabilities created by this instrument shall inure to the benefit of, and be binding upon, the heirs, devises, administrators, executor, successors and assignees of the Grantee and of the Grantor, the parties hereto and all subsequent owners of the Premises and shall run with the land and be binding upon, any and all successors and assignees of the Grantee.

This is an exempt transfer per R.S.A. 78-B:2(I).

IN WITNESS WHEREOF, the parties have executed this document on the _____day of _____, 2022

ADL 325 Little Harbor Road Trust

Witness:_____ By:_____
Stephen H. Roberts, Esq., Trustee

STATE OF NEW HAMPSHIRE
COUNTY OF_____

Personally appeared the above-named Stephen H. Roberts, Esq., Trustee of the ADL 325 Little Harbor Road Trust and acknowledged the foregoing instrument to be his free act and deed executed for the purposes contained therein.

_____
Notary Public/Justice of the Peace
My commission expires: _____

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD
PORTSMOUTH, NEW HAMPSHIRE

SEPTEMBER 29, 2021
REVISED MARCH 22, 2022

GENERAL INFORMATION

OWNER/APPLICANT
MAP 205 LOT 2
ADL 325 LITTLE HARBOR ROAD TRUST
C/O STEPHEN H ROBERTS, ESQ
TRUSTEE
127 PARROT AVENUE
PORTSMOUTH, NH 03801

RESOURCE LIST

PLANNING/ZONING DEPARTMENT
1 JUNKINS AVENUE
PORTSMOUTH, NH 03801
603-610-7296
BEVERLY ZENDT,
PLANNING DIRECTOR

BUILDING DEPARTMENT
1 JUNKINS AVENUE
PORTSMOUTH, NH 03801
603-610-7261
ROBERT MARSILIA,
CHIEF BUILDING INSPECTOR

PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
603-427-1530
PETER RICE,
DIRECTOR OF PUBLIC WORKS

POLICE DEPARTMENT
3 JUNKINS AVENUE
PORTSMOUTH, NH 03801
603-427-1500
MARK NEWPORT, INTERIM CHIEF

FIRE DEPARTMENT
170 COURT STREET
PORTSMOUTH, NH 03801
603-427-1515
TODD GERMAIN, CHIEF

ASSOCIATED PROFESSIONALS

ARCHITECT
G.P. SCHAFER ARCHITECT, PLLC
19 UNION SQUARE WEST, 4TH FLOOR
NEW YORK CITY, NY 10003
212-965-1355
MICKEY BENSON, PRINCIPAL

ECOLOGICAL SERVICES
PARTERRE ECOLOGICAL
67 SMITH PLACE, UNIT 12A
CAMBRIDGE, MA 02138
617-482-2230
RYAN CORRIGAN, MSED, MCH

LANDSCAPE ARCHITECT
MATTHEW CUNNINGHAM LANDSCAPE
ARCHITECTURE DESIGN LLC
411 MAIN STREET
STONEHAM, MA 02180
617-905-2246
MATTHEW CUNNINGHAM, PRINCIPAL

WETLAND SCIENTIST
MARC JACOBS,
CERTIFIED WETLAND SCIENTIST
PO BOX 417
GREENLAND, NH
603-686-5097

WILDLIFE ASSESSOR
GZA GEOENVIRONMENTAL, INC.
5 COMMERCE PARK NORTH
BEDFORD, NH 03110
603-232-8739
TRACY TARR, ASSOCIATE PRINCIPAL



HORIZONTAL SCALE 1"=500'
500 250 0 500

INDEX OF SHEETS

SHEET	SHEET TITLE
C-00	COVER
C-01	NOTES & LEGEND
S-01 TO S-04	EXISTING CONDITIONS PLAN
C-02	NHDES AMENDED SHORELANDS PERMIT IMPACT PLAN
C-03	NHDES AMENDED WETLANDS PERMIT IMPACT PLAN
C-04	WETLAND CONDITIONAL USE PERMIT PLAN
C-05	OVERLAY PLAN
C-06 TO C-07	SITE PREPARATION & DEMOLITION PLAN
C-08 TO C-09	SITE LAYOUT PLAN
C-10	GRADING & DRAINAGE PLAN
C-11 TO C-12	UTILITY PLAN
C-13 TO C-14	DRIVEWAY GRADING & PROFILE
C-15 TO C-17	SEWER PROFILE
C-18	EROSION CONTROL PLAN
C-19	EROSION CONTROL NOTES
C-20 TO C-26	DETAILS
REFERENCE PLANS BY ASSOCIATED PROFESSIONALS	
–	FLOOR & EXTERIOR ELEVATIONS PLANS BY G.P. SCHAFER
L1.0 TO L1.4	LANDSCAPE ARCHITECTURE PLANS BY MCLD
1	BELLE ISLE ROAD BRIDGE REHABILITATION PROJECT

PERMITS/APPROVALS

	NUMBER	APPROVED	EXPIRES
PORTSMOUTH PLANNING BOARD & CONSERVATION COMMISSION WETLAND CUP	LU-22-23	–	–
PORTSMOUTH PLANNING BOARD CUP FOR DADU	LU-21-220	1/27/2022	1/27/2023
NH FISH & GAME	–	3/14/2022	–
NHDES WETLANDS & PERMIT AMENDMENT	2014-02662	2/15/2018 –	2/15/2023
NHDES SHORELAND & PERMIT AMENDMENT	2017-02665	2/26/2018 –	2/26/2023
NHDES ALTERATION OF TERRAIN	AOT-2104	3/14/2022	3/14/2027
NHDES SEWER	–	–	–
EPA NPDES ENOI CGP & SWPPP	–	–	–

NEW HAMPSHIRE FISH AND GAME AOT PERMIT CONDITIONS RELATED TO THREATENED AND ENDANGERED SPECIES

1. ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES SHALL BE REPORTED IMMEDIATELY TO THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603-271-2461 AND BY EMAIL AT NHFGREVIEW@WILDLIFE.NH.GOV. EMAIL SUBJECT LINE: NHB21-3751, LADY ISLE SITE RENOVATIONS, WILDLIFE SPECIES OBSERVATION. PHOTOGRAPHS SHALL BE PROVIDED FOR VERIFICATION AS FEASIBLE; AND
2. THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.
3. ALL MANUFACTURED EROSION AND SEDIMENT CONTROL PRODUCTS, UTILIZED FOR, BUT NOT LIMITED TO SLOPE PROTECTION, RUNOFF DIVERSION, SLOPE INTERRUPTION, PERIMETER CONTROL, AND INLET PROTECTION, CHECK DAMS, SEDIMENT TRAPS, AND SILT FENCE INSTALLED IN ACCORDANCE WITH ENV-WQ 1506.04, SHALL NOT CONTAIN WELDED PLASTIC, PLASTIC, OR MULTI-FILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH.
4. PRIOR TO CONSTRUCTION, MARSH ELDER SHALL BE IDENTIFIED, FLAGGED, AND SURROUNDED WITH ORANGE CONSTRUCTION FENCING WITH YELLOW CAUTION TAPE FOR PROTECTION OF THE SPECIES. DO NOT REMOVE, MOW, TRAMPLE, COVER, OR OTHERWISE HARM THE PLANT. REMOVE FLAGS AND CONSTRUCTION FENCING AND CAUTION TAPE AFTER CONSTRUCTION IS COMPLETED.



MARSH ELDER

NOTES

1. SHRUBBY PERENNIAL HERB 2 TO 4 FT TALL, WITH THICKISH, OPPOSITE LEAVES AND SMALL GREENISH-WHITE CAPITULA, EACH WITH 5-6 MINUTE TUBULAR-SHAPED FLOWERS
2. EACH CLUMP CONSISTS OF FROM 10 TO 100 OR MORE STEMS FROM A SINGLE WOODY BASE
3. OCCURS NEAR THE HIGH TIDE LINE IN A FEW SMALL, SCATTERED POPULATIONS.

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48 Constitution Drive, Bedford, N.H. 03110

All rights reserved. These plans and materials may not be copied, duplicated, replicated or otherwise reproduced in any form whatsoever without the prior written permission of Thomas F. Moran, Inc.

This plan is not effective unless signed by a duly authorized officer of Thomas F. Moran, Inc.

THESE PLANS ARE PERMIT DRAWINGS ONLY AND HAVE NOT BEEN DETAILED FOR CONSTRUCTION OR BIDDING.

APPROVED BY THE CITY OF PORTSMOUTH PLANNING BOARD

ON _____

BOARD MEMBER _____ *AND*

BOARD MEMBER _____

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No. 15699
LICENSED
PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DR	CK
5	3/22/2022	TAC COMMENTS	HEG	JCC
4	2/18/2022	REVISED PER NHDES & UTILITIES	HEG	JCC
3	2/15/2022	REVISED PER NHDES & UTILITIES PER TAC	HEG	JCC
2	2/2/2022	REVISED PER NHDES & UPDATE SURVEY/UTILITIES	HEG	JCC
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

COVER

LADY ISLE SITE RENOVATIONS
325 LITTLE HARBOR ROAD, PORTSMOUTH, NH
OWNED BY & PREPARED FOR
ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

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LEGEND

PROPOSED

- PROPERTY LINE
- ZONING LINE
- EASEMENT
- BASELINE
- FLOODPLAIN
- EDGE OF WATERBODY
- EDGE OF WETLAND
- SETBACK (WETLAND)
- SETBACK (STRUCTURE)
- SETBACK (PARKING)
- SETBACK (LANDSCAPE)
- GRAVEL ROAD
- EOP — EDGE OF PAVEMENT
- VGC — VERTICAL GRANITE CURB
- SGC — SLOPED GRANITE CURB
- CC — CONCRETE CURB
- ICC — INTEGRATED CONCRETE CURB
- BIT — BITUMINOUS ASPHALT CURB
- CCB — CAPE COD BERM
- SAWCUT
- BUILDING
- BUILDING ROOF OVERHANG
- BUILDING FOUNDATION
- BUILDING ENTRANCE
- OVERHEAD DOOR
- TREE LINE
- FENCE (CHAIN LINK)
- FENCE (WIRE)
- FENCE (STOCKADE)
- GUARDRAIL
- STONE WALL
- RETAINING WALL
- SILT FENCE
- SILT SOCK
- SOIL BOUNDARY
- LIMIT OF GRADING
- CONTOUR
- SPOT GRADE — TC100.50 / BC100.00 OR X 100.00
- PARKING COUNT — ##
- DSLY — YELLOW DOUBLE SOLID LINE
- SSLY — YELLOW SINGLE SOLID LINE
- SSLW — WHITE SINGLE SOLID LINE
- SBLW — WHITE SINGLE BROKEN LINE
- STOP BAR
- CROSSWALK
- ACCESSIBLE PARKING SYMBOL
- PAVEMENT ARROW
- TRAFFIC FLOW ARROW (NOT PAINTED)
- SIGN (SINGLE POST)
- SIGN (DOUBLE POST)
- SIGN (PYLON)
- SIGN (MONUMENT)
- BOLLARD
- D — DUMPSTER PAD

PROPOSED

- CONCRETE
- GRAVEL
- HEAVY DUTY PAVEMENT
- LANDSCAPE AREA
- NATURAL WOODED AREA
- CONSTRUCTION ENTRANCE
- SNOW STORAGE
- RIPRAP
- INLET PROTECTION
- DRAIN LINE
- DRAINAGE SWALE
- STORMWATER BMP
- S — SEWER LINE
- FM — SEWER FORCE MAIN LINE
- W — WATER LINE
- G — GAS LINE
- OHE — OVERHEAD UTILITY LINE
- UGE — UNDERGROUND UTILITY LINE
- CATCH BASIN
- DRAIN INLET
- OUTLET CONTROL STRUCTURE
- ROOF DRAIN
- DRAIN CLEANOUT
- DRAIN MANHOLE
- FARED END SECTION
- SEWER CLEAN OUT
- SEWER MANHOLE
- SEWER VENT
- DRAIN/SEWER/WATER PLUG OR CAP
- HYDRANT
- FIRE DEPARTMENT CONNECTION
- WATER GATE VALVE
- WATER SHUTOFF
- THRUST BLOCK
- WATER METER
- WATER MANHOLE
- WELL
- GAS GATE VALVE
- GAS SHUT OFF
- GAS METER
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- TRAFFIC CONTROL CABINET
- ELECTRIC HANDHOLE
- ELECTRIC PULL BOX
- ELECTRIC METER
- FLOOD LIGHT
- LIGHT POLE
- UTILITY POLE
- GUY POLE
- T — TRANSFORMER PAD
- B-# — BORING LOCATION
- TP-# — TEST PIT LOCATION
- IT-# — INFILTRATION TEST LOCATION
- MW-# — MONITORING WELL

ABBREVIATIONS

GENERAL

ABAN	ABANDON
AC	ACRES
ADJ	ADJUST
APPROX	APPROXIMATE
BC	BOTTOM OF CURB
BIT	BITUMINOUS
BK/PG	BOOK & PAGE
BLDG	BUILDING
BMP	BEST MANAGEMENT PRACTICE
BS	BOTTOM OF SLOPE
BW	BOTTOM OF WALL
CONC	CONCRETE
COORD	COORDINATE
CUP	CONDITIONAL USE PERMIT
DADU	DETACHED ACCESSORY DWELLING UNIT
DIA	DIAMETER
DOM	DOMESTIC
ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EXIST	EXISTING
FFE	FINISHED FLOOR ELEVATION
FND	FOUNDATION
HP	HIGH POINT
INV	INVERT ELEVATION
IT	INFILTRATION TEST
L	LENGTH
LF	LINEAR FEET
LSA	LANDSCAPE AREA
MAX	MAXIMUM
MIN	MINIMUM
N/F	NOW OR FORMERLY
NHFG	NH FISH & GAME
NTS	NOT TO SCALE
NWA	NATURAL WOODLAND AREA
OC	ON CENTER
PAVE	PAVEMENT
PERF	PERFORATED
PROP	PROPOSED
R	RADIUS
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
REM	REMOVE
RET	RETAIN
RIM	RIM ELEVATION
ROW	RIGHT OF WAY
S	SLOPE
SF	SQUARE FEET
SW	SIDEWALK
TBM	TEMPORARY BENCHMARK
TC	TOP OF CURB
TP	TEST PIT
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
W/	WITH

UTILITIES

CA/TV	CABLE/TELEVISION
CB	CATCH BASIN
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
COND	CONDUIT
CTS	COPPER TUBING SIZE
DI	DUCTILE IRON PIPE
DMH	DRAIN MANHOLE
F&C	FRAME AND COVER
FES	FLARED END SECTION
FM	FORCE MAIN
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HH	HANDHOLE
HW	HEADWALL
HYD	HYDRANT
IRRIG	IRRIGATION
MJ	MECHANICAL JOINT
OCS	OUTLET CONTROL STRUCTURE
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
SMH	SEWER MANHOLE
SOS	SEDIMENT OIL SEPARATOR
UP	UTILITY POLE

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GENERAL NOTES

1. THESE PLANS ARE PERMIT DRAWINGS ONLY AND HAVE NOT BEEN DETAILED FOR CONSTRUCTION OR BIDDING.
2. THESE PLANS WERE PREPARED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER. TFMORAN, INC. ASSUMES NO LIABILITY AS A RESULT OF ANY CHANGES OR NON-CONFORMANCE WITH THESE PLANS EXCEPT UPON THE WRITTEN APPROVAL OF THE ENGINEER OF RECORD.
3. THE SITE LAYOUT PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
4. ALL IMPROVEMENTS SHOWN ON THE 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.
5. ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE CITY OF PORTSMOUTH, AND SHALL BE BUILT IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. ALL WORK TO CONFORM TO CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS. ALL WORK WITHIN THE RIGHT-OF-WAY OF THE CITY AND/OR STATE SHALL COMPLY WITH APPLICABLE STANDARDS. COORDINATE ALL WORK WITHIN THE RIGHT-OF-WAY WITH APPROPRIATE CITY, COUNTY, AND/OR STATE AGENCY.
6. THE SITE CONTRACTOR SHALL ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH APPLICABLE SECTIONS OF ENV-WQ 1500. THE SITE CONTRACTOR SHALL NOTIFY THE ENGINEER IN ADVANCE OF CONSTRUCTION OF EACH STORMWATER FACILITY TO COORDINATE REQUIRED INSPECTIONS. THE CONTRACTOR SHALL TAKE PROGRESS PHOTOS DURING CONSTRUCTION OF ALL STORMWATER DRAINAGE COMPONENTS AND SEND TO THE ENGINEER.
7. SEE EXISTING CONDITIONS PLAN FOR THE HORIZONTAL AND VERTICAL DATUM.
8. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION. VERIFY TBM ELEVATIONS PRIOR TO CONSTRUCTION.
9. CONTACT EASEMENT OWNERS PRIOR TO COMMENCING ANY WORK WITHIN THE EASEMENTS.
10. PRIOR TO COMMENCING ANY SITE WORK, ALL LIMITS OF WORK SHALL BE CLEARLY MARKED IN THE FIELD.
11. SITE WORK SHALL BE CONSTRUCTED FROM A COMPLETE SET OF PLANS, NOT ALL FEATURES ARE DETAILED ON EVERY PLAN. THE ENGINEER IS TO BE NOTIFIED OF ANY CONFLICT WITHIN THIS PLAN SET.
12. TFMORAN, INC. ASSUMES NO LIABILITY FOR WORK PERFORMED WITHOUT AN ACCEPTABLE PROGRAM OF TESTING AND INSPECTION AS APPROVED BY THE ENGINEER OF RECORD.
13. TEMPORARY FENCING SHALL BE PROVIDED AND COVERED WITH A FABRIC MATERIAL TO CONTROL DUST MITIGATION.
14. ALL DEMOLITION SHALL INSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKWAYS, AND ANY OTHER ADJACENT OPERATING FACILITIES. PRIOR WRITTEN PERMISSION FROM THE OWNER/DEVELOPER AND LOCAL PERMITTING AUTHORITY IS REQUIRED IF CLOSURE/OBSTRUCTIONS TO ROADS, STREET, WALKWAYS, AND OTHERS IS DEEMED NECESSARY. CONTRACTOR TO PROVIDE ALTERNATE ROUTES AROUND CLOSURES/OBSTRUCTIONS PER LOCAL/STATE/FEDERAL REGULATIONS.
15. ALL DEMOLITION AND RENOVATION OF STRUCTURES SHALL COMPLY WITH ENV-A 1800 FOR ASBESTOS MANAGEMENT AND CONTROL.
16. REFER TO ARCHITECTURAL PLANS FOR LAYOUT OF BUILDING FOUNDATIONS AND CONCRETE ELEMENTS WHICH ABUT THE BUILDING SUCH AS STAIRS, SIDEWALKS, LOADING DOCK RAMPS, PADS, AND COMPACTOR PADS. DO NOT USE SITE PLANS FOR LAYOUT OF FOUNDATIONS.
17. IN THE EVENT OF A CONFLICT BETWEEN PLANS, SPECIFICATIONS, AND DETAILS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATION.
18. IF CONDITIONS AT THE SITE ARE DIFFERENT THAN SHOWN ON THE PLANS, THE ENGINEER SHALL BE NOTIFIED PRIOR TO PROCEEDING WITH THE AFFECTED WORK.
19. CONTRACTOR'S GENERAL RESPONSIBILITIES:
    A. BID AND PERFORM THE WORK IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL CODES, SPECIFICATIONS, REGULATIONS, AND STANDARDS AND CONDITIONS OF ALL PROJECT-SPECIFIC PERMITS AND APPROVALS AS LISTED ON THE COVER SHEET TO THESE PLANS OR OTHERWISE REQUIRED.
    B. NOTIFY ENGINEER IN WRITING OF ANY DISCREPANCIES OF PROPOSED LAYOUT AND/OR EXISTING FEATURES.
    C. EMPLOY A LICENSED SURVEYOR TO DETERMINE ALL LINES AND GRADES AND LAYOUT OF SITE ELEMENTS AND BUILDINGS.
    D. THE CONTRACTOR SHALL BE RESPONSIBLE TO BECOME FAMILIAR WITH THE SITE AND ALL SURROUNDING CONDITIONS. THE CONTRACTOR SHALL ADVISE THE APPROPRIATE AUTHORITY OF INTENTIONS AT LEAST 48 HOURS IN ADVANCE.
    E. TAKE APPROPRIATE MEASURES TO REDUCE, TO THE FULLEST EXTENT POSSIBLE, NOISE, DUST, AND UNSIGHTLY DEBRIS. CONSTRUCTION ACTIVITIES SHALL BE CARRIED OUT BETWEEN THE HOURS IN ACCORDANCE WITH THE APPLICABLE MUNICIPAL ORDINANCES AND REGULATIONS OF THE CITY OF PORTSMOUTH.
    F. MAINTAIN EMERGENCY ACCESS TO ALL AREAS AFFECTED BY WORK AT ALL TIMES.
    G. IN ACCORDANCE WITH RSA 430:53 AND AGR 3800, THE CONTRACTOR SHALL NOT TRANSPORT INVASIVE SPECIES OFF THE PROPERTY, AND SHALL DISPOSE OF INVASIVE SPECIES ON-SITE IN A LEGAL MANNER.
    H. COORDINATE WITH ALL UTILITY COMPANIES AND CONTACT DIGSAFE (811 OR 888-344-7233) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION.
    I. PROTECT NEW AND EXISTING BURIED UTILITIES DURING INSTALLATION OF ALL SITE ELEMENTS. DAMAGED UTILITIES SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.
    J. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY TFMORAN, INC., DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE SURVEYOR OR ENGINEER HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE US OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
    K. WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN CASE OF CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWING AND/OR SPECIFICATION, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATIONS.
    L. VERIFY LAYOUT OF PROPOSED BUILDING FOUNDATIONS WITH ARCHITECT AND THAT PROPOSED FOUNDATION MEETS PROPERTY LINE AND WETLAND SETBACKS PRIOR TO COMMENCING ANY FOUNDATION CONSTRUCTION.
    M. PROVIDE AN AS-BUILT PLAN AT THE COMPLETION OF THE PROJECT TO THE PLANNING DIRECTOR AND PER CITY REGULATIONS.
    N. IF ANY DEVIATIONS FROM THE APPROVED PLANS AND SPECIFICATIONS HAVE BEEN MADE, THE SITE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS STAMPED BY A LICENSED SURVEYOR OR QUALIFIED ENGINEER ALONG WITH A LETTER STAMPED BY A QUALIFIED ENGINEER DESCRIBING ALL SUCH DEVIATIONS, AND BEAR ALL COSTS FOR PREPARING AND FILING ANY NEW PERMITS OR PERMIT AMENDMENTS THAT MAY BE REQUIRED.

GENERAL NOTES (CONTINUED)

19. CONTRACTOR'S GENERAL RESPONSIBILITIES (CONTINUED):
    O. THIS PROJECT IS SUBJECT TO THE AOT PERMIT LISTED ON THE COVER SHEET. THE CONTRACTOR SHALL CONFORM TO ALL CONDITIONS OF THE PERMIT AND PROVIDE THE FOLLOWING DOCUMENTATION TO OWNER AND ENGINEER:
        1) ADVANCE WRITTEN NOTICE AT LEAST ONE WEEK PRIOR TO COMMENCING ANY WORK UNDER THE PERMIT.
        2) IF ANY UNDERGROUND DETENTION SYSTEMS, INFILTRATION SYSTEMS, OR FILTERING SYSTEMS WERE INSTALLED, FOR EACH SUCH SYSTEM:
            A) REPRESENTATIVE PHOTOGRAPHS OF THE SYSTEM AFTER COMPLETION BUT PRIOR TO BACKFILLING; AND
            B) A LETTER SIGNED BY A QUALIFIED ENGINEER WHO OBSERVED THE SYSTEM PRIOR TO BACKFILLING, THAT THE SYSTEM CONFORMS TO THE APPROVED PLANS AND SPECIFICATIONS.
        3) UPON COMPLETION OF CONSTRUCTION, WRITTEN CERTIFICATION THAT:
            A) ALL WORK UNDER THE PERMIT HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
            B) IF ANY DEVIATIONS FROM THE APPROVED PLANS WERE MADE, WRITTEN DESCRIPTIONS AND AS-BUILT DRAWINGS OF ALL SUCH DEVIATIONS, STAMPED BY A QUALIFIED ENGINEER, SHALL BE PROVIDED.
20. PURSUANT TO PORTSMOUTH PLANNING BOARD DADU CUP APPROVAL ON 1/27/2022, THE APPROVED DADU SHALL BE THE ONLY ACCESSORY DWELLING UNIT ON THE PROPERTY. AN AFFIDAVIT STATING THIS HAS BEEN RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

GRADING & DRAINAGE NOTES

1. THE CONTRACTOR SHALL ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF NHDES ENV-WQ 1500 AS APPLICABLE.
2. THE CONTRACTOR SHALL PREPARE, MAINTAIN, AND EXECUTE A S.W.P.P.P. IN ACCORDANCE WITH EPA REGULATIONS AND THE CONSTRUCTION GENERAL PERMIT.
3. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO SUBMIT AN eNOI AT LEAST 14 DAYS IN ADVANCE OF ANY EARTHWORK ACTIVITIES AT THE SITE.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CHECK THE ACCURACY OF THE TOPOGRAPHY AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO ANY EARTHWORK BEING PERFORMED ON THE SITE. NO CLAIM FOR EXTRA WORK WILL BE CONSIDERED FOR PAYMENT AFTER EARTHWORK HAS COMMENCED.
5. THE CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT FOR INFORMATION ABOUT SOIL AND GROUNDWATER CONDITIONS. THE CONTRACTOR SHALL FOLLOW THE GEOTECHNICAL ENGINEER'S RECOMMENDED METHODS TO ADDRESS ANY SOIL AND GROUNDWATER ISSUES THAT ARE FOUND ON SITE, INCLUDING AND NOT LIMITED TO DEWATERING METHODS, PERIMETER DRAINS AND TIE INTO STORMWATER MANAGEMENT SYSTEM, ETC.
6. COORDINATE WITH GEOTECHNICAL/STRUCTURAL PLANS FOR SITE PREPARATION AND OTHER BUILDING INFORMATION.
7. COORDINATE WITH ARCHITECTURAL PLANS FOR DETAILED GRADING AT BUILDING, AND SIZE AND LOCATION OF ALL BUILDING SERVICES.
8. COORDINATE WITH MECHANICAL AND PLUMBING PLANS FOR ROOF DRAIN INFORMATION.
9. LIMITS OF WORK ARE SHOWN AS APPROXIMATE. THE CONTRACTOR SHALL COORDINATE ALL WORK TO PROVIDE SMOOTH TRANSITIONS. THIS INCLUDES GRADING, PAVEMENT, CURBING, SIDEWALKS, AND ALIGNMENTS.
10. THE CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE, RAMPS, AND LOADING AREAS.
11. THE SITE SHALL BE GRADED SO ALL FINISHED PAVEMENT HAS POSITIVE DRAINAGE AND SHALL NOT POND WATER DEEPER THAN 1/4" FOR A PERIOD OF MORE THAN 15 MINUTES AFTER FLOODING.
12. ALL ELEVATIONS SHOWN AT CURB ARE TO THE BOTTOM OF CURB UNLESS OTHERWISE NOTED. CURBS HAVE A 6" REVEAL UNLESS OTHERWISE NOTED.
13. ALL SIDEWALK AND OTHER CURB REVEALS SHALL BE 6" WITH A TOLERANCE OF PLUS OR MINUS 3/8". WHERE SIDEWALK IS TO BE FLUSH, THE PAVEMENT REVEAL SHALL BE 1/4" WITH A TOLERANCE OF 1/8".
14. THE FINISHED GRADE AT BOTTOM OF ALL ACCESSIBLE RAMPS SHALL BE FLUSH WITH PAVEMENT WITH A TOLERANCE OF PLUS OR MINUS 1/4".
15. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE PRIOR TO INSTALLATION OF FINISHED PAVEMENT.
16. ROAD AND DRAINAGE CONSTRUCTION SHALL CONFORM TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS AND SHALL MEET LOCAL STANDARDS AND THE REQUIREMENTS OF THE LATEST NHDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGE CONSTRUCTION AND THE NHDOT STANDARD STRUCTURE DRAWINGS UNLESS OTHERWISE NOTED.
17. STORMWATER DRAINAGE SYSTEM SHALL BE CONSTRUCTED TO LINE AND GRADE AS SHOWN ON THE PLANS. CONSTRUCTION METHODS SHALL CONFORM TO NHDOT STANDARD SPECIFICATIONS, SECTION 603. CATCH BASINS AND DRAIN MANHOLES SHALL CONFORM TO SECTION 604. ALL CATCH BASIN GRATES SHALL BE TYPE B AND CONFORM TO NHDOT STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE NOTED.
18. NO FILL SHALL BE PLACED IN ANY WETLAND AREA.
19. ALL EXCAVATIONS SHALL BE THOROUGHLY SECURED ON A DAILY BASIS BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION OPERATIONS IN THE IMMEDIATE AREA.
20. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER, AND MULCH.
21. DENSITY REQUIREMENTS:

MINIMUM DENSITY*	LOCATION
95%	BELOW PAVED OR CONCRETE AREAS
95%	TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL
90%	BELOW LOAM AND SEED AREAS

*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 D-6938.

DIG SAFE — DIAL 811 OR 888-DIG-SAFE — NEW HAMPSHIRE — CONTACT THE DIG SAFE SYSTEM 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No. 15699 — 3/22/2022 — LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DR	CK
5	3/22/2022	TAC COMMENTS	HEG	JCC
4	2/18/2022	REVISED PER NHDES & UTILITIES	HEG	JCC
3	2/15/2022	REVISED PER NHDES & UTILITIES PER TAC	HEG	JCC
2	2/2/2022	REVISED PER NHDES & UPDATE SURVEY/UTILITIES	HEG	JCC
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

UTILITY NOTES

1. LENGTH OF PIPE IS FOR CONVENIENCE ONLY. ACTUAL PIPE LENGTH SHALL BE DETERMINED IN THE FIELD.
2. ALL PROPOSED UTILITY WORK, INCLUDING MATERIAL, INSTALLATION, TERMINATION, EXCAVATION, BEDDING, BACKFILL, COMPACTION, TESTING, CONNECTIONS, AND CONSTRUCTION SHALL BE COORDINATED WITH AND COMPLETED IN ACCORDANCE WITH THE APPROPRIATE REQUIREMENTS, CODES, AND STANDARDS OF ALL CORRESPONDING UTILITY ENTITIES AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS, PRIOR TO THE START OF ANY CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION BE AGREED TO BY THE ENGINEER BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT "DIGSAFE" (811) AT LEAST 72 HOURS BEFORE DIGGING.
4. COORDINATE ALL WORK ADJACENT TO PROPOSED BUILDINGS WITH ARCHITECTURAL BUILDING DRAWINGS. CONFIRM UTILITY PENETRATIONS AND INVERT ELEVATIONS ARE COORDINATED PRIOR TO INSTALLATION.
5. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES OWNING UTILITIES, EITHER OVERHEAD OR UNDERGROUND, WITHIN THE CONSTRUCTION AREA AND SHALL COORDINATE AS NECESSARY WITH THE UTILITY COMPANIES OF SAID UTILITIES. THE PROTECTION OR RELOCATION OF UTILITIES IS ULTIMATELY THE RESPONSIBILITY OF THE CONTRACTOR.
6. THE EXACT LOCATION OF NEW UTILITY CONNECTIONS SHALL BE DETERMINED BY THE CONTRACTOR IN COORDINATION WITH UTILITY COMPANY, COUNTY AGENCY, AND/OR PRIVATE UTILITY COMPANY.
7. 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 THE UTILITY INSTALLATION COMPLETE AND OPERATIONAL.
8. ALL UTILITY COMPANIES REQUIRE INDIVIDUAL CONDUITS. CONTRACTOR TO COORDINATE WITH TELEPHONE, CABLE, AND ELECTRIC COMPANIES REGARDING NUMBER, SIZE, AND TYPE OF CONDUITS REQUIRED PRIOR TO INSTALLATION OF ANY CONDUIT.
9. SANITARY SEWER SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATIONS AS SHOWN ON THESE PLANS. ALL SEWER MAINS AND FITTINGS SHALL BE PVC AND SHALL CONFORM TO ASTM F 679 (SDR 35 MINIMUM). FORCE MAINS AND FITTINGS SHALL CONFORM TO NH CODE OF ADMINISTRATIVE RULES ENV-WQ 700. ALL SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH NH CODE OF ADMINISTRATIVE RULES ENV-WQ 700. SANITARY MANHOLES SHALL CONFORM TO NHDES WATER DIVISION WASTEWATER ENGINEERING BUREAU STANDARDS AND SPECIFICATIONS SHOWN HEREON.
10. ON-SITE WATER DISTRIBUTION SHALL BE TO CITY OF PORTSMOUTH STANDARDS AND SPECIFICATIONS. WATER MAINS SHALL HAVE A MINIMUM OF 5.5' COVER. WHERE WATER PIPES CROSS SEWER LINES A MINIMUM OF 18" VERTICAL SEPARATION BETWEEN THE TWO OUTSIDE PIPE WALLS SHALL BE OBSERVED. HORIZONTAL SEPARATION BETWEEN WATER AND SEWER SHALL BE 10' MINIMUM. WHERE A SANITARY LINE CROSSES A WATER LINE, SEWER LINE MUST BE CONSTRUCTED OF FORCE MAIN MATERIALS (PER ENV-WQ 704.08) FROM BUILDING OR MANHOLE TO MANHOLE, OR SUBSTITUTE RUBBER-GASKETED PRESSURE PIPE FOR THE SAME DISTANCE. WHEN SANITARY LINES PASS BELOW WATER LINES, LAY PIPE SO THAT NO JOINT IN THE SANITARY LINE WILL BE CLOSER THAN 6' HORIZONTALLY TO THE WATER LINE.
11. THRUST BLOCKS SHALL BE PROVIDED AT ALL LOCATIONS WHERE WATER LINE CHANGES DIRECTIONS OR CONNECTS TO ANOTHER WATER LINE.
12. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CONDUIT AND WIRING TO ALL SIGNS AND LIGHTS. CONDUIT TO BE A MINIMUM OF 24" BELOW FINISH GRADE.
13. ALL PROPOSED UTILITIES SHALL BE UNDERGROUND. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES.
14. THE CONTRACTOR SHALL ARRANGE AND PAY FOR ALL INSPECTIONS, TESTING, AND RELATED SERVICES AND SUBMIT COPIES OF ACCEPTANCE TO THE OWNER, UNLESS OTHERWISE INDICATED.
15. PROVIDE PERMANENT PAVEMENT REPAIR FOR ALL UTILITY TRENCHES IN EXISTING ROAD OR PAVEMENT TO REMAIN. SAW CUT TRENCH, PAVEMENT, AND GRANULAR BASE THICKNESS TO MATCH EXISTING PAVEMENT. OBTAIN ALL PERMITS REQUIRED FOR TRENCHING.
16. UNLESS OTHERWISE SPECIFIED, ALL UNDERGROUND STRUCTURES, PIPES, CHAMBERS, ETC. SHALL BE COVERED WITH A MINIMUM OF 18" OF COMPACTED SOIL BEFORE EXPOSURE TO VEHICLE LOADS.
17. THE PROPERTY WILL BE SERVICED BY THE FOLLOWING:

DRAINAGE	PRIVATE
SEWER	MUNICIPAL
WATER	MUNICIPAL
GAS	UNITIL
ELECTRIC	EVERSOURCE
TELEPHONE	COMCAST, CONSOLIDATED COMMUNICATIONS, ETC.
CABLE	COMCAST

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

NOTES & LEGEND

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
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www.tfmoran.com

FILE	DR	HEG	FB	–	
47099.01	CK	JCC	CADFILE	47099-01_NOTES-LEGEND_MAIN	C-01

Mar 22, 2022 - 3:42pm
F:\NSC Projects\47099 - Little Harbor Rd & Gosport Rd - Portsmouth\47099-01 - DiLorenzo - 325 Little Harbor Rd\Design\PRODUCTION DRAWINGS\47099-01_Notes-Legend_Main.dwg

LEGEND:

BK.PG.	BOOK/PAGE
ELEV.	ELEVATION
EP	EDGE OF PAVEMENT
FF	FINISHED FLOOR
NET	NEW ENGLAND TELEPHONE
PSNH	PUBLIC SERVICE COMPANY OF NEW ENGLAND
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.F.	SQUARE FEET
SL	SEPTIC LINE
UGU	UNDERGROUND UTILITIES
TBM	TEMPORARY BENCH MARK
TL	TIE LINE
444C	SOILS TYPE
	TREE LINE
OHU	OVERHEAD UTILITIES
18	EXISTING CONTOUR
	LIMIT OF SALT MARSH
UGU	UNDERGROUND UTILITIES
W	WATER LINE
	WOOD FENCE
	HIGHEST OBSERVABLE TIDE LI
	HIGH WATER
	FLOOD ZONE LINE
	TIDAL BUFFER
	SOILS LINE
	UTILITY POLE
	DECIDUOUS TREE
	CONIFEROUS TREE
T	TRANSFORMER
	TELEPHONE PEDESTAL
E	ELECTRIC METER
EB	ELECTRIC BOX
	GUY POLE/WIRE
	WATER SHUT OFF
TP-1	TEST PIT
I-3	INFILTRATION TEST
	BRICK WALK
	PAVEMENT
	EASEMENT
	SALT MARSH

NOTES:

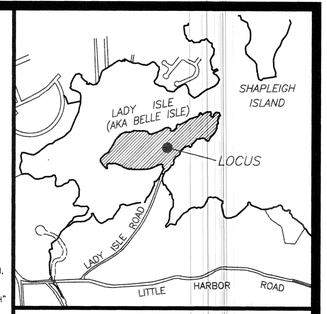
1. THE PARCEL IS LOCATED IN THE RURAL (R) ZONING DISTRICT.
2. THE PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 205 AS LOT 2.
3. THE PARCEL IS LOCATED IN FLOOD HAZARD ZONE AE (EL.8) AND ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM), ROCKINGHAM COUNTY, NEW HAMPSHIRE, PANEL 278, VERSION NUMBER 2.3.2.1 MAP NUMBER 33015C0278F, MAP REVISED: JANUARY 29, 2021. FLOOD ZONES DEPICTED ON THIS PLAN ESTABLISHED BY ELEVATION. THE DATUM IS NAVD88 BASED ON STATIC GPS OBSERVATIONS.
4. OWNER OF RECORD:
   THE ADL 325 LITTLE HARBOR ROAD TRUST
   STEPHEN H. ROBERTS ESQ., TRUSTEE
   127 PARROTT AVENUE
   PORTSMOUTH, NH 03801
   RCRD BK.5959 PG.1244
5. ZONING REQUIREMENTS:

MINIMUM LOT AREA:	5 ACRES (PER DWELLING UNIT)
MINIMUM STREET FRONTAGE:	N/A
DEPTH:	N/A
MINIMUM YARD SETBACKS:	
FRONT:	50 FEET
SIDE:	20 FEET
REAR:	40 FEET
MAXIMUM STRUCTURE HEIGHT:	35 FEET
MAXIMUM BUILDING COVERAGE:	5%
MINIMUM OPEN SPACE:	75%

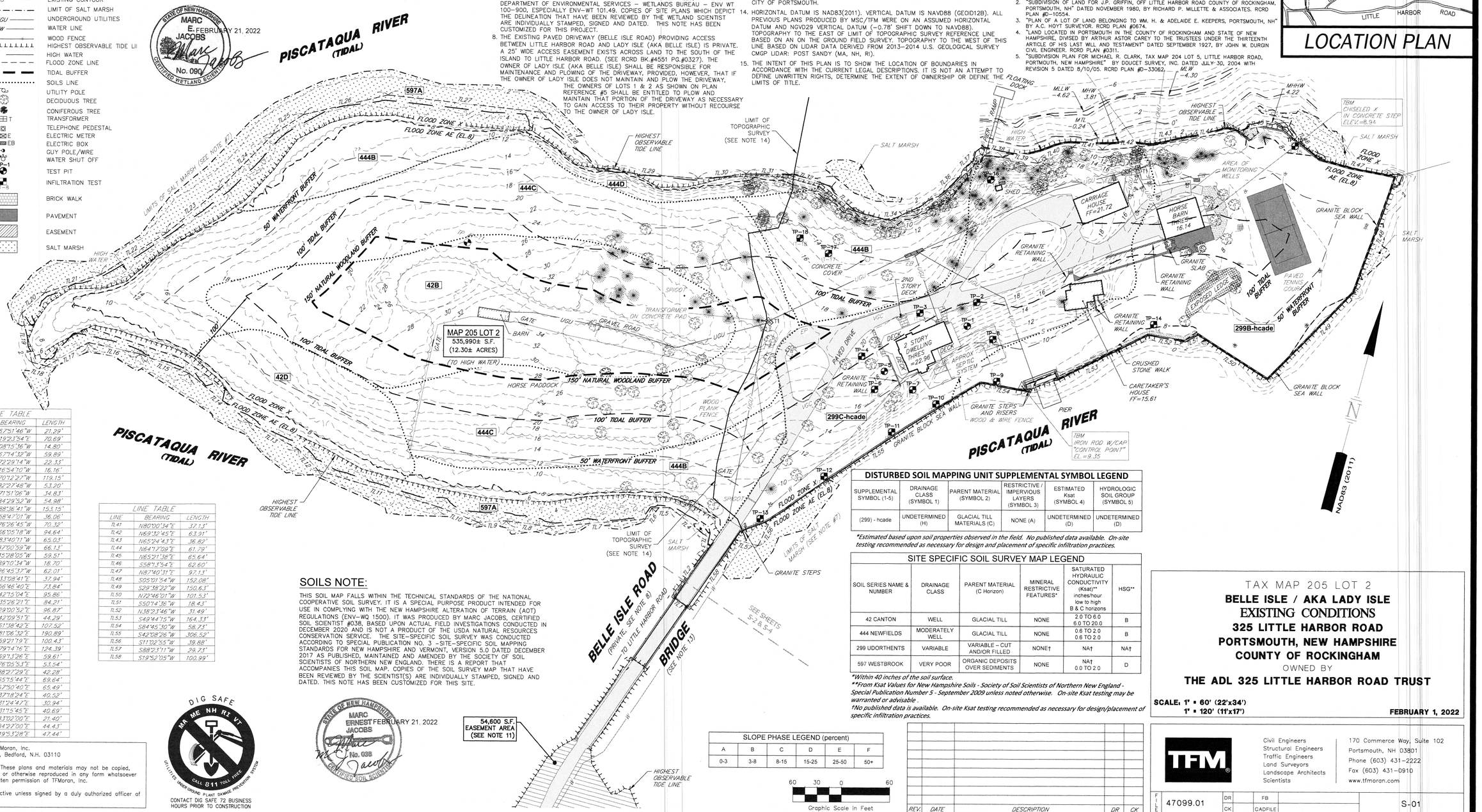
6. TOTAL PARCEL AREA:
   538,229± S.F.
   (12.36± ACRES)
7. HIGHEST OBSERVABLE TIDE LINE (HOTL) AND SALT MARSH NORTHERLY OF THE BRIDGE SHOWN HEREON WERE DELINEATED BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST 090, ON MAY 24, 2019. THE HIGHEST OBSERVABLE TIDE LINE (HOTL), SALT MARSH AND FRESHWATER WETLANDS SOUTHERLY OF THE BRIDGE SHOWN HEREON WERE DELINEATED BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST 090, ON NOVEMBER 9, 2021. SALT MARSH WAS DELINEATED BASED UPON THE EXTENT OF ROOTED EMERGENT SALT-TOLERANT VEGETATION OBSERVED DURING LOW TIDE. HOTL WAS DELINEATED BASED UPON THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES – WETLANDS BUREAU – ENV WT 100–900, ESPECIALLY ENV–WT 101.49. COPIES OF SITE PLANS WHICH DEPICT THE DELINEATION THAT HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS PROJECT.
8. THE EXISTING PAVED DRIVEWAY (BELLE ISLE ROAD) PROVIDING ACCESS BETWEEN LITTLE HARBOR ROAD AND LADY ISLE (AKA BELLE ISLE) IS PRIVATE. A 25' WIDE ACCESS EASEMENT EXISTS ACROSS LAND TO THE SOUTH OF THE ISLAND TO LITTLE HARBOR ROAD. (SEE RCRD BK.#4551 PG.#0327). THE OWNER OF LADY ISLE (AKA BELLE ISLE) SHALL BE RESPONSIBLE FOR MAINTENANCE AND PLOWING OF THE DRIVEWAY, PROVIDED, HOWEVER, THAT IF THE OWNER OF LADY ISLE DOES NOT MAINTAIN AND PLOW THE DRIVEWAY, THE OWNERS OF LOTS 1 & 2 AS SHOWN ON PLAN REFERENCE #5 SHALL BE ENTITLED TO PLOW AND MAINTAIN THAT PORTION OF THE DRIVEWAY AS NECESSARY TO GAIN ACCESS TO THEIR PROPERTY WITHOUT RECOURSE TO THE OWNER OF LADY ISLE.
9. THE CONTRACTOR SHALL CONTACT "DIG SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. CALL 1–888–344–7233. THE BEST AVAILABLE INFORMATION WAS USED TO DETERMINE THE LOCATION, SIZE AND ELEVATION OF EXISTING UTILITIES. THE EXACT SIZE AND LOCATION OF UTILITIES SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION. IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO ANTICIPATE CONFLICTS AND REPAIR EXISTING UTILITIES AS NECESSARY TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL COORDINATE TERMINATION OF ALL UTILITIES WITH THE APPROPRIATE UTILITY COMPANY.
10. ALL USES AND CONSTRUCTION SHALL COMPLY WITH RSA 483–B, THE SHORELAND WATER QUALITY PROTECTION ACT (SWQPA). REFERENCE IS ALSO MADE TO ARTICLE 10 SECTION 10.1016 OF THE PORTSMOUTH ZONING ORDINANCE WHICH SPECIFIES THE PERMITTED USES IN THE 100' TIDAL BUFFER SHOWN HEREON.
11. THE CURRENT AND FUTURE OWNERS OF LADY ISLE HAVE THE BENEFIT OF A 54,600 S.F. "EASEMENT AREA" AS SHOWN ON PLAN REFERENCE #5 AND DESCRIBED IN RCRD BK.#4551 PG.#0327. THE EASEMENT AREA IS LOCATED TO THE SOUTH OF THE EXISTING BRIDGE.
12. PARCEL IS ON TOWN WATER. THE CURRENT AND FUTURE OWNERS OF LADY ISLE HAVE THE BENEFIT OF A PERMANENT EASEMENT FOR THE INSTALLATION, OPERATION, MAINTENANCE, REPAIR AND REPLACEMENT OF THE EXISTING WATER LINE RUNNING FROM LITTLE HARBOR ROAD TO AND ALONG THE 25' WIDE ACCESS EASEMENT SHOWN ON PLAN REFERENCE #5. SEE RCRD BK.#4551 PG.#0327.
13. SEE PRIVATE ROADWAY & BRIDGE MAINTENANCE AGREEMENT ON FILE WITH THE CITY OF PORTSMOUTH.
14. HORIZONTAL DATUM IS NAD83(2011). VERTICAL DATUM IS NAVD88 (GEOID12B). ALL PREVIOUS PLANS PRODUCED BY MSC/TFM WERE ON AN ASSUMED HORIZONTAL DATUM AND NGVD29 VERTICAL DATUM (–0.78' SHIFT DOWN TO NAVD88). TOPOGRAPHY TO THE EAST OF LIMIT OF TOPOGRAPHIC SURVEY REFERENCE LINE BASED ON AN ON THE GROUND FIELD SURVEY. TOPOGRAPHY TO THE WEST OF THIS LINE BASED ON LIDAR DATA DERIVED FROM 2013–2014 U.S. GEOLOGICAL SURVEY CMGP LIDAR: POST SANDY (MA, NH, RI).
15. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH THE CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.
16. THE PURPOSE OF THIS PLAN IS TO SHOW THE BOUNDARY LINES, TOPOGRAPHY AND CURRENT SITE FEATURES OF MAP 205 LOT 2.
17. EXISTING USE OF THE PROPERTY IS RESIDENTIAL.
18. FIELD SURVEY COMPLETED BY TCE IN APRIL 2019 USING A TOPCON DS103 AND TOPCON FC5000 DATA COLLECTOR AND UPDATED IN DECEMBER 2020, MARCH 2021 AND DECEMBER–JANUARY 2022 USING A LEICA TS–16 AND CARLSON RT–4 DATA COLLECTOR.
19. EASEMENTS, RIGHTS, AND RESTRICTIONS SHOWN OR IDENTIFIED ARE THOSE WHICH WERE FOUND DURING RESEARCH PERFORMED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS. OTHER RIGHTS, EASEMENTS, OR RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF SUBJECT PARCEL(S) WOULD DETERMINE.
20. TIDE LINES SHOWN BASED ON TIDAL DATUM FOR NOAA STATION #8419870, SEAVEY ISLAND, ME. DATUM IS NAVD88.
21. IN ACCORDANCE WITH THE SCREENING REQUIRED BY THE NH NATURAL HERITAGE BUREAU (NHB), MORE PARTICULARLY, NHB REPORT NHB21–3759, TWO NEW DISTINCT POPULATIONS OF MARSH ELDER (IVA FRUTESCENS) WAS DETERMINED TO BE ON THE PROPERTY.

PLAN REFERENCES:

1. "BOUNDARY PLAN FOR BELLE ISLE PARTNERS TRUST, LITTLE HARBOR ROAD/BELLE ISLE, COUNTY OF ROCKINGHAM, PORTSMOUTH, NH." DATED MARCH 30, 1995, BY RICHARD P. MILLETTE & ASSOCIATES.
2. "SUBDIVISION OF LAND FOR J.P. GRIFFIN, OFF LITTLE HARBOR ROAD COUNTY OF ROCKINGHAM, PORTSMOUTH, NH" DATED NOVEMBER 1980, BY RICHARD P. MILLETTE & ASSOCIATES. RCRD PLAN #D–10554.
3. "PLAN OF A LOT OF LAND BELONGING TO WM. H. & ADELAIDE E. KEEPERS, PORTSMOUTH, NH" BY A.C. HOYT SURVEYOR. RCRD PLAN #3674.
4. "LAND LOCATED IN PORTSMOUTH IN THE COUNTY OF ROCKINGHAM AND STATE OF NEW HAMPSHIRE, DIVISED BY ARTHUR ASTOR CAREY TO THE TRUSTEES UNDER THE THIRTEENTH ARTICLE OF HIS LAST WILL AND TESTAMENT" DATED SEPTEMBER 1927, BY JOHN W. DURGIN CIVIL ENGINEER. RCRD PLAN #0311.
5. "SUBDIVISION PLAN FOR MICHAEL R. CLARK, TAX MAP 204 LOT 5, LITTLE HARBOR ROAD, PORTMOUTH, NEW HAMPSHIRE" BY DOUCET SURVEY, INC. DATED JULY 30, 2004 WITH REVISION 5 DATED 8/10/05. RCRD PLAN #D–33062.



LOCATION PLAN



NAD83 (2011)

LINE TABLE		
LINE	BEARING	LENGTH
TL1	N67°51'46"W	21.29'
TL2	N19°23'54"E	70.69'
TL3	N08°15'36"W	14.80'
TL4	N67°14'32"W	59.89'
TL5	S72°29'14"W	22.33'
TL6	S16°54'10"W	16.16'
TL7	S70°12'27"W	119.15'
TL8	S82°27'48"W	53.20'
TL9	S71°51'06"W	34.83'
TL10	N84°29'52"W	54.98'
TL11	N88°36'41"W	153.15'
TL12	N58°47'01"W	36.06'
TL13	N76°26'45"W	70.32'
TL14	N66°05'18"W	94.64'
TL15	N83°40'11"W	65.03'
TL16	S87°00'59"W	66.13'
TL17	S45°28'05"W	59.51'
TL18	S89°10'34"W	18.70'
TL19	N26°45'37"W	62.01'
TL20	N33°08'41"E	37.94'
TL21	N56°46'40"E	73.84'
TL22	N42°15'04"E	95.86'
TL23	N35°26'21"E	84.21'
TL24	N29°00'52"E	96.87'
TL25	N42°09'51"E	44.29'
TL26	N61°38'42"E	107.52'
TL27	N81°06'32"E	190.89'
TL28	S59°21'19"E	100.43'
TL29	N79°14'15"E	124.39'
TL30	N69°13'26"E	59.61'
TL31	N76°05'53"E	53.54'
TL32	S88°27'29"E	42.28'
TL33	S65°15'44"E	69.64'
TL34	N67°50'40"E	65.49'
TL35	N37°18'24"E	40.52'
TL36	N31°24'47"E	30.94'
TL37	N31°15'45"E	40.69'
TL38	N83°02'00"E	21.40'
TL39	N84°27'00"E	44.43'
TL40	N49°53'28"E	47.44'

LINE TABLE		
LINE	BEARING	LENGTH
TL41	N80°00'34"E	37.13'
TL42	N69°32'45"E	6.31'
TL43	N65°24'43"E	36.82'
TL44	N64°17'09"E	61.79'
TL45	N65°21'38"E	65.64'
TL46	S58°13'54"E	62.60'
TL47	N87°40'31"E	97.13'
TL48	S05°01'54"W	152.08'
TL49	S29°38'22"W	150.63'
TL50	N72°46'01"W	101.53'
TL51	S50°14'35"W	18.43'
TL52	N38°23'46"W	31.49'
TL53	S49°44'15"W	164.33'
TL54	S84°45'30"W	58.73'
TL55	S42°08'26"W	306.52'
TL56	S11°02'55"W	39.86'
TL57	S88°23'11"W	29.73'
TL58	S19°52'05"W	100.99'

SOILS NOTE:

THIS SOIL MAP FALLS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT INTENDED FOR USE IN COMPLYING WITH THE NEW HAMPSHIRE ALTERATION OF TERRAIN (AOT) REGULATIONS (ENV–WQ 1500). IT WAS PRODUCED BY MARC JACOBS, CERTIFIED SOIL SCIENTIST #038, BASED UPON ACTUAL FIELD INVESTIGATIONS CONDUCTED IN DECEMBER 2020 AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THE SITE–SPECIFIC SOIL SURVEY WAS CONDUCTED ACCORDING TO SPECIAL PUBLICATION NO. 3 –SITE–SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT, VERSION 5.0 DATED DECEMBER 2017 AS PUBLISHED, MAINTAINED AND AMENDED BY THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND. THERE IS A REPORT THAT ACCOMPANIES THIS SOIL MAP. COPIES OF THE SOIL SURVEY MAP THAT HAVE BEEN REVIEWED BY THE SCIENTIST(S) ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS SITE.

STATE OF NEW HAMPSHIRE MARC ERNEST JACOBS No. 038 CERTIFIED SOIL SCIENTIST FEBRUARY 21, 2022

STATE OF NEW HAMPSHIRE MARC E. JACOBS No. 090 CERTIFIED WETLAND SCIENTIST FEBRUARY 21, 2022

DISTURBED SOIL MAPPING UNIT SUPPLEMENTAL SYMBOL LEGEND

SUPPLEMENTAL SYMBOL (1-5)	DRAINAGE CLASS (SYMBOL 1)	PARENT MATERIAL (SYMBOL 2)	RESTRICTIVE / IMPERVIOUS LAYERS (SYMBOL 3)	ESTIMATED Ksat (SYMBOL 4)	HYDROLOGIC SOIL GROUP (SYMBOL 5)
(299) - hcade	UNDETERMINED (H)	GLACIAL TILL MATERIALS (C)	NONE (A)	UNDETERMINED (D)	UNDETERMINED (D)

*Estimated based upon soil properties observed in the field. No published data available. On-site testing recommended as necessary for design and placement of specific infiltration practices.

SITE SPECIFIC SOIL SURVEY MAP LEGEND

SOIL SERIES NAME & NUMBER	DRAINAGE CLASS	PARENT MATERIAL (C Horizon)	MINERAL RESTRICTIVE FEATURES*	SATURATED HYDRAULIC CONDUCTIVITY (Ksat)** inches/hour low to high B & C horizons	HSG**
42 CANTON	WELL	GLACIAL TILL	NONE	2.0 TO 6.0 6.0 TO 20.0	B
444 NEWFIELDS	MODERATELY WELL	GLACIAL TILL	NONE	0.6 TO 2.0 0.6 TO 2.0	B
299 UDORTHENTS	VARIABLE	VARIABLE – CUT AND/OR FILLED	NONE†	NA†	NA†
597 WESTBROOK	VERY POOR	ORGANIC DEPOSITS OVER SEDIMENTS	NONE	NA† 0.0 TO 2.0	D

*Within 40 inches of the soil surface.
**From Ksat Values for New Hampshire Soils - Society of Soil Scientists of Northern New England - Special Publication Number 5 - September 2009 unless noted otherwise. On-site Ksat testing may be warranted or advisable.
†No published data is available. On-site Ksat testing recommended as necessary for design/placement of specific infiltration practices.

SLOPE PHASE LEGEND (percent)

A	B	C	D	E	F
0-3	3-8	8-15	15-25	25-50	50+

60 30 0 60
Graphic Scale in Feet

REV.	DATE	DESCRIPTION	DR	CK

TAX MAP 205 LOT 2
BELLE ISLE / AKA LADY ISLE
EXISTING CONDITIONS
325 LITTLE HARBOR ROAD
PORTSMOUTH, NEW HAMPSHIRE
COUNTY OF ROCKINGHAM
OWNED BY
THE ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: 1" = 60' (22'x34')
1" = 120' (11'x17')
FEBRUARY 1, 2022

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431–2222
Fax (603) 431–0910
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FILE 47099.01 | DR | FB | CK | CADFILE | S-01

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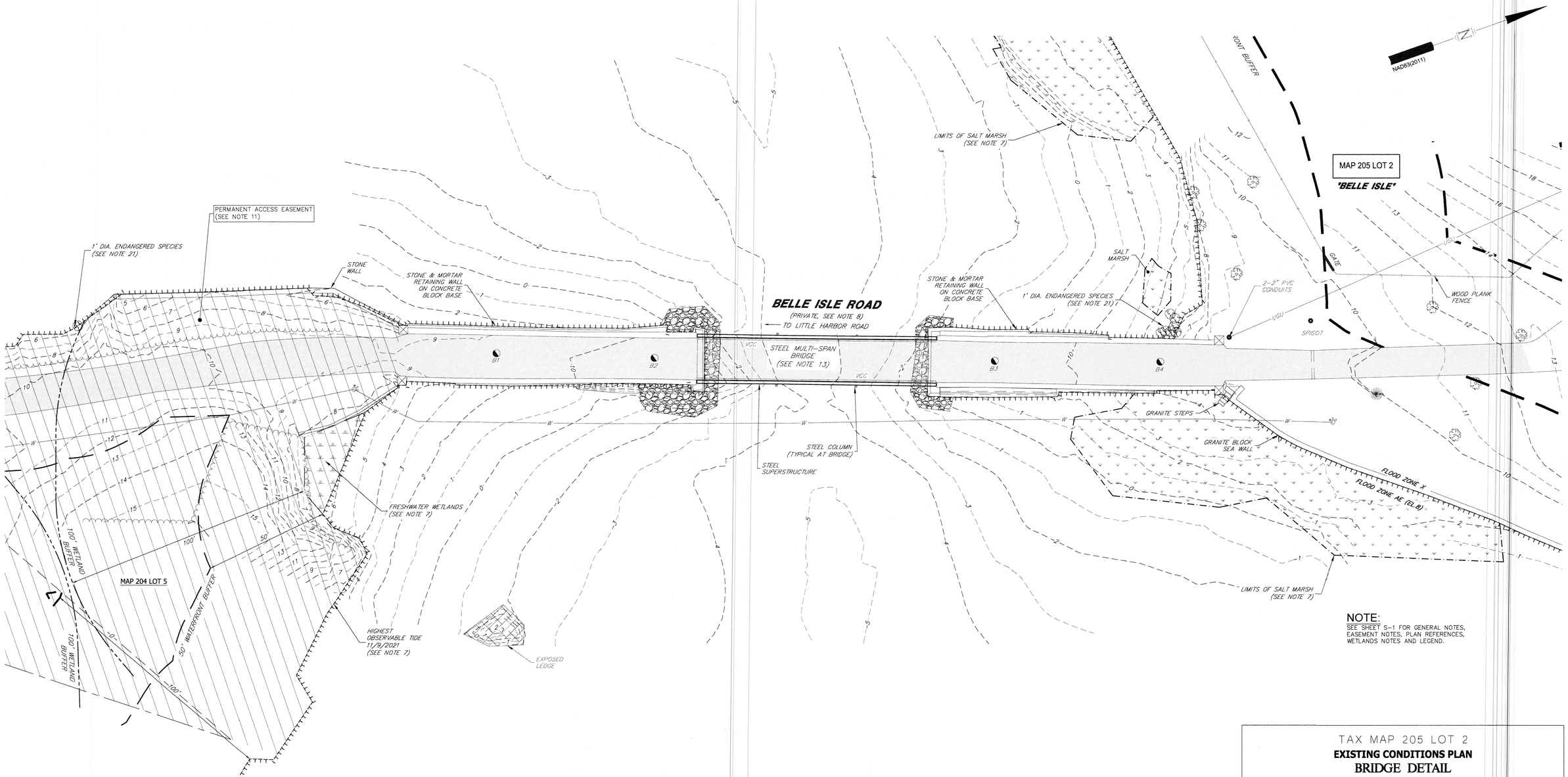
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

Feb 21, 2022 - 2:59pm
F:\MSC Projects\47099 - Little Harbor Rd & Gosport Rd - Portsmouth\47099 01 - DiLorenzo - 325 Little Harbor Rd\Carlson Survey\Dwgs\47099-01 Existing Conditions_2022.dwg



NOTE:
SEE SHEET S-1 FOR GENERAL NOTES, EASEMENT NOTES, PLAN REFERENCES, WETLANDS NOTES AND LEGEND.

Feb 18, 2022 - 11:56am
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20 10 0 20
Graphic Scale in Feet

REV.	DATE	DESCRIPTION	DR	CK

TAX MAP 205 LOT 2
EXISTING CONDITIONS PLAN
BRIDGE DETAIL
325 LITTLE HARBOR ROAD
PORTSMOUTH, NEW HAMPSHIRE
COUNTY OF ROCKINGHAM
OWNED BY
THE ADL PORTSMOUTH RESIDENCE TRUST

SCALE: 1" = 20' (22x34)
1" = 40' (11x17)
FEBRUARY 1, 2022

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
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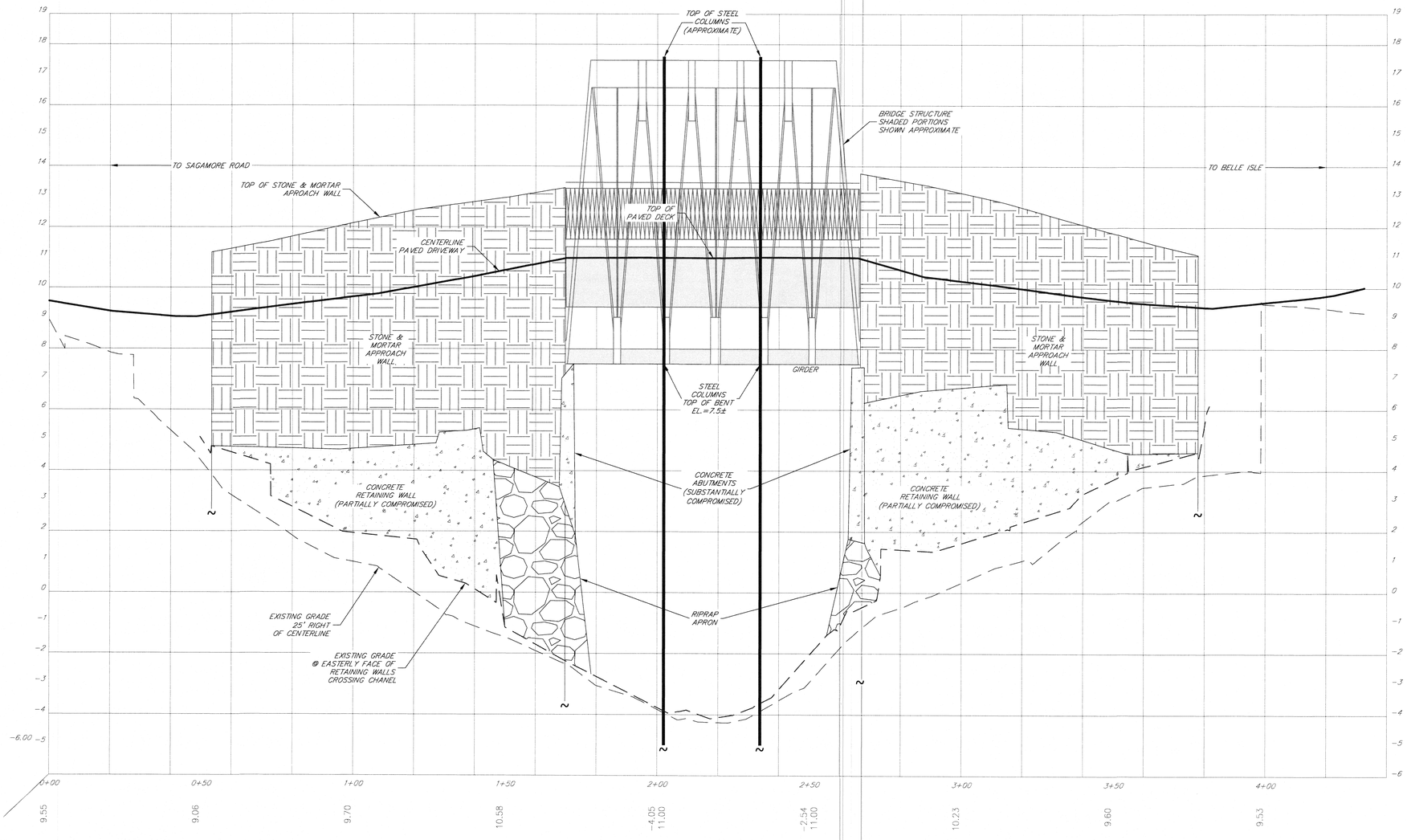
FILE	47099-01	DR	MVP	FB	583	S-02
		CK	BMK	CADFILE	SEE MARGIN	



BRIDGE PROFILE:
1" = 20' HORIZONTAL
1" = 2' VERTICAL

FOR REVIEW

NOTE:
SEE SHEET S-1 FOR GENERAL NOTES, EASEMENT NOTES, PLAN REFERENCES, WETLANDS NOTES AND LEGEND.

TAX MAP 205 LOT 2

EXISTING CONDITIONS PLAN

BRIDGE PROFILE

325 LITTLE HARBOR ROAD

PORTSMOUTH, NEW HAMPSHIRE

COUNTY OF ROCKINGHAM

OWNED BY

THE ADL PORTSMOUTH RESIDENCE TRUST

SCALE: AS NOTED

FEBRUARY 1, 2022

REV.	DATE	DESCRIPTION	DR	CK

Seacoast Division
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Structural Engineers
Traffic Engineers
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Landscape Architects
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170 Commerce Way, Suite 102
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FILE	DR	MVP	FB	583	
47099-01	CK	BMK	CADFILE	SEE MARGIN	S-3

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MAP 204 LOT 5

MAP 204 LOT 7

MATCH LINE

12" CLAY
INV.=16.35

GRANITE HEADWALL
12" CLAY
INV.=18.12

BELLE ISLE ROAD
(PRIVATE, SEE NOTE 8)

PERMANENT ACCESS EASEMENT (SEE NOTE 11)

1" DIA. ENDANGERED SPECIES (SEE NOTE 21)

STONE WALL

HEADWALL
12" RCP
INV.=6.94

MAP 204 LOT 5

100' WETLAND BUFFER

50' WATERFRONT BUFFER

FRESHWATER WETLANDS (SEE NOTE 7)

HIGHEST OBSERVABLE TIDE 11/9/2021 (SEE NOTE 7)

PISCATAQUA RIVER
(TIDAL)

HIGHEST OBSERVABLE TIDE LINE (SEE NOTE 7)

LIMITS OF SALT MARSH (SEE NOTE 7)

50' NATURAL WOODLAND BUFFER

100' TIDAL BUFFER

50' WATERFRONT BUFFER

MAP 205 LOT 2
"BELLE ISLE"

SEE SHEET S-1

BELLE ISLE ROAD
(PRIVATE, SEE NOTE 8)

SEE SHEET S-2

SALT MARSH

1" DIA. ENDANGERED SPECIES (SEE NOTE 21)

VCC

STEEL MULTI-SPAN BRIDGE (SEE NOTE 13)

FLOOD ZONE X

FLOOD ZONE AE (EL 9)

LIMITS OF SALT MARSH (SEE NOTE 7)

STONE & MORTAR RETAINING WALL ON CONCRETE BLOCK BASE

EXPOSED LEDGE

PISCATAQUA RIVER
(TIDAL)

NAD83(2011)

60 30 0 60
Graphic Scale in Feet

SEWER INVERT TABLE

TFM #	RIM EL.	INVERT ID:	INVERT EL.	SIZE/TYPE
4574	50.37	A	43.7'	8" PVC
		B	44.0'	8" PVC
4568	55.07	A	44.7'	8" PVC
		B	44.8'	8" PVC

MAP 222 LOT 25

MAP 222 LOT 24

MAP 222 LOT 23

MAP 222 LOT 22

MAP 204 LOT 1

MAP 204 LOT 16

LITTLE HARBOR ROAD
(PUBLIC R.O.W.)

"STOP"

SAGAMORE AVENUE
(PUBLIC R.O.W.)

MAP 222 LOT 7

MAP 222 LOT 8

MAP 222 LOT 6

MAP 222 LOT 1-1

36" CMP
INV.=27.53

CURRIERS COVE
(PRIVATE R.O.W.)

MAP 204 LOT 10

MAP 204 LOT 9

MAP 204 LOT 4

S&M COLUMN (TYPICAL)

IRF "DOUCET" 0.2' A.G.

#4242
WATER METER PIT
2 METERS

MAP 204 LOT 5

MAP 204 LOT 7

MAP 204 LOT 6

8" HDPE
INV.=31.84

15" RCP
INV.=32.74

BELLE ISLE ROAD
(PRIVATE, SEE NOTE 8)

60 30 0 60
Graphic Scale in Feet

NAD83(2011)

NOTE:

SEE SHEET S-1 FOR GENERAL, EASEMENT, PLAN AND WETLANDS NOTES, LEGEND AND SEWER INVERT TABLE.

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CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

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REV.	DATE	DESCRIPTION	DR	CK

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Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

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PROJ. #	DR	MVP	FB	SHEET
47099-01	CK	BMK	CADFILE: SEE MARGIN	S-4

TAX MAP 205 LOT 2

EXISTING CONDITIONS PLAN

DRIVEWAY & ROADWAY DETAIL

325 LITTLE HARBOR ROAD
PORTSMOUTH, NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

OWNED BY

THE ADL PORTSMOUTH RESIDENCE TRUST

SCALE: 1" = 60' (22x34)
1" = 120' (11x17)

FEBRUARY 1, 2022

Feb 18, 2022 - 11:57am
F:\MSC Projects\47099 - Little Harbor Rd & Gosport Rd - Portsmouth\47099.01 - DiLorenzo - 325 Little Harbor Rd\Carlson Survey\Dwgs\47099-01wk.dwg

NOTES

1. SEE NOTES ON SHEET C–01.
2. NO IMPACTS ARE PROPOSED TO NATURAL GROUND COVERS WITHIN THE WATERFRONT BUFFER. IMPACT ARE ONLY PROPOSED TO EXISTING GRANDFATHERED OPEN AREA.

LEGEND

- HIGHEST OBSERVABLE TIDE LINE (HOTL)
- 100' TIDAL WETLAND BUFFER BOUNDARY
- PROTECTED SHORELAND ZONE BEYOND TBZ
- TEMPORARY IMPACT AREA
- PERMANENT IMPACT AREA
- UNALTERED WOODLAND AREA
- PROPOSED WOODLAND AREA
- LIMIT OF IMPACTS
- PROPOSED TREE (OUTSIDE OF LANDSCAPED AREAS)
- OR EXISTING TREE TO REMAIN
- OR EXISTING TREE TO BE REMOVED
- IMPERVIOUS SURFACE
- PERVIOUS PAVERS
- GRAVEL SURFACE

IMPERVIOUS AREA (PERMITTED)	
TOTAL EXISTING IMPERVIOUS AREA WITHIN 250' PROTECTED SHORELAND	45,095 SF (9.21%)[1]
TOTAL PROPOSED IMPERVIOUS AREA WITHIN 250' PROTECTED SHORELAND	32,884 SF (6.72%)[1]
TOTAL LOT AREA	489,466 SF
TOTAL LAND AREA WITHIN HOTL	496,469 SF

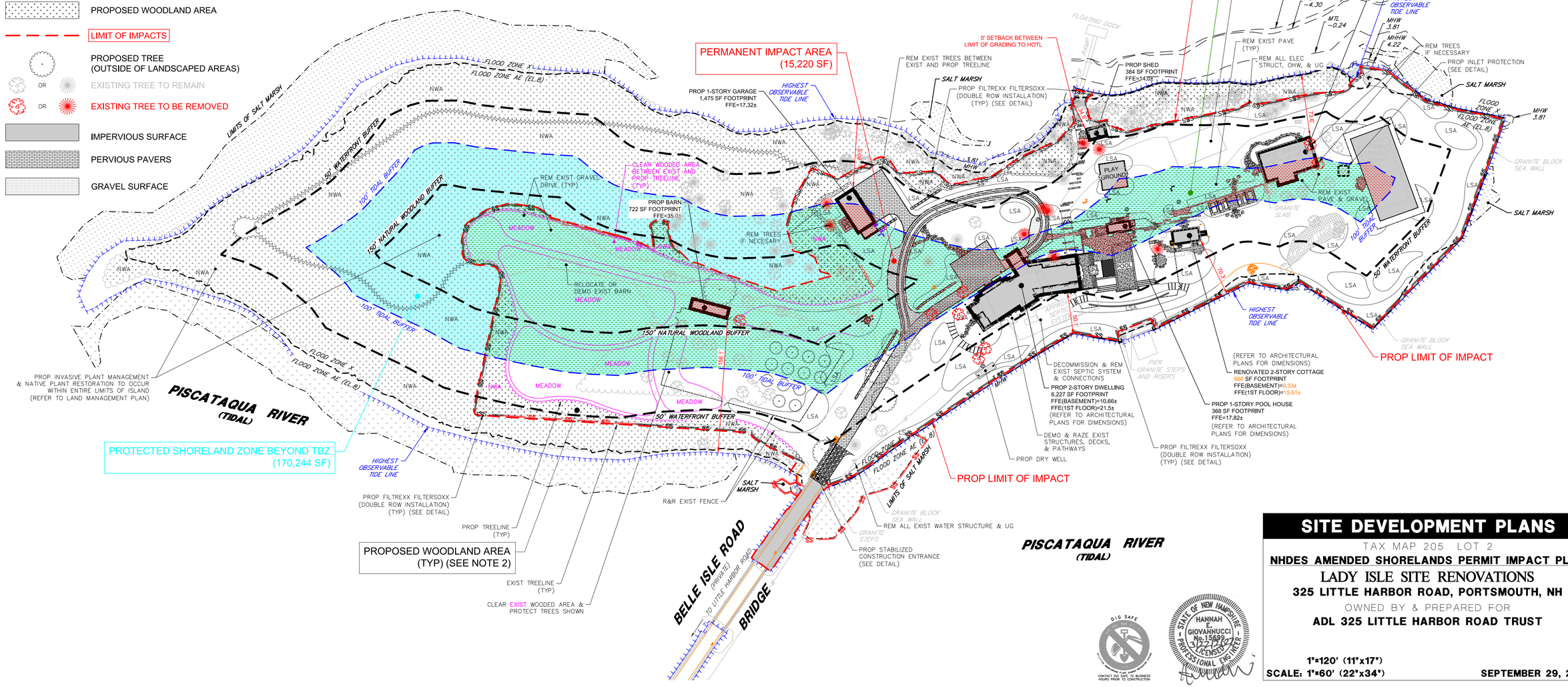
IMPERVIOUS AREA (AMENDED)	
TOTAL EXISTING IMPERVIOUS AREA WITHIN 250' PROTECTED SHORELAND BUFFER	51,371 SF (9.6%)[1] (10.1%)[2]
TOTAL PROPOSED IMPERVIOUS AREA WITHIN 250' PROTECTED SHORELAND BUFFER	34,700 SF (6.5%)[1] (6.8%)[2]
TOTAL LOT AREA	535,990 SF
TOTAL LAND AREA WITHIN HOTL	507,445 SF

NATURAL WOODLAND AREA	
TOTAL AREA OF LOT BETWEEN 50' AND 150' THAT EXISTS AS NATURAL WOODLAND	104,542 SF
TOTAL AREA OF LOT BETWEEN 50' AND 150' OF REFERENCE LINE	259,091 SF
25% X 259,091 SF =	64,773 SF
TOTAL AREA OF NATURAL WOODLAND TO REMAIN UNALTERED	95,173 SF

PROPOSED IMPACT AREA (PERMITTED)	
TOTAL PROPOSED PERMANENT IMPACT AREA WITHIN 100'–250' PROTECTED SHORELAND	40,710 SF
TOTAL PROPOSED TEMPORARY IMPACT AREA WITHIN 100'–250' PROTECTED SHORELAND	0 SF
TOTAL AREA WITHIN 100'–250' PROTECTED SHORELAND	157,507 SF

PROPOSED IMPACT AREA (AMENDED)	
TOTAL PROPOSED PERMANENT IMPACT AREA WITHIN 100'–250' PROTECTED SHORELAND	15,220 SF
TOTAL PROPOSED TEMPORARY IMPACT AREA WITHIN 100'–250' PROTECTED SHORELAND	97,145 SF
TOTAL AREA WITHIN 100'–250' PROTECTED SHORELAND	170,244 SF

1. PERCENTAGE IS CALCULATED BASED ON TOTAL LOT AREA, AS IT WAS CALCULATED IN THE ORIGINAL 2018 PERMIT APPLICATION.
2. PERCENTAGE IS CALCULATED BASED ON TOTAL LAND AREA WITHIN THE HOTL, AS REQUIRED PER NHDES.



SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

NHDES AMENDED SHORELANDS PERMIT IMPACT PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=120' (11"x17")
SCALE: 1"=60' (22"x34")

SEPTEMBER 29, 2021

DIG SAFE — CONTACT DIG SAFE TO BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No. 15699 — 3/22/2022 — LICENSED PROFESSIONAL ENGINEER

HORIZONTAL SCALE 1"=60'
60 30 0 60

REV.	DATE	DESCRIPTION	DR	CK
5	3/22/2022	TAC COMMENTS	HEG	JCC
4	2/18/2022	REVISED PER NHDES & UTILITIES	HEG	JCC
3	2/15/2022	REVISED PER NHDES & UTILITIES PER TAC	HEG	JCC
2	2/2/2022	REVISED PER NHDES & UPDATE SURVEY/UTILITIES	HEG	JCC
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

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FILE	DR	HEG	FB	–	
47099.01	CK	JCC	CADFILE	47099–01_NHDES–SHORE_MAIN	C–02

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Mar 22, 2022 - 3:42pm
F:\MSC Projects\47099 - Little Harbor Rd & Gosport Rd - Portsmouth\47099-01 - DiLorenzo - 325 Little Harbor Rd\Design\PRODUCTION DRAWINGS\47099-01_NHDES-Shore_Main.dwg

NOTES

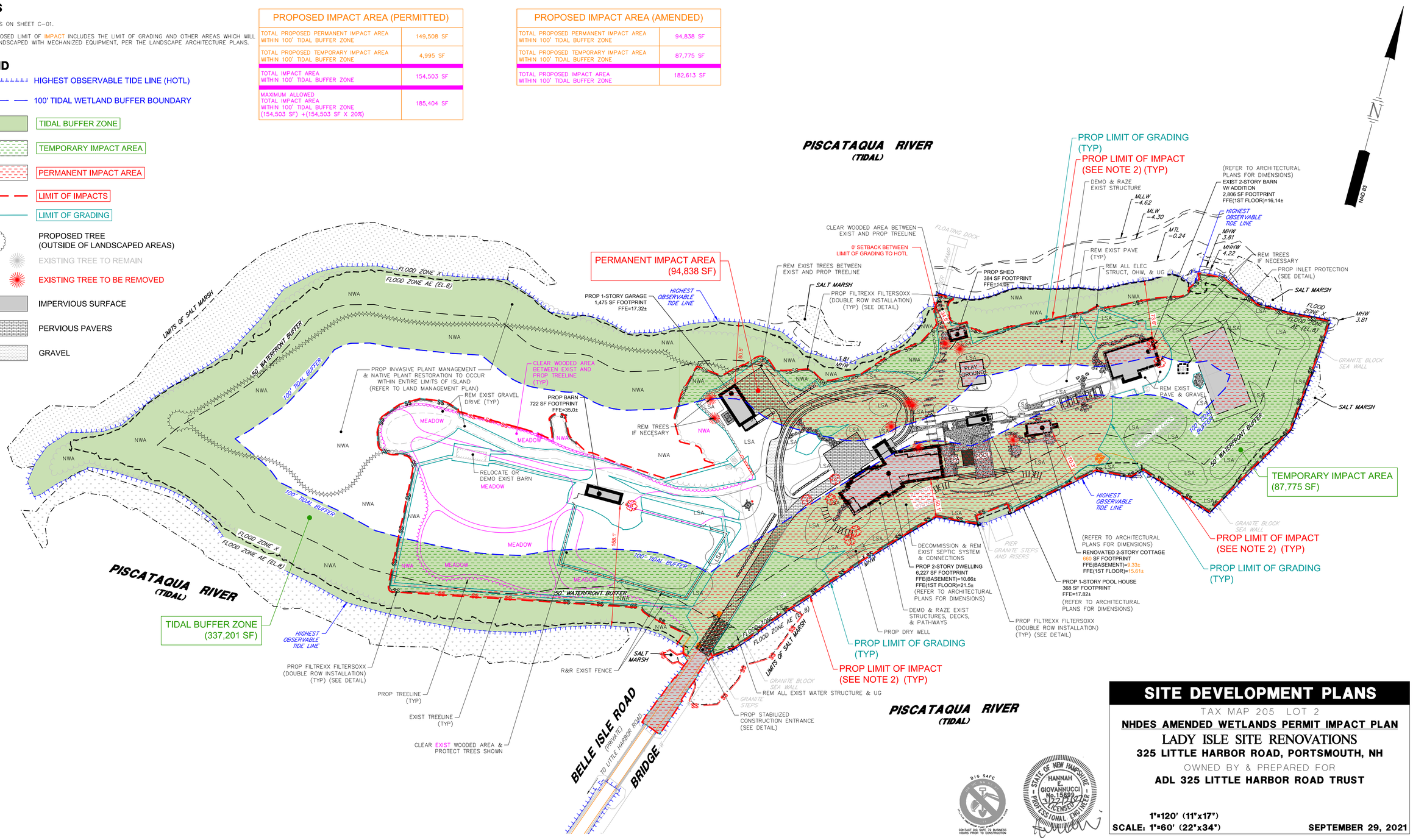
1. SEE NOTES ON SHEET C-01.
2. THE PROPOSED LIMIT OF IMPACT INCLUDES THE LIMIT OF GRADING AND OTHER AREAS WHICH WILL BE BE LANDSCAPED WITH MECHANIZED EQUIPMENT, PER THE LANDSCAPE ARCHITECTURE PLANS.

PROPOSED IMPACT AREA (PERMITTED)	
TOTAL PROPOSED PERMANENT IMPACT AREA WITHIN 100' TIDAL BUFFER ZONE	149,508 SF
TOTAL PROPOSED TEMPORARY IMPACT AREA WITHIN 100' TIDAL BUFFER ZONE	4,995 SF
TOTAL IMPACT AREA WITHIN 100' TIDAL BUFFER ZONE	154,503 SF
MAXIMUM ALLOWED TOTAL IMPACT AREA WITHIN 100' TIDAL BUFFER ZONE (154,503 SF) +(154,503 SF X 20%)	185,404 SF

PROPOSED IMPACT AREA (AMENDED)	
TOTAL PROPOSED PERMANENT IMPACT AREA WITHIN 100' TIDAL BUFFER ZONE	94,838 SF
TOTAL PROPOSED TEMPORARY IMPACT AREA WITHIN 100' TIDAL BUFFER ZONE	87,775 SF
TOTAL PROPOSED IMPACT AREA WITHIN 100' TIDAL BUFFER ZONE	182,613 SF

LEGEND

- HIGHEST OBSERVABLE TIDE LINE (HOTL)
- 100' TIDAL WETLAND BUFFER BOUNDARY
- TIDAL BUFFER ZONE
- TEMPORARY IMPACT AREA
- PERMANENT IMPACT AREA
- LIMIT OF IMPACTS
- LIMIT OF GRADING
- PROPOSED TREE (OUTSIDE OF LANDSCAPED AREAS)
- OR EXISTING TREE TO REMAIN
- OR EXISTING TREE TO BE REMOVED
- IMPERVIOUS SURFACE
- PERVIOUS PAVERS
- GRAVEL



SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

NHDES AMENDED WETLANDS PERMIT IMPACT PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=120' (11"x17")

SCALE: 1"=60' (22"x34") **SEPTEMBER 29, 2021**

HORIZONTAL SCALE 1"=60'
60 30 0 60

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47099.01	CK	JCC	CADFILE	47099-01_NHDES WET_MAIN	C-03

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DIG SAFE — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No. 15698 — LICENSED PROFESSIONAL ENGINEER

Mar 22, 2022 - 3:43pm
P:\MSC Projects\47099 - Little Harbor Rd & Gosport Rd - Portsmouth\47099-01 - DiLorenzo - 325 Little Harbor Rd\Design\PRODUCTION DRAWINGS\47099-01_NHDES Wet_Main.dwg

NOTES

1. SEE NOTES ON SHEET C-01.

LEGEND

- HIGHEST OBSERVABLE TIDE LINE (HOTL)
- 100' TIDAL WETLAND BUFFER BOUNDARY
- TIDAL BUFFER ZONE
- IMPACT AREA
- TEMPORARY IMPACT AREA
- LIMIT OF IMPACTS
- IMPERVIOUS SURFACE
- PERVIOUS PAVERS
- GRAVEL SURFACE

EXISTING IMPERVIOUS AREA (LADY ISLE ONLY)		
	TIDAL WETLAND BUFFER ZONE	TOTAL ISLAND AREA*
TOTAL IMPERVIOUS AREA	27,123 SF (8.0%)	51,371 SF (10.2%)
TOTAL PERMEABLE AREA	754 SF (0.3%)	754 SF (0.1%)
EXISTING VEGETATED AREA (LADY ISLE ONLY)		
TOTAL GRASS/LANDSCAPE AREA	176,413 SF (52.3%)	245,920 SF (48.4%)
TOTAL NATURAL WOODLAND AREA	132,911 SF (39.4%)	209,400 SF (41.3%)
TOTAL AREA (LADY ISLE ONLY)		
TOTAL	337,201 SF	507,445 SF

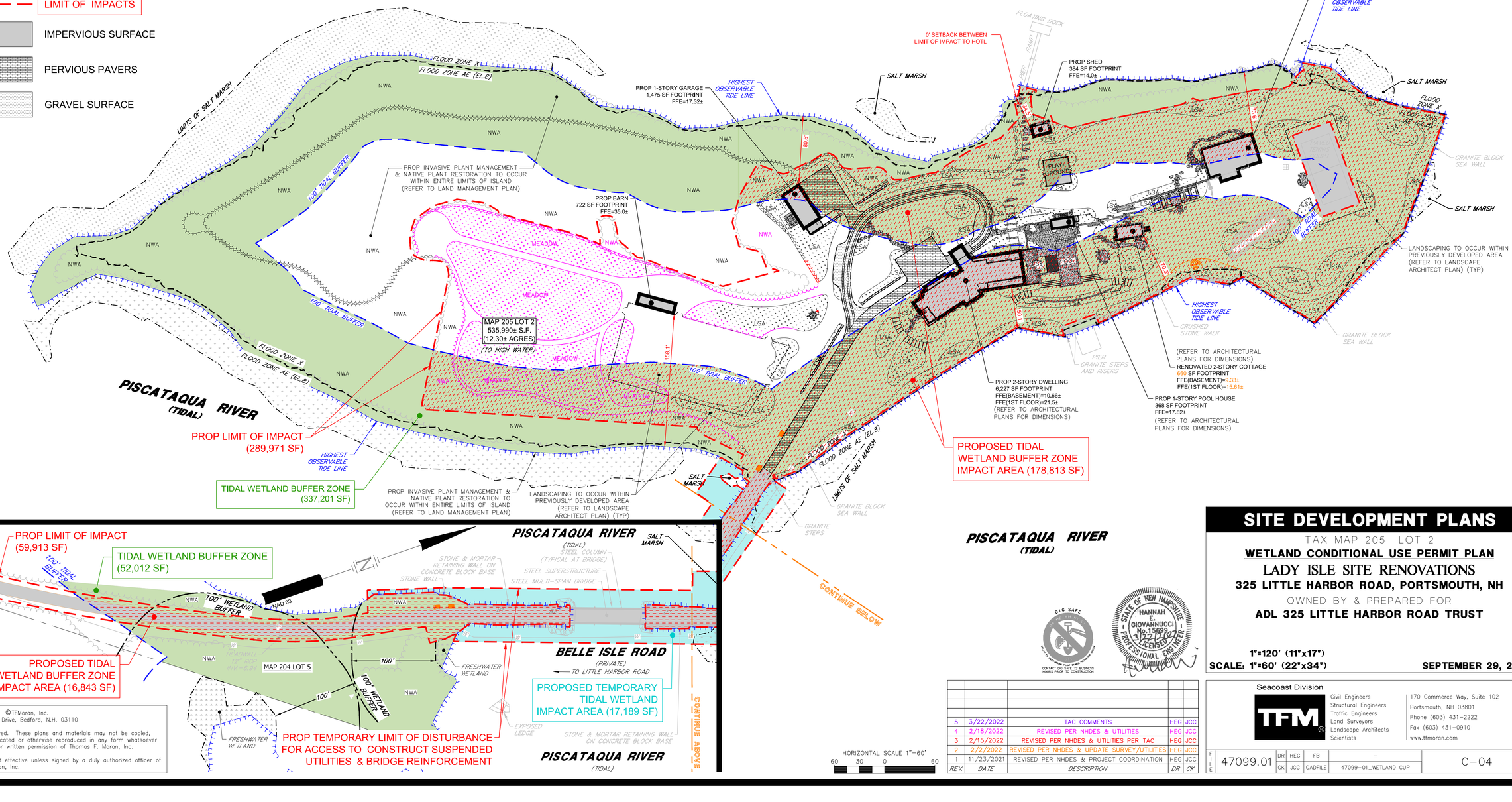
PROPOSED IMPERVIOUS AREA (LADY ISLE ONLY)		
	TIDAL WETLAND BUFFER ZONE	TOTAL ISLAND AREA*
TOTAL IMPERVIOUS AREA	25,217 SF (7.5%)	34,700 SF (6.8%)
TOTAL PERMEABLE AREA	8,144 SF (2.4%)	13,224 SF (2.6%)
PROPOSED VEGETATED AREA (LADY ISLE ONLY)		
TOTAL GRASS AREA	118,339 SF (35.1%)	156,880 SF (30.9%)
TOTAL LANDSCAPE/MEADOW AREA	48,191 SF (14.3%)	97,785 SF (19.3%)
TOTAL NATURAL WOODLAND AREA	137,310 SF (40.7%)	204,856 SF (40.4%)
TOTAL AREA (LADY ISLE ONLY)		
TOTAL	337,201 SF	507,445 SF

*TOTAL ISLAND AREA INCLUDES THE TOTAL LAND UPON LADY ISLE WITHIN HIGHEST OBSERVABLE TIDE LINE (HOTL), INCLUDING THE ADJACENT BRIDGE APPROACH.

PROPOSED IMPACT AREA (ALL IMPROVEMENTS)			
	TIDAL WETLAND BUFFER ZONE	TOTAL LAND AREA	TIDAL WETLAND AREA
TOTAL LAND IMPACT AREA	195,656 SF	349,884 SF	
TOTAL WETLAND TEMPORARY IMPACT AREA			17,189 SF

WETLAND SCIENTIST NOTE

HIGHEST OBSERVABLE TIDE LINE (HOTL) AND SALT MARSH WERE DELINEATED BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST 090, ON MAY 24, 2019. SALT MARSH WAS DELINEATED BASED UPON THE EXTENT OF ROOTED EMERGENT SALT-TOLERANT VEGETATION OBSERVED DURING LOW TIDE. HOTL WAS DELINEATED BASED UPON THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES – WETLANDS BUREAU – ENV WT 100-900, ESPECIALLY ENV-WT 101.49. COPIES OF SITE PLANS WHICH DEPICT THE DELINEATION THAT HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS PROJECT.



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STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No. 15698 — LICENSED PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

WETLAND CONDITIONAL USE PERMIT PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

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ADL 325 LITTLE HARBOR ROAD TRUST

1"=120' (11"x17")
SCALE: 1"=60' (22"x34") **SEPTEMBER 29, 2021**

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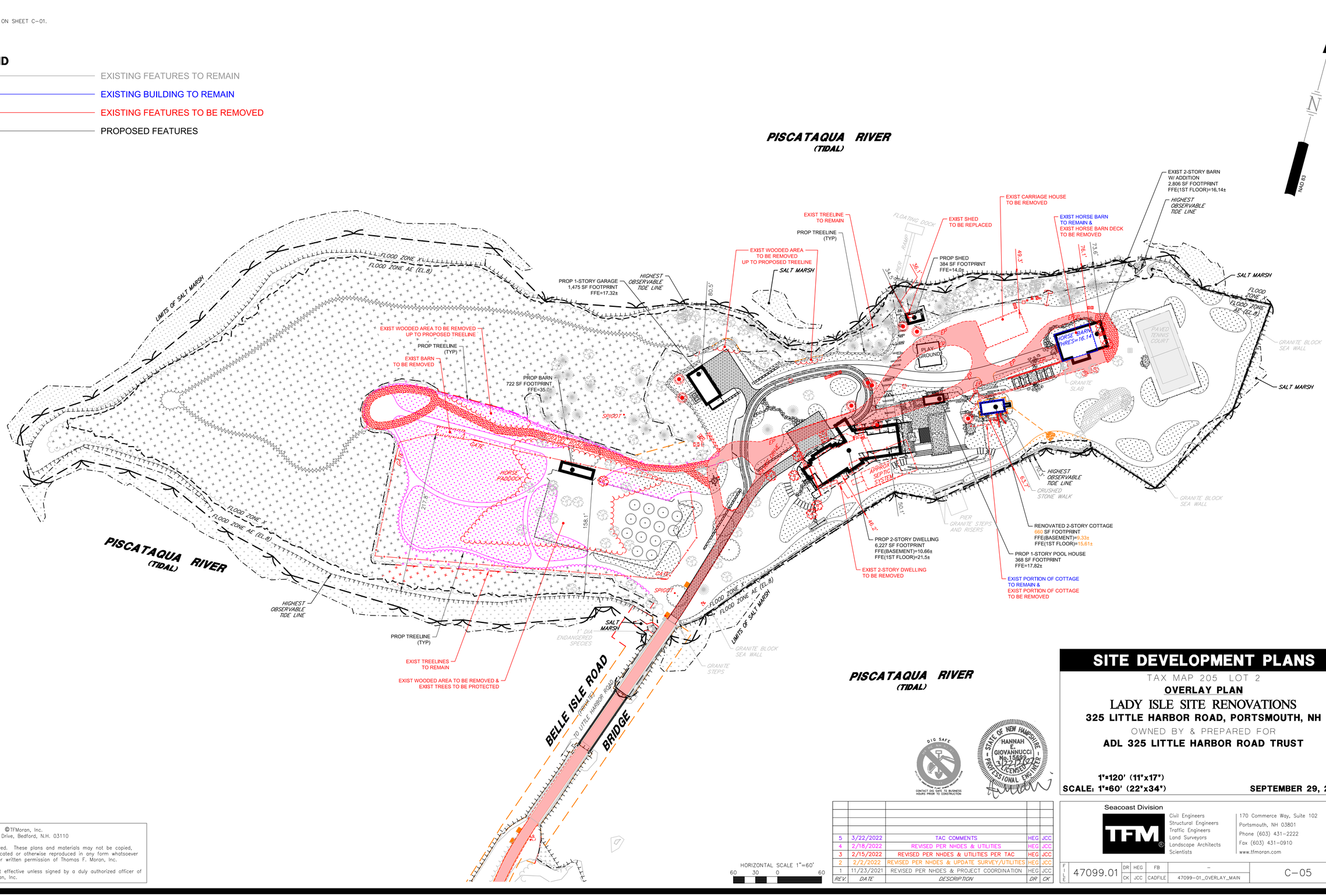
FILE	DR	HEG	FB	–	
47099.01	CK	JCC	CADFILE	47099-01_WETLAND CUP	C-04

NOTES

1. SEE NOTES ON SHEET C-01.

LEGEND

- EXISTING FEATURES TO REMAIN
- EXISTING BUILDING TO REMAIN
- EXISTING FEATURES TO BE REMOVED
- PROPOSED FEATURES


PISCATAQUA RIVER
(TIDAL)
N
NAD 83
FLOOD ZONE X
FLOOD ZONE AE (EL.8)
LIMITS OF SALT MARSH
PROP 1-STORY GARAGE
1,475 SF FOOTPRINT
FFE=17.32±
HIGHEST OBSERVABLE TIDE LINE
80.5'
EXIST WOODED AREA TO BE REMOVED UP TO PROPOSED TREELINE
SALT MARSH
EXIST TREELINE TO REMAIN
PROP TREELINE (TYP)
FLOATING DOCK
RAMP
PIER
36.1'
34.5'
EXIST SHED TO BE REPLACED
PROP SHED
384 SF FOOTPRINT
FFE=14.0±
EXIST CARRIAGE HOUSE TO BE REMOVED
49.3'
EXIST HORSE BARN TO REMAIN & EXIST HORSE BARN DECK TO BE REMOVED
76.1'
73.6'
EXIST 2-STORY BARN W/ ADDITION
2,806 SF FOOTPRINT
FFE(1ST FLOOR)=16.14±
HIGHEST OBSERVABLE TIDE LINE
SALT MARSH
FLOOD ZONE X
FLOOD ZONE AE (EL.8)
GRANITE BLOCK SEA WALL
SALT MARSH
EXIST WOODED AREA TO BE REMOVED UP TO PROPOSED TREELINE
PROP TREELINE (TYP)
EXIST BARN TO BE REMOVED
PROP BARN
722 SF FOOTPRINT
FFE=35.0±
SPIGOT
PLAY GROUND
HORSE BARN THRES=16.14
PAVED TENNIS COURT
GRANITE SLAB
EP
EP
EP

CONSTRUCTION SEQUENCE NOTES

TO MINIMIZE EROSION AND SEDIMENTATION DUE TO CONSTRUCTION, CONSTRUCTION SHALL FOLLOW THIS GENERAL CONSTRUCTION SEQUENCE.

MODIFICATIONS TO THE SEQUENCE NECESSARY DUE TO THE CONTRACTOR'S SCHEDULE SHALL INCLUDE APPROPRIATE TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL MEASURES.

THE CONTRACTOR SHALL SCHEDULE WORK SUCH THAT ANY CONSTRUCTION AREA IS STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE EXCEPT AS NOTED BELOW. NO MORE THAN 5 ACRES OF DISTURBED LAND SHALL BE UNSTABILIZED AT ANY ONE TIME.

THE PROJECT SHALL BE MANAGED SO THAT IT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER ARG 3800 RELATIVE TO INVASIVE SPECIES.

DO NOT TRAFFIC EXPOSED SOIL SURFACE OF INFILTRATION SYSTEMS WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

DO NOT DISCHARGE SEDIMENT–LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO STORMWATER BMP'S. STORMWATER RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMP'S ARE STABILIZED.

CONSTRUCTION SEQUENCE NOTES (CONTINUED)

DO NOT PLACE STORMWATER BMP'S INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.

AFTER THE INFILTRATION SYSTEM IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE THE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.

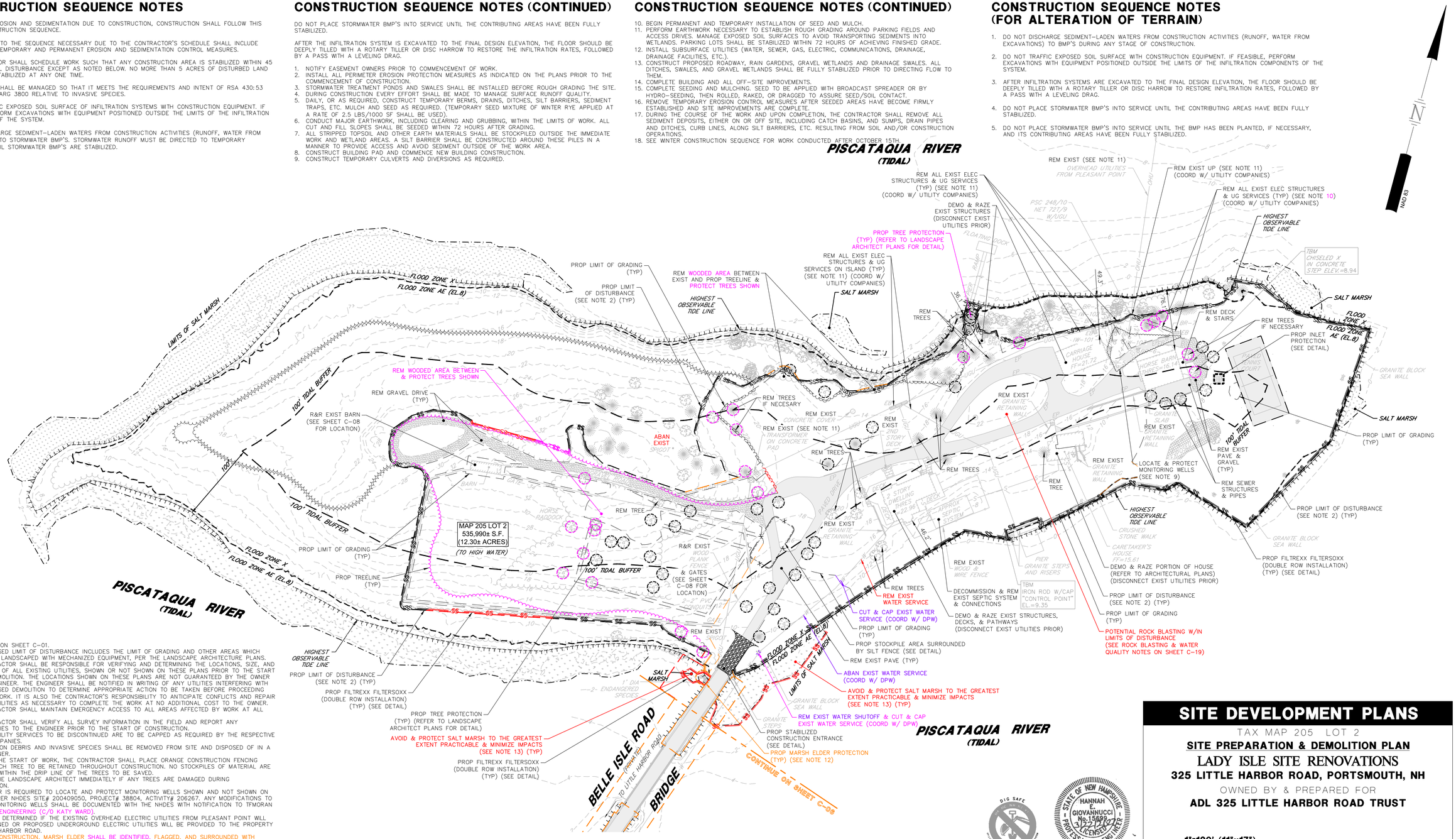
1. NOTIFY EASEMENT OWNERS PRIOR TO COMMENCEMENT OF WORK.
2. INSTALL ALL PERIMETER EROSION PROTECTION MEASURES AS INDICATED ON THE PLANS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
3. STORMWATER TREATMENT PONDS AND SWALES SHALL BE INSTALLED BEFORE ROUGH GRADING THE SITE.
4. DURING CONSTRUCTION EVERY EFFORT SHALL BE MADE TO MANAGE SURFACE RUNOFF QUALITY.
5. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SILT BARRIERS, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED. (TEMPORARY SEED MIXTURE OF WINTER RYE APPLIED AT A RATE OF 2.5 LBS/1000 SF SHALL BE USED).
6. CONDUCT MAJOR EARTHWORK, INCLUDING CLEARING AND GRUBBING, WITHIN THE LIMITS OF WORK. ALL CUT AND FILL SLOPES SHALL BE SEEDED WITHIN 72 HOURS AFTER GRADING.
7. ALL STRIPPED TOPSOIL AND OTHER EARTH MATERIALS SHALL BE STOCKPILED OUTSIDE THE IMMEDIATE WORK AND WETLAND AREAS. A SILT BARRIER SHALL BE CONSTRUCTED AROUND THESE PILES IN A MANNER TO PROVIDE ACCESS AND AVOID SEDIMENT OUTSIDE OF THE WORK AREA.
8. CONSTRUCT BUILDING PAD AND COMMENCE NEW BUILDING CONSTRUCTION.
9. CONSTRUCT TEMPORARY CULVERTS AND DIVERSIONS AS REQUIRED.

CONSTRUCTION SEQUENCE NOTES (CONTINUED)

10. BEGIN PERMANENT AND TEMPORARY INSTALLATION OF SEED AND MULCH.
11. PERFORM EARTHWORK NECESSARY TO ESTABLISH ROUGH GRADING AROUND PARKING FIELDS AND ACCESS DRIVES. MANAGE EXPOSED SOIL SURFACES TO AVOID TRANSPORTING SEDIMENTS INTO WETLANDS. PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
12. INSTALL SUBSURFACE UTILITIES (WATER, SEWER, GAS, ELECTRIC, COMMUNICATIONS, DRAINAGE, DRAINAGE FACILITIES, ETC.).
13. CONSTRUCT PROPOSED ROADWAY, RAIN GARDENS, GRAVEL WETLANDS AND DRAINAGE SWALES. ALL DITCHES, SWALES, AND GRAVEL WETLANDS SHALL BE FULLY STABILIZED PRIOR TO DIRECTING FLOW TO THEM.
14. COMPLETE BUILDING AND ALL OFF–SITE IMPROVEMENTS.
15. COMPLETE SEEDING AND MULCHING. SEED TO BE APPLIED WITH BROADCAST SPREADER OR BY HYDRO–SEEDING, THEN ROLLED, RAKED, OR DRAGGED TO ASSURE SEED/SOIL CONTACT.
16. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDED AREAS HAVE BECOME FIRMLY ESTABLISHED AND SITE IMPROVEMENTS ARE COMPLETE.
17. DURING THE COURSE OF THE WORK AND UPON COMPLETION, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT DEPOSITS, EITHER ON OR OFF SITE, INCLUDING CATCH BASINS, AND SUMPS, DRAIN PIPES AND DITCHES, CURB LINES, ALONG SILT BARRIERS, ETC. RESULTING FROM SOIL AND/OR CONSTRUCTION OPERATIONS.
18. SEE WINTER CONSTRUCTION SEQUENCE FOR WORK CONDUCTED AFTER OCTOBER 15TH.

CONSTRUCTION SEQUENCE NOTES (FOR ALTERATION OF TERRAIN)

1. DO NOT DISCHARGE SEDIMENT–LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO BMP'S DURING ANY STAGE OF CONSTRUCTION.
2. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
3. AFTER INFILTRATION SYSTEMS ARE EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
4. DO NOT PLACE STORMWATER BMP'S INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
5. DO NOT PLACE STORMWATER BMP'S INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED, IF NECESSARY, AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.



NOTES

1. SEE NOTES ON SHEET C–01.
2. THE PROPOSED LIMIT OF DISTURBANCE INCLUDES THE LIMIT OF GRADING AND OTHER AREAS WHICH WILL BE BE LANDSCAPED WITH MECHANIZED EQUIPMENT, PER THE LANDSCAPE ARCHITECTURE PLANS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATIONS, SIZE, AND ELEVATIONS OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS PRIOR TO THE START OF ANY DEMOLITION. THE LOCATIONS SHOWN ON THESE PLANS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED DEMOLITION TO DETERMINE APPROPRIATE ACTION TO BE TAKEN BEFORE PROCEEDING WITH THE WORK. IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO ANTICIPATE CONFLICTS AND REPAIR EXISTING UTILITIES AS NECESSARY TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
4. THE CONTRACTOR SHALL MAINTAIN EMERGENCY ACCESS TO ALL AREAS AFFECTED BY WORK AT ALL TIMES.
5. THE CONTRACTOR SHALL VERIFY ALL SURVEY INFORMATION IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO THE START OF CONSTRUCTION.
6. EXISTING UTILITY SERVICES TO BE DISCONTINUED ARE TO BE CAPPED AS REQUIRED BY THE RESPECTIVE UTILITY COMPANIES.
7. CONSTRUCTION DEBRIS AND INVASIVE SPECIES SHALL BE REMOVED FROM SITE AND DISPOSED OF IN A LEGAL MANNER.
8. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL PLACE ORANGE CONSTRUCTION FENCING AROUND EACH TREE TO BE RETAINED THROUGHOUT CONSTRUCTION. NO STOCKPILES OF MATERIAL ARE PERMITTED WITHIN THE DRIP LINE OF THE TREES TO BE SAVED.
9. CONTACT THE LANDSCAPE ARCHITECT IMMEDIATELY IF ANY TREES ARE DAMAGED DURING CONSTRUCTION.
10. CONTRACTOR IS REQUIRED TO LOCATE AND PROTECT MONITORING WELLS SHOWN AND NOT SHOWN ON THE PLAN PER NHDES SITE# 200409050, PROJECT# 38804, ACTIVITY# 206267. ANY MODIFICATIONS TO EXISTING MONITORING WELLS SHALL BE DOCUMENTED WITH THE NHDES WITH NOTIFICATION TO TFMORAN AND ARIES ENGINEERING (C/O KATY WARD).
11. IT IS TO BE DETERMINED IF THE EXISTING OVERHEAD ELECTRIC UTILITIES FROM PLEASANT POINT WILL BE MAINTAINED OR PROPOSED UNDERGROUND ELECTRIC UTILITIES WILL BE PROVIDED TO THE PROPERTY VIA LITTLE HARBOR ROAD.
12. PRIOR TO CONSTRUCTION, MARSH ELDER SHALL BE IDENTIFIED, FLAGGED, AND SURROUNDED WITH ORANGE CONSTRUCTION FENCING WITH YELLOW CAUTION TAPE FOR PROTECTION OF THE SPECIES. DO NOT REMOVE, MOW, TRAMPLE, COVER, OR OTHERWISE HARM THE PLANT. REMOVE FLAGS AND CONSTRUCTION FENCING AND CAUTION TAPE AFTER CONSTRUCTION IS COMPLETED.
13. TO THE GREATEST EXTENT PRACTICABLE, IMPACTS TO THE SALT MARSH SHALL BE MINIMIZED. EROSION CONTROLS SHALL BE INSTALLED, MONITORED, AND ADJUSTED AS REQUIRED THROUGHOUT THE DURATION OF THE PROJECT. UPON COMPLETION, DISTURBED AREAS SHALL BE REPLANTED WITH PLUGS OF SALTMARSH CORDGRASS (SPARTINA ALTERNIFLORA).

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HORIZONTAL SCALE 1"=60'
60 30 0 60

REV.	DATE	DESCRIPTION	DR	CK
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1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

DIG SAFE — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No. 15699 — LICENSED PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

SITE PREPARATION & DEMOLITION PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=120' (11"x17")
SCALE: 1"=60' (22"x34") **SEPTEMBER 29, 2021**

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
www.tfmoran.com

PROJECT	DR	HEG	FB	–	
47099.01	CK	JCC	CADFILE	47099-01_SITE PREP_MAIN	C–06

Mar 22, 2022 - 3:46pm
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NOTES

1. SEE NOTES ON SHEET C-01 & C-06.

SEWER INVERT TABLE				
TFM #	RIM EL.	INVERT ID:	INVERT EL.	SIZE/TYPE
4574	50.37	A	43.7'	8" PVC
		B	44.0'	8" PVC
4568	55.07	A	44.7'	8" PVC
		B	44.8'	8" PVC

CONTINUE BELOW ON RIGHT

POTENTIAL ROCK BLASTING W/IN LIMITS OF DISTURBANCE (SEE ROCK BLASTING & WATER QUALITY NOTES ON SHEET C-19)

MAP 204 LOT 5

PROP FILTREXX FILTERSOXX (DOUBLE ROW INSTALLATION) (TYP) (SEE DETAIL)

PROP LIMIT OF DISTURBANCE (SEE NOTE 2 ON SHEET C-06) (TYP)

5' TALL METAL PICKET FENCE

BELLE ISLE ROAD (PRIVATE)

12" CLAY INV.=16.35

GRANITE HEADWALL 12" CLAY INV.=18.12

100' TIDAL BUFFER

100' WETLAND BUFFER

REM EXIST PAVE (TYP)

ABAN EXIST WATER SERVICE (TYP)

PROP LIMIT OF DISTURBANCE (SEE NOTE 2 ON SHEET C-06) (TYP)

PROP FILTREXX FILTERSOXX (DOUBLE ROW INSTALLATION) (TYP) (SEE DETAIL)

MAP 204 LOT 7

FRESHWATER WETLAND

100'

100' TIDAL BUFFER

HIGHEST OBSERVABLE TIDE LINE

PISCATAQUA RIVER (TIDAL)

BELLE ISLE ROAD (PRIVATE) — TO LITTLE HARBOR ROAD

NAD 83

STEEL COLUMN (TYPICAL AT BRIDGE)

STEEL SUPERSTRUCTURE

STEEL MULTI-SPAN BRIDGE

PROP TEMP LIMIT OF DISTURBANCE FOR ACCESS TO CONSTRUCT SUSPENDED UTILITIES & BRIDGE REINFORCEMENT (TYP)

STONE & MORTAR RETAINING WALL ON CONCRETE BLOCK BASE

STONE WALL

PROP MARSH ELDER PROTECTION (TYP) (SEE NOTE 12 ON SHEET C-06)

1' DIA ENDANGERED SPECIES

PROP FILTREXX FILTERSOXX (DOUBLE ROW INSTALLATION) (TYP) (SEE DETAIL)

HEADWALL 12" RCP INV.=6.94

MAP 204 LOT 5

REM EXIST WATER SHUTOFF & CUT & CAP EXIST WATER SERVICE (COORD W/ DPW)

PROP TEMP BRIDGE & ABUTMENT REINFORCEMENT FOR CONSTRUCTION VEHICLES & H-20 LOADING (TO BE DESIGNED BY STRUCTURAL ENGINEER)

ABAN EXIST WATER SERVICE

SALT MARSH

1" DIA ENDANGERED SPECIES

2" PVC CONDUITS

FLOOD ZONE X

FLOOD ZONE AE (EL.8')

GRANITE BLOCK SEA WALL

GRANITE STEPS

HIGHEST OBSERVABLE TIDE LINE

EXPOSED LEDGE

STONE & MORTAR RETAINING WALL ON CONCRETE BLOCK BASE

CONTINUE ON SHEET C-07

PISCATAQUA RIVER (TIDAL)

BELLE ISLE ROAD (PRIVATE)

CONTINUE ABOVE ON LEFT

ABAN EXIST WATER SERVICE (TYP)

8" HDPE INV.=31.84

15" RCP INV.=32.74

MAP 204 LOT 7

POTENTIAL ROCK BLASTING W/IN LIMITS OF DISTURBANCE (SEE ROCK BLASTING & WATER QUALITY NOTES ON SHEET C-19)

MAP 204 LOT 5

REM EXIST PAVE (TYP)

PROP LIMIT OF DISTURBANCE (SEE NOTE 2 ON SHEET C-06) (TYP)

MAP 204 LOT 4

PROP FILTREXX FILTERSOXX (DOUBLE ROW INSTALLATION) (TYP) (SEE DETAIL)

PROP LIMIT OF DISTURBANCE (SEE NOTE 2 ON SHEET C-06) (TYP)

S&M COLUMN (TYPICAL)

PROP STABILIZED CONSTRUCTION ENTRANCE (SEE DETAIL)

MAP 204 LOT 6

NAD 83

MAP 204 LOT 1

PROP INLET PROTECTION (SEE DETAIL) (COORD W/ DPW)

PROP LIMIT OF DISTURBANCE (TYP) (COORD W/ DPW)

MAP 222 LOT 25

MAP 222 LOT 24

NET 22

PROP PAVEMENT SAWCUT (TYP) (COORD W/ DPW)

60 NET 23

PROP LIMIT OF DISTURBANCE (TYP) (COORD W/ DPW)

MAP 222 LOT 23

SAGAMORE AVENUE (PUBLIC R.O.W.)

MAP 222 LOT 7

MAP 222 LOT 8

MAP 222 LOT 6

MAP 222 LOT 1-1

MAP 204 LOT 9

MAP 204 LOT 16

MAP 204 LOT 10

CURRIERS COVE (PRIVATE)

PROP PAVEMENT SAWCUT THROUGH DRIVEWAYS (TYP) (COORD W/ DPW)

PROP LIMIT OF DISTURBANCE (TYP) (COORD W/ DPW)

36" CMP INV.=27.53

15" RCP INV.=28.41

PSNH 140 4 NET 4

PSNH 140 5 8T NET 60 5

PSNH 140 6 FP 6

PSNH 140 7 NET 60A 60 7

PSNH 140 8 V28 15T

PSNH 140 6A

PSNH 140 10 NET 60 10

ES 140-3 FP 60-3

140-1 65T

PSNH 136-22 FP 21

PSNH 136 24 NET 24

LITTLE HARBOR ROAD (PUBLIC R.O.W.)

PROP PAVEMENT SAWCUT (TYP) (COORD W/ DPW)

PROP LIMIT OF DISTURBANCE (TYP) (COORD W/ DPW)

TURN OFF CORPORATION STOP & CUT AND CAP EXISTING SERVICE LINE (COORD W/ DPW)

DIG SAFE — CALL 811 OR ONLINE PLANS MARKING REQUEST — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No. 15699 — 12/31/2022 — LICENSED PROFESSIONAL ENGINEER

HORIZONTAL SCALE 1"=60'
60 30 0 60

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SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

SITE PREPARATION & DEMOLITION PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=120' (11"x17")
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SEPTEMBER 29, 2021

Seacoast Division

TFM

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

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www.tfmoran.com

FILE	DR	HEG	FB	–	
47099.01	CK	JCC	CADFILE	47099-01_SITE PREP_MAIN	C-07

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SITE DATA

OWNER OF RECORD OF MAP 205 LOT 2: THE ADL 325 LITTLE HARBOR ROAD TRUST
STEPHEN H. ROBERTS ESQ., TRUSTEE
127 PARROTT AVENUE
PORTSMOUTH, NH 03801

DEED REFERENCE TO PARCEL IS BK 5959 PG 1244
AREA OF PARCEL = 535,990± SF OR 12.30± ACRES

ZONED: RURAL (R)
EXISTING USE: SINGLE-FAMILY DWELLING / ACCESSORY USE
PROPOSED USE: SINGLE-FAMILY DWELLING / ACCESSORY USE

THE PURPOSE OF THIS PLAN IS TO DEMOLISH THE EXISTING HOUSE, CARRIAGE HOUSE, AND PADDOCK TO CONSTRUCT A 2-STORY SINGLE-FAMILY HOME, GARAGE, POOL, POOL CABANA, PLAYGROUND, AND UTILITY CONNECTIONS VIA LITTLE HARBOR ROAD; RENOVATE AN EXISTING BARN AND GUEST COTTAGE; AND REPLACE AN EXISTING SHED AND BARN WITH A NEW SHED AND BARN. ASSOCIATED IMPROVEMENTS INCLUDE AND ARE NOT LIMITED TO ACCESS, GRADING, STORMWATER MANAGEMENT SYSTEMS, UTILITIES, AND LANDSCAPING.

DIMENSIONAL REQUIREMENTS (CURRENT ZONING)

	REQUIRED:	PROVIDED:
MINIMUM LOT DIMENSIONS:		
LOT AREA	5 AC (PER DWELLING UNIT)	12.30± AC (TOTAL)
MINIMUM YARD DIMENSIONS:		
FRONT	50 FT	>50 FT
SIDE	20 FT	>20 FT
REAR	40 FT	>40 FT
MAXIMUM STRUCTURE DIMENSIONS:		
STRUCTURE HEIGHT	35 FT	<35 FT
BUILDING COVERAGE	5%	4.1%
MINIMUM OPEN SPACE	75%	92%±

SNOW STORAGE CALCULATIONS

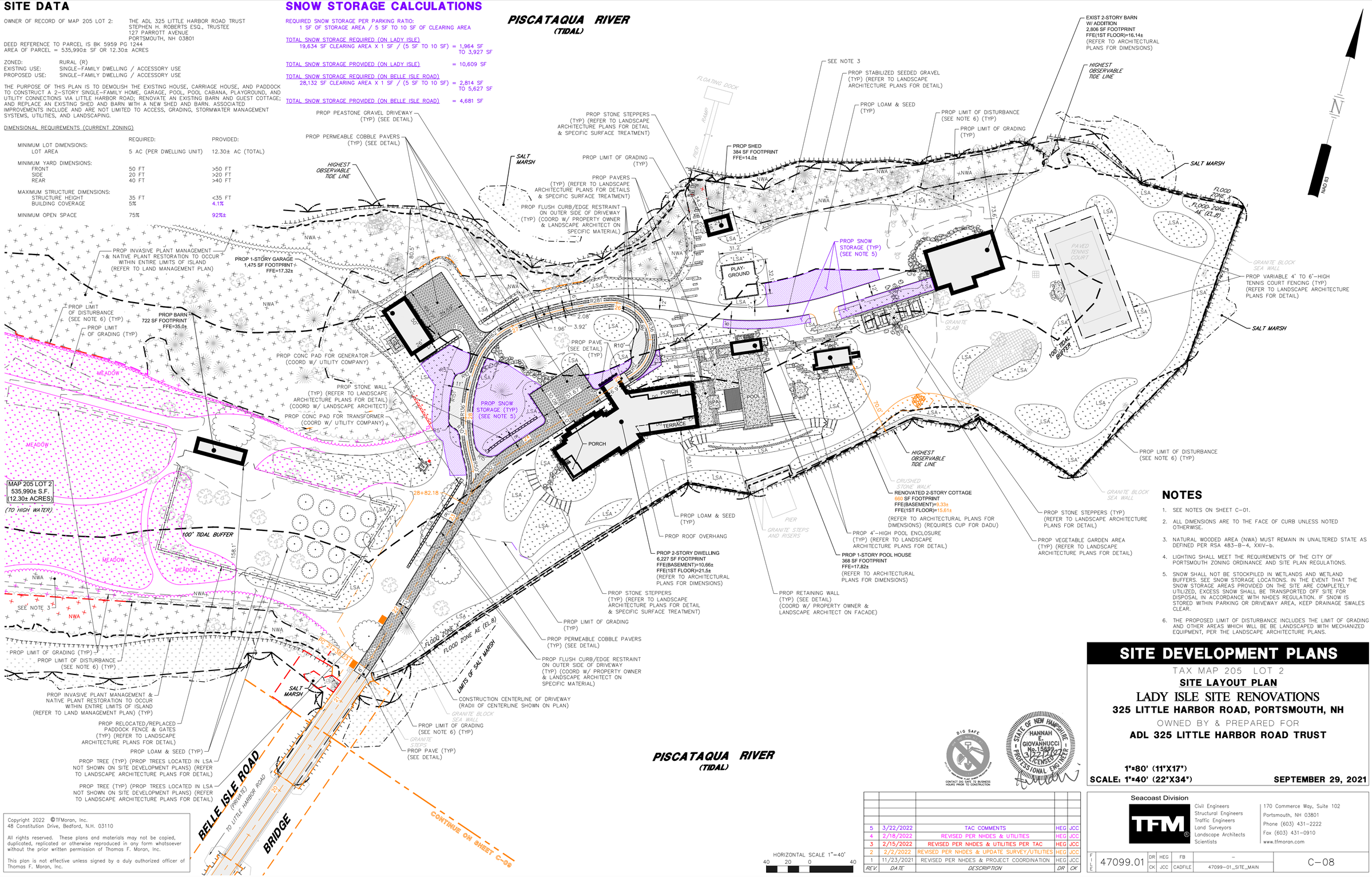
REQUIRED SNOW STORAGE PER PARKING RATIO:
1 SF OF STORAGE AREA / 5 SF TO 10 SF OF CLEARING AREA

TOTAL SNOW STORAGE REQUIRED (ON LADY ISLE)
19,634 SF CLEARING AREA X 1 SF / (5 SF TO 10 SF) = 1,964 SF TO 3,927 SF

TOTAL SNOW STORAGE PROVIDED (ON LADY ISLE) = 10,609 SF

TOTAL SNOW STORAGE REQUIRED (ON BELLE ISLE ROAD)
28,132 SF CLEARING AREA X 1 SF / (5 SF TO 10 SF) = 2,814 SF TO 5,627 SF

TOTAL SNOW STORAGE PROVIDED (ON BELLE ISLE ROAD) = 4,681 SF



NOTES

1. SEE NOTES ON SHEET C-01.
2. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS NOTED OTHERWISE.
3. NATURAL WOODED AREA (NWA) MUST REMAIN IN UNALTERED STATE AS DEFINED PER RSA 483-B-4, XXIV-b.
4. LIGHTING SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH ZONING ORDINANCE AND SITE PLAN REGULATIONS.
5. SNOW SHALL NOT BE STOCKPILED IN WETLANDS AND WETLAND BUFFERS. SEE SNOW STORAGE LOCATIONS. IN THE EVENT THAT THE SNOW STORAGE AREAS PROVIDED ON THE SITE ARE COMPLETELY UTILIZED, EXCESS SNOW SHALL BE TRANSPORTED OFF SITE FOR DISPOSAL IN ACCORDANCE WITH NHDES REGULATION. IF SNOW IS STORED WITHIN PARKING OR DRIVEWAY AREA, KEEP DRAINAGE SWALES CLEAR.
6. THE PROPOSED LIMIT OF DISTURBANCE INCLUDES THE LIMIT OF GRADING AND OTHER AREAS WHICH WILL BE BE LANDSCAPED WITH MECHANIZED EQUIPMENT, PER THE LANDSCAPE ARCHITECTURE PLANS.

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40 20 0 40

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DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No. 15698
LICENSED PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

SITE LAYOUT PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=80' (11"X17")
SCALE: 1"=40' (22"X34") SEPTEMBER 29, 2021

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
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Portsmouth, NH 03801
Phone (603) 431-2222
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FILE	DR	HEG	FB	–	C-08
47099.01	CK	JCC	CADFILE	47099-01_SITE_MAIN	

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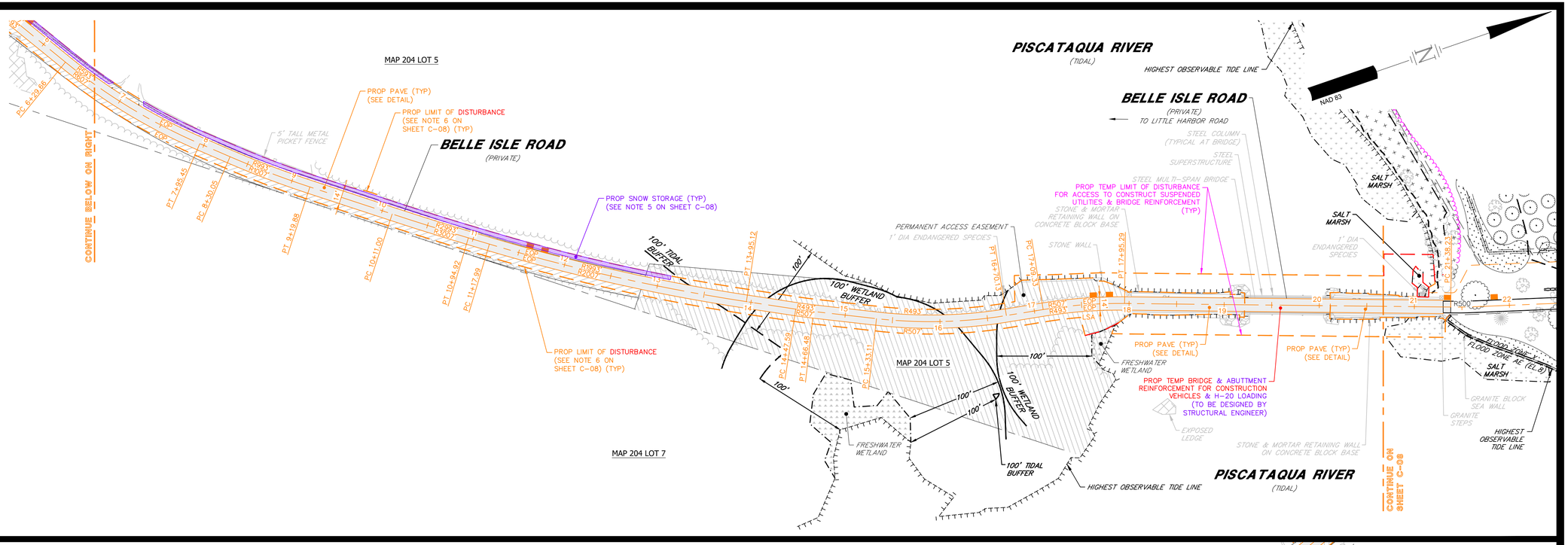
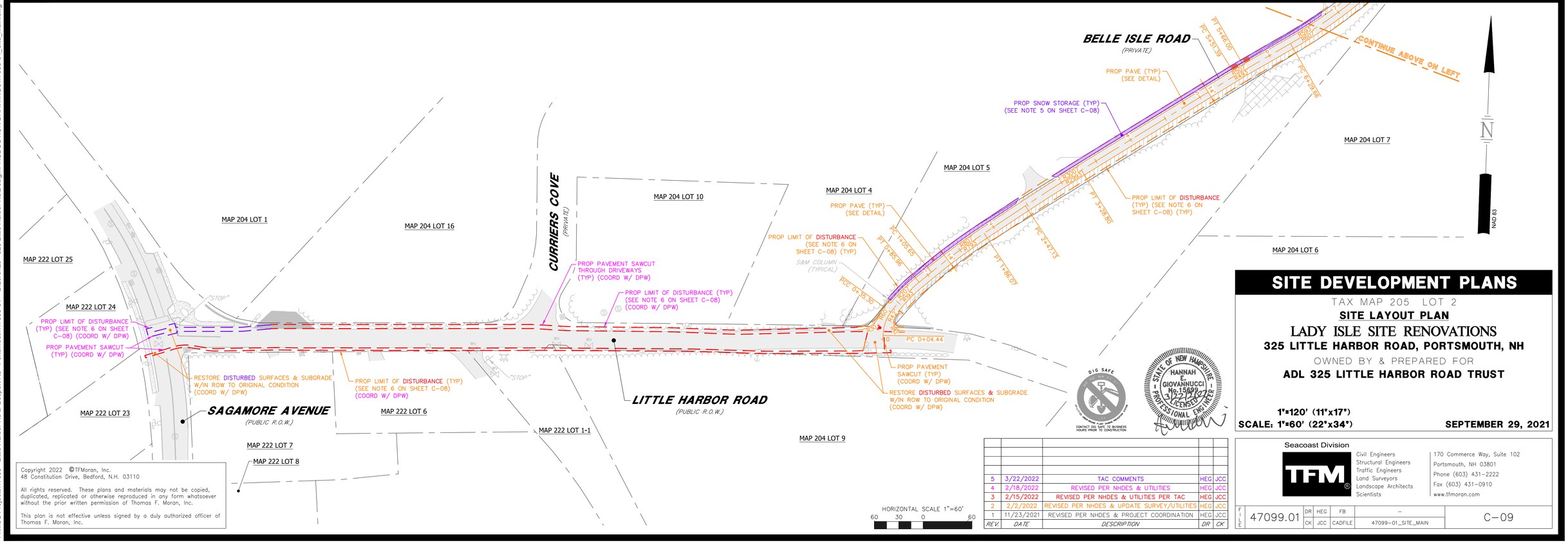
NOTES

1. SEE NOTES ON SHEET C-01 AND C-08.





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DIG SAFE — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No. 15690 — LICENSED PROFESSIONAL ENGINEER

Mar 22, 2022 - 3:47pm
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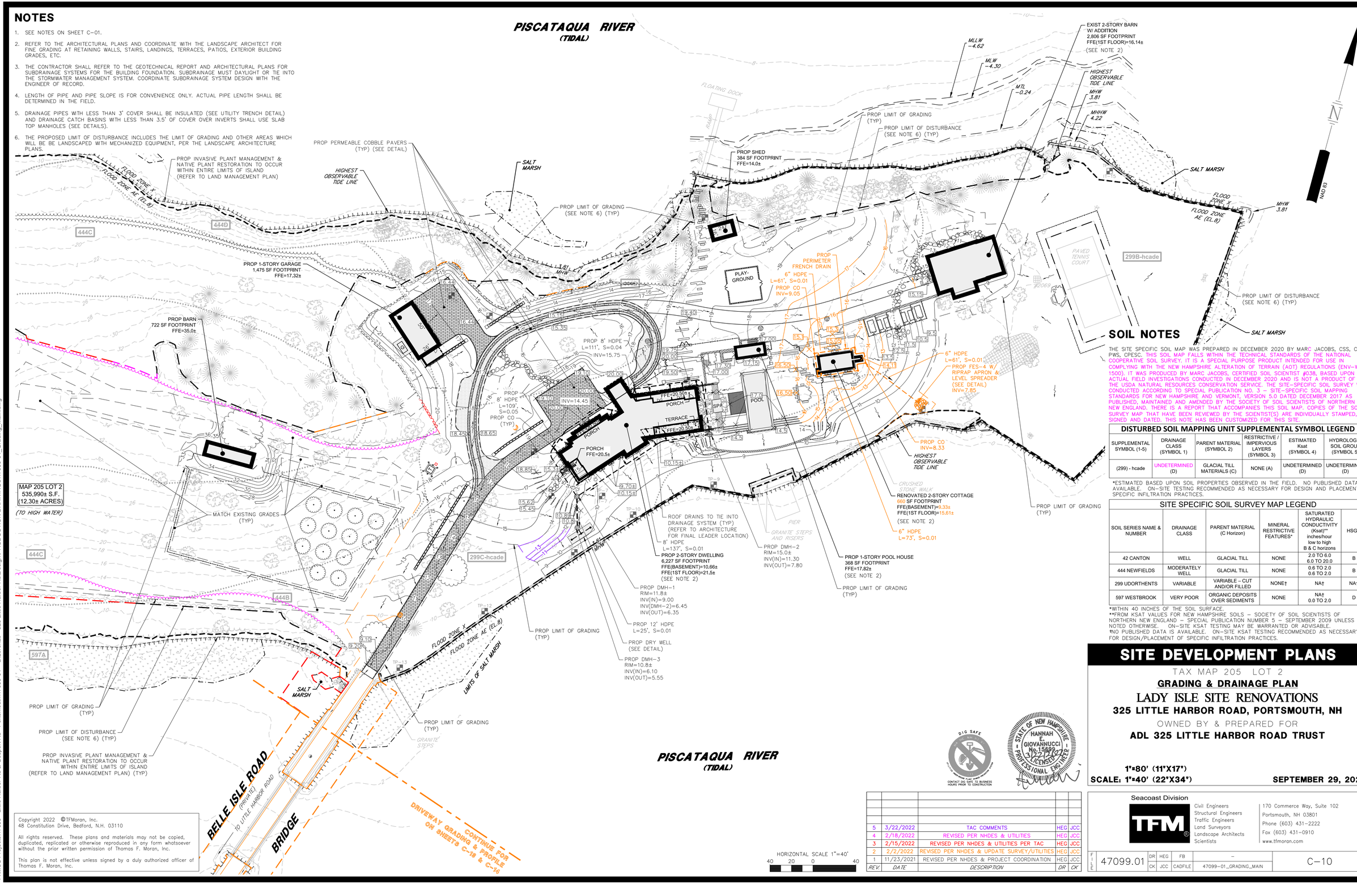
NOTES

1. SEE NOTES ON SHEET C-01.
2. REFER TO THE ARCHITECTURAL PLANS AND COORDINATE WITH THE LANDSCAPE ARCHITECT FOR FINE GRADING AT RETAINING WALLS, STAIRS, LANDINGS, TERRACES, PATIOS, EXTERIOR BUILDING GRADES, ETC.
3. THE CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT AND ARCHITECTURAL PLANS FOR SUBDRAINAGE SYSTEMS FOR THE BUILDING FOUNDATION. SUBDRAINAGE MUST DAYLIGHT OR TIE INTO THE STORMWATER MANAGEMENT SYSTEM. COORDINATE SUBDRAINAGE SYSTEM DESIGN WITH THE ENGINEER OF RECORD.
4. LENGTH OF PIPE AND PIPE SLOPE IS FOR CONVENIENCE ONLY. ACTUAL PIPE LENGTH SHALL BE DETERMINED IN THE FIELD.
5. DRAINAGE PIPES WITH LESS THAN 3' COVER SHALL BE INSULATED (SEE UTILITY TRENCH DETAIL) AND DRAINAGE CATCH BASINS WITH LESS THAN 3.5' OF COVER OVER INVERTS SHALL USE SLAB TOP MANHOLES (SEE DETAILS).
6. THE PROPOSED LIMIT OF DISTURBANCE INCLUDES THE LIMIT OF GRADING AND OTHER AREAS WHICH WILL BE BE LANDSCAPED WITH MECHANIZED EQUIPMENT, PER THE LANDSCAPE ARCHITECTURE PLANS.



SOIL NOTES

THE SITE SPECIFIC SOIL MAP WAS PREPARED IN DECEMBER 2020 BY MARC JACOBS, CSS, CWS, PWS, CPESC. THIS SOIL MAP FALLS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT INTENDED FOR USE IN COMPLYING WITH THE NEW HAMPSHIRE ALTERATION OF TERRAIN (AOT) REGULATIONS (ENV-WQ 1500). IT WAS PRODUCED BY MARC JACOBS, CERTIFIED SOIL SCIENTIST #038, BASED UPON ACTUAL FIELD INVESTIGATIONS CONDUCTED IN DECEMBER 2020 AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THE SITE-SPECIFIC SOIL SURVEY WAS CONDUCTED ACCORDING TO SPECIAL PUBLICATION NO. 3 – SITE-SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT, VERSION 5.0 DATED DECEMBER 2017 AS PUBLISHED, MAINTAINED AND AMENDED BY THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND. THERE IS A REPORT THAT ACCOMPANIES THIS SOIL MAP. COPIES OF THE SOIL SURVEY MAP THAT HAVE BEEN REVIEWED BY THE SCIENTIST(S) ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS SITE.

DISTURBED SOIL MAPPING UNIT SUPPLEMENTAL SYMBOL LEGEND

SUPPLEMENTAL SYMBOL (1-5)	DRAINAGE CLASS (SYMBOL 1)	PARENT MATERIAL (SYMBOL 2)	RESTRICTIVE / IMPERVIOUS LAYERS (SYMBOL 3)	ESTIMATED Ksat (SYMBOL 4)	HYDROLOGIC SOIL GROUP (SYMBOL 5)
(299) - hcade	UNDETERMINED (D)	GLACIAL TILL MATERIALS (C)	NONE (A)	UNDETERMINED (D)	UNDETERMINED (D)

*ESTIMATED BASED UPON SOIL PROPERTIES OBSERVED IN THE FIELD. NO PUBLISHED DATA AVAILABLE. ON-SITE TESTING RECOMMENDED AS NECESSARY FOR DESIGN AND PLACEMENT OF SPECIFIC INFILTRATION PRACTICES.

SITE SPECIFIC SOIL SURVEY MAP LEGEND

SOIL SERIES NAME & NUMBER	DRAINAGE CLASS	PARENT MATERIAL (C Horizon)	MINERAL RESTRICTIVE FEATURES*	SATURATED HYDRAULIC CONDUCTIVITY (Ksat)** inches/hour low to high B & C horizons	HSG**
42 CANTON	WELL	GLACIAL TILL	NONE	2.0 TO 6.0 6.0 TO 20.0	B
444 NEWFIELDS	MODERATELY WELL	GLACIAL TILL	NONE	0.6 TO 2.0 0.6 TO 2.0	B
299 UDORTHENTS	VARIABLE	VARIABLE – CUT AND/OR FILLED	NONE†	NA†	NA†
597 WESTBROOK	VERY POOR	ORGANIC DEPOSITS OVER SEDIMENTS	NONE	NA† 0.0 TO 2.0	D

*WITHIN 40 INCHES OF THE SOIL SURFACE.
**FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS – SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND – SPECIAL PUBLICATION NUMBER 5 – SEPTEMBER 2009 UNLESS NOTED OTHERWISE. ON-SITE KSAT TESTING MAY BE WARRANTED OR ADVISABLE.
†NO PUBLISHED DATA IS AVAILABLE. ON-SITE KSAT TESTING RECOMMENDED AS NECESSARY FOR DESIGN/PLACEMENT OF SPECIFIC INFILTRATION PRACTICES.

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

GRADING & DRAINAGE PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=80' (11"X17")
SCALE: 1"=40' (22"X34")

SEPTEMBER 29, 2021

DIG SAFE SYSTEM, INC. — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No. 15690 — 2/22/22 — LICENSED PROFESSIONAL ENGINEER

HORIZONTAL SCALE 1"=40'
40 20 0 40

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FILE	DR	HEG	FB	–	
47099.01	CK	JCC	CADFILE	47099-01_GRADING_MAIN	C-10

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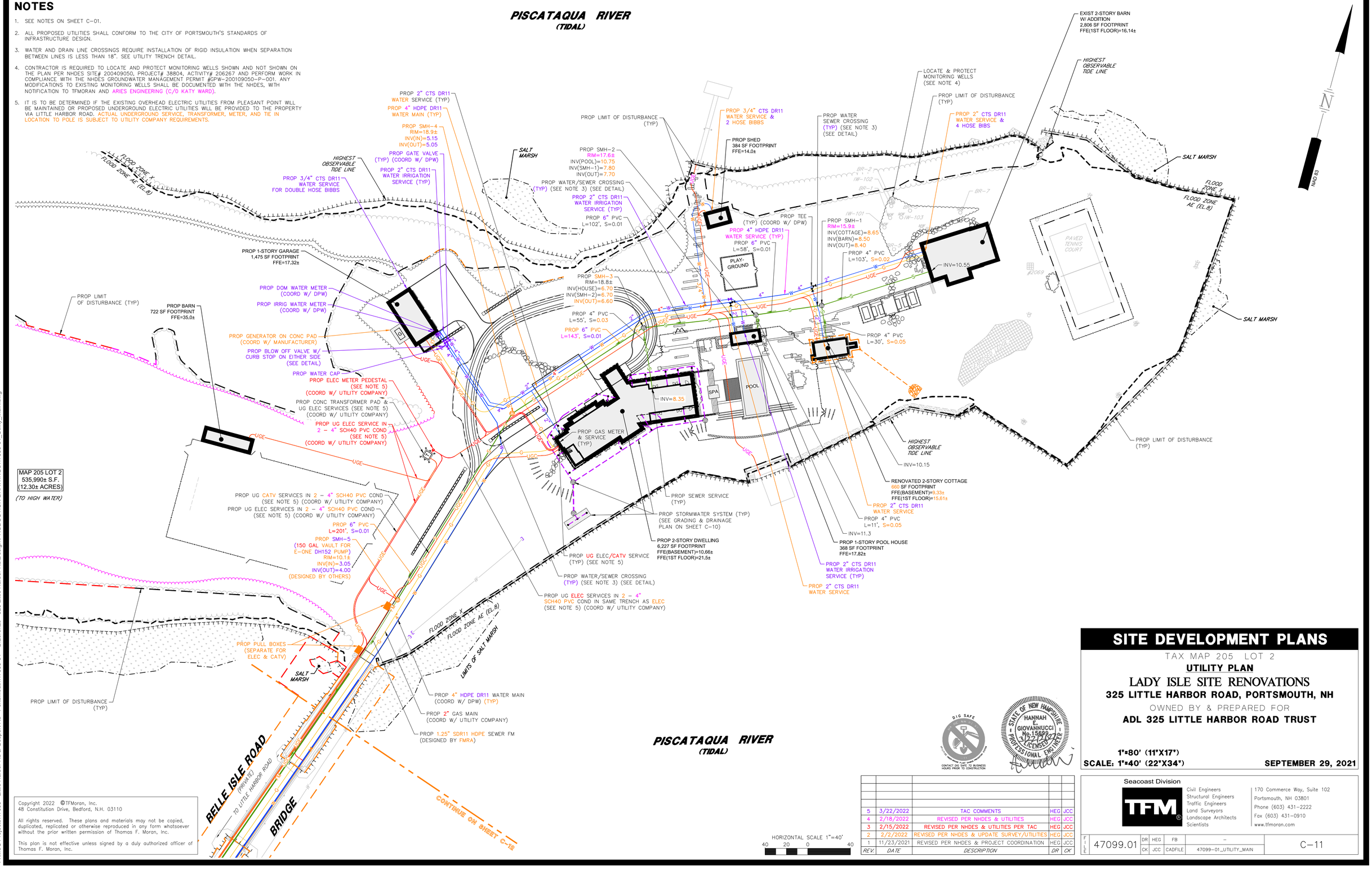
NOTES

1. SEE NOTES ON SHEET C-01.
2. ALL PROPOSED UTILITIES SHALL CONFORM TO THE CITY OF PORTSMOUTH'S STANDARDS OF INFRASTRUCTURE DESIGN.
3. WATER AND DRAIN LINE CROSSINGS REQUIRE INSTALLATION OF RIGID INSULATION WHEN SEPARATION BETWEEN LINES IS LESS THAN 18". SEE UTILITY TRENCH DETAIL.
4. CONTRACTOR IS REQUIRED TO LOCATE AND PROTECT MONITORING WELLS SHOWN AND NOT SHOWN ON THE PLAN PER NHDES SITE# 200409050, PROJECT# 38804, ACTIVITY# 206267 AND PERFORM WORK IN COMPLIANCE WITH THE NHDES GROUNDWATER MANAGEMENT PERMIT #GPW-200109050-P-001. ANY MODIFICATIONS TO EXISTING MONITORING WELLS SHALL BE DOCUMENTED WITH THE NHDES, WITH NOTIFICATION TO TFMORAN AND ARIES ENGINEERING (C/O KATY WARD).
5. IT IS TO BE DETERMINED IF THE EXISTING OVERHEAD ELECTRIC UTILITIES FROM PLEASANT POINT WILL BE MAINTAINED OR PROPOSED UNDERGROUND ELECTRIC UTILITIES WILL BE PROVIDED TO THE PROPERTY VIA LITTLE HARBOR ROAD. ACTUAL UNDERGROUND SERVICE, TRANSFORMER, METER, AND TIE IN LOCATION TO POLE IS SUBJECT TO UTILITY COMPANY REQUIREMENTS.



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HORIZONTAL SCALE 1"=40'
40 20 0 40

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1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

DIG SAFE — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No. 15699 — LICENSED PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

UTILITY PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=80' (11"X17")
SCALE: 1"=40' (22"X34") SEPTEMBER 29, 2021

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
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47099.01	CK	JCC	CADFILE	47099-01_UTILITY_MAIN	C-11

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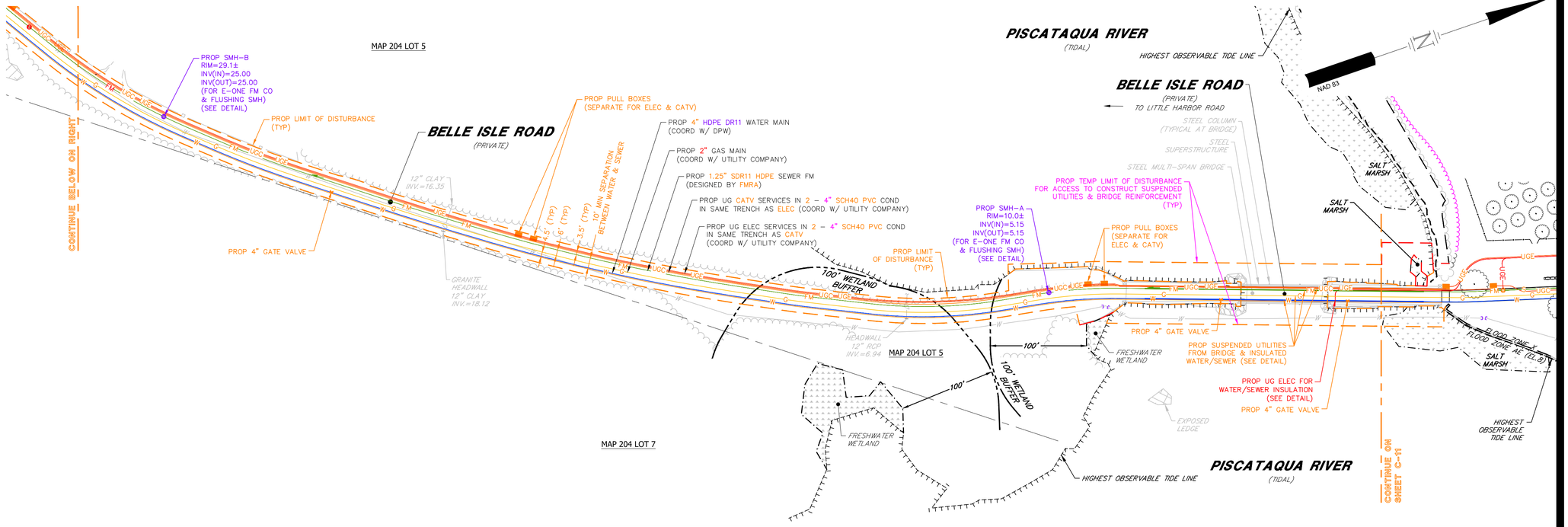
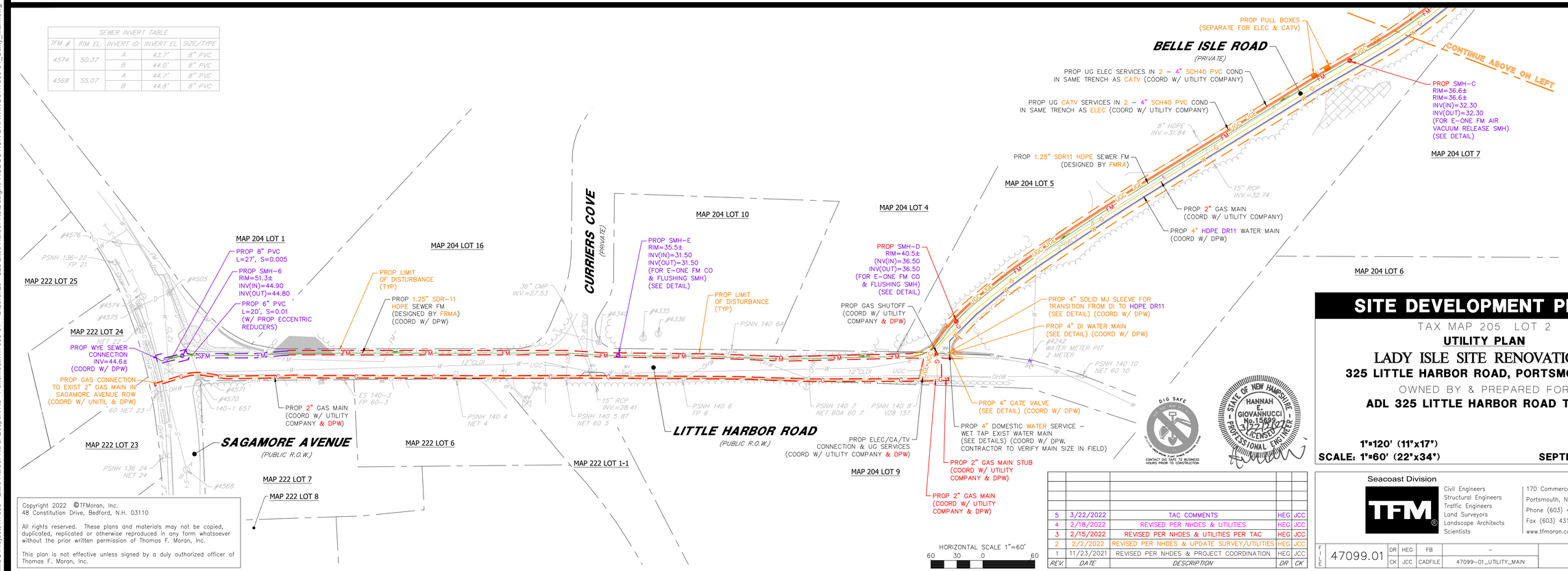
NOTES

1. SEE NOTES ON SHEET C-01 & C-12.





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SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

UTILITY PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

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SEPTEMBER 29, 2021

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FILE	47099.01	DR	HEG	FB	–	C-12
		CK	JCC	CADFILE	47099-01_UTILITY_MAIN	

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NOTES

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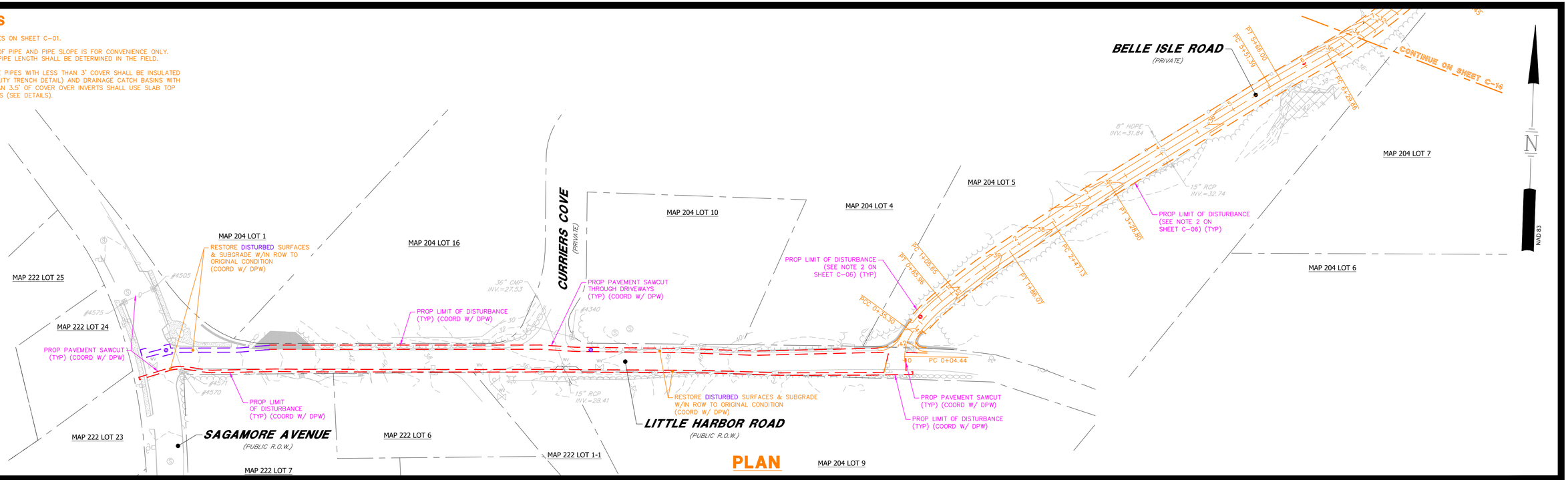
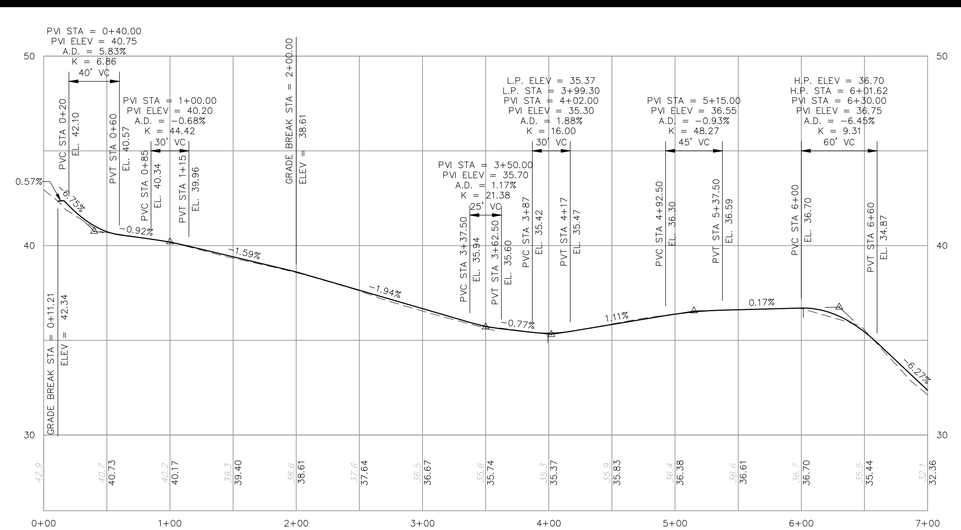
3. DRAINAGE PIPES WITH LESS THAN 3' COVER SHALL BE INSULATED (SEE UTILITY TRENCH DETAIL) AND DRAINAGE CATCH BASINS WITH LESS THAN 3.5' OF COVER OVER INVERTS SHALL USE SLAB TOP MANHOLES (SEE DETAILS).



PLAN



BELLE ISLE ROAD PROFILE

HORIZONTAL SCALE 1"=60'
60 30 0 60
VERTICAL SCALE 1"=4'
4 0 4

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STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No. 15698
LICENSED
PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DRIVEWAY GRADING & PROFILE

LADY ISLE SITE RENOVATIONS

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47099.01	CK	JCC	CADFILE	47099-01_PROFILE_DRIVEWAY	C-13

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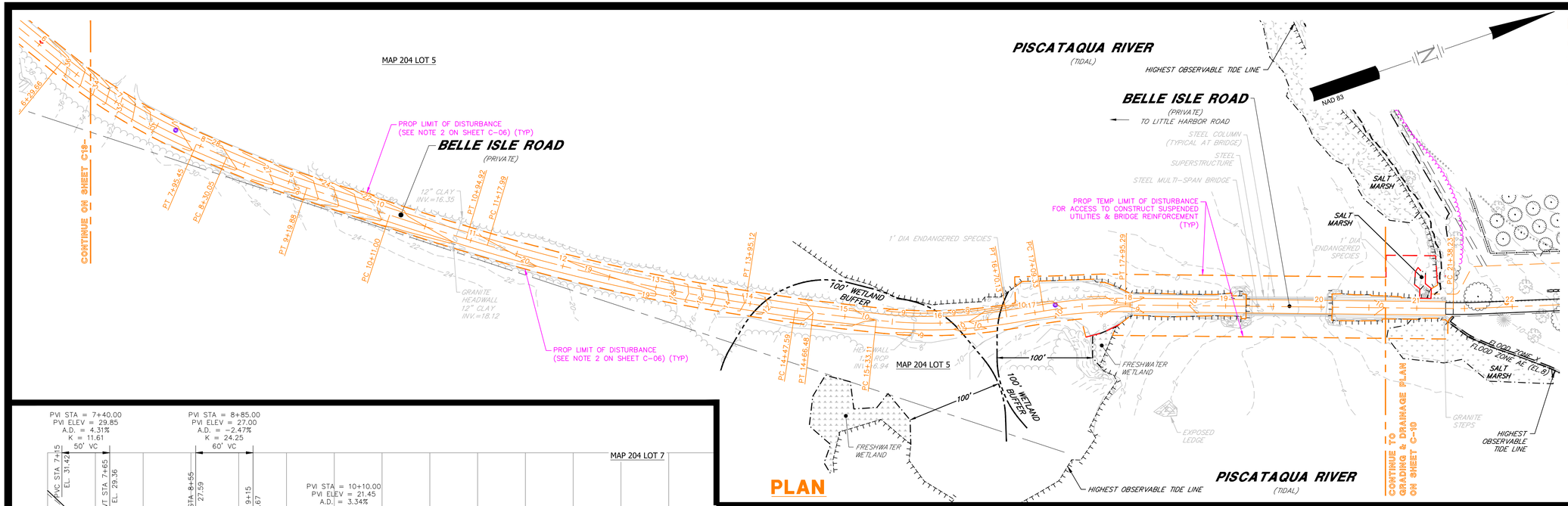

PLAN

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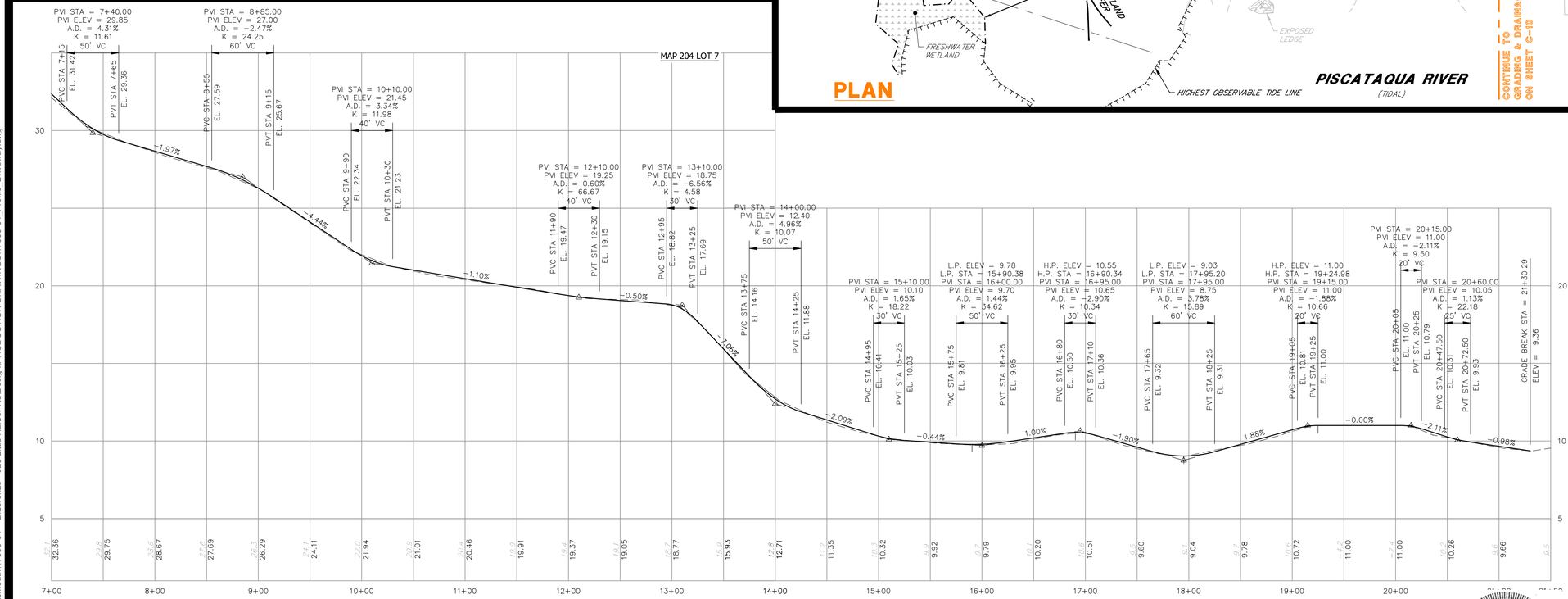

BELLE ISLE ROAD PROFILE

HORIZONTAL SCALE 1"=60'
VERTICAL SCALE 1"=4'

REV.	DATE	DESCRIPTION	DR	CK
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STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI — No. 15698 — LICENSED PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DRIVEWAY GRADING & PROFILE

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SEPTEMBER 29, 2021

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FILE					
47099.01	DR	HEG	FB	–	C-14
	CK	JCC	CADFILE	47099-01_PROFILE_DRIVEWAY	

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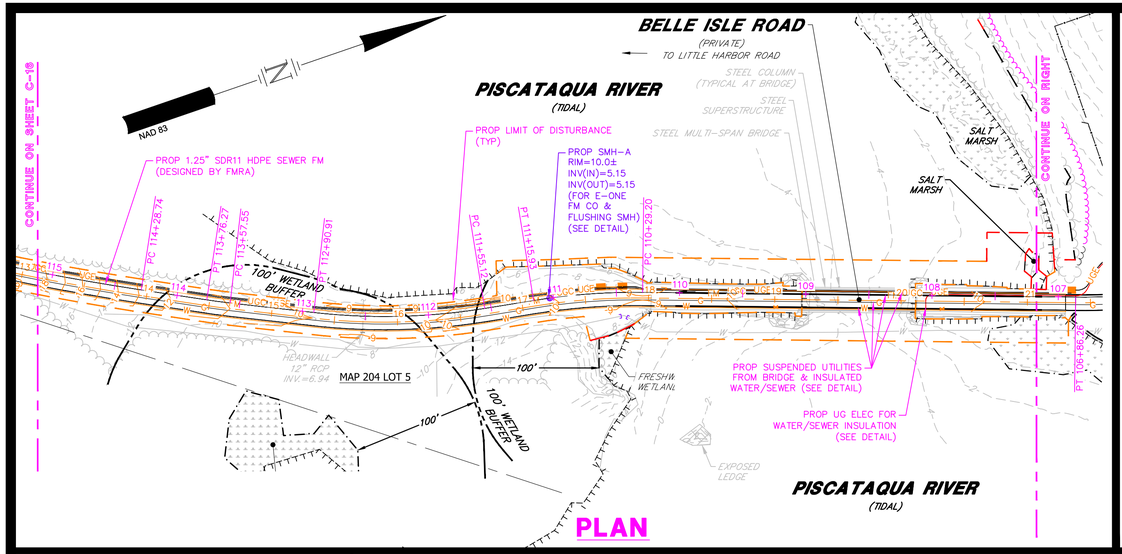

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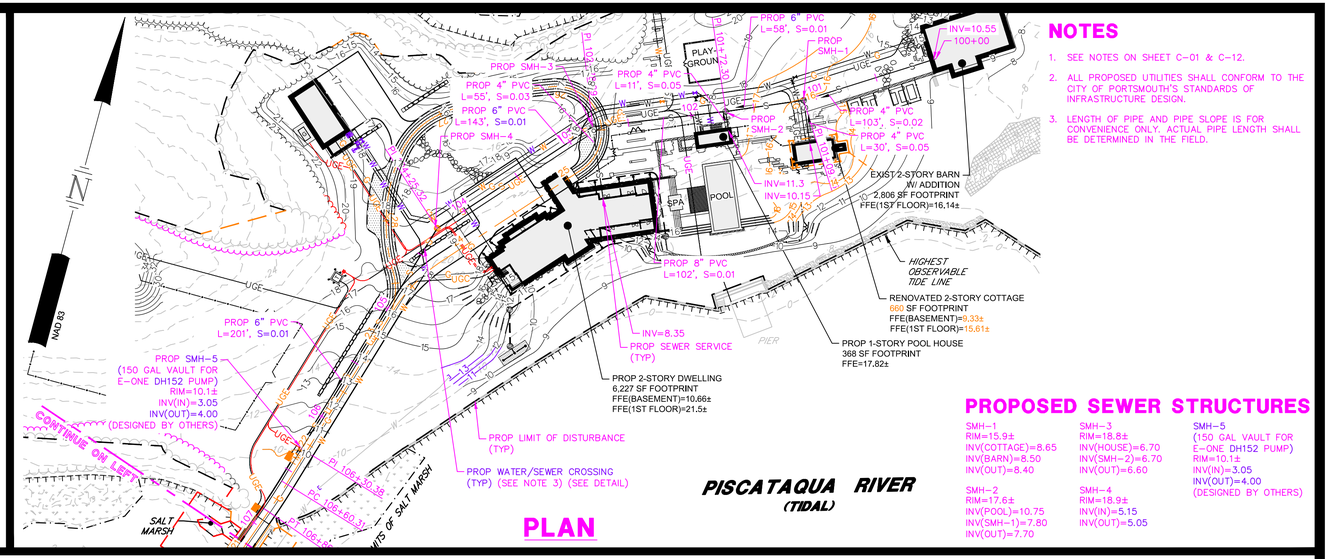

PLAN

NOTES

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PROPOSED SEWER STRUCTURES

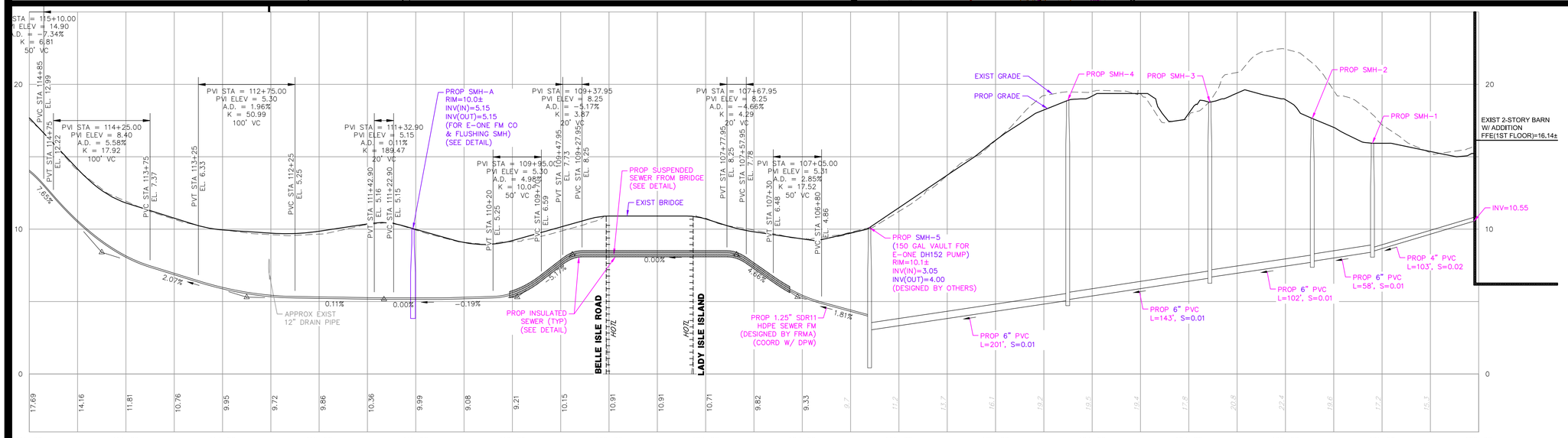
SMH-1
RIM=15.9±
INV(COTTAGE)=8.65
INV(BARN)=8.50
INV(OUT)=8.40

SMH-2
RIM=17.6±
INV(POOL)=10.75
INV(SMH-1)=7.80
INV(OUT)=7.70

SMH-3
RIM=18.8±
INV(HOUSE)=6.70
INV(SMH-2)=6.70
INV(OUT)=6.60

SMH-4
RIM=18.9±
INV(IN)=5.15
INV(OUT)=5.05

SMH-5
(150 GAL VAULT FOR E-ONE DH152 PUMP)
RIM=10.1±
INV(IN)=3.05
INV(OUT)=4.00
(DESIGNED BY OTHERS)



SEWER PROFILE

HORIZONTAL SCALE 1"=40'
40 20 0 40

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

SEWER PROFILE

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STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No. 15698
LICENSED PROFESSIONAL ENGINEER

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FILE	DR	CK	FB	CADFILE	–	SHEET
47099.01	HEG	JCC		47099-01_PROFILE_SEWER		C-15

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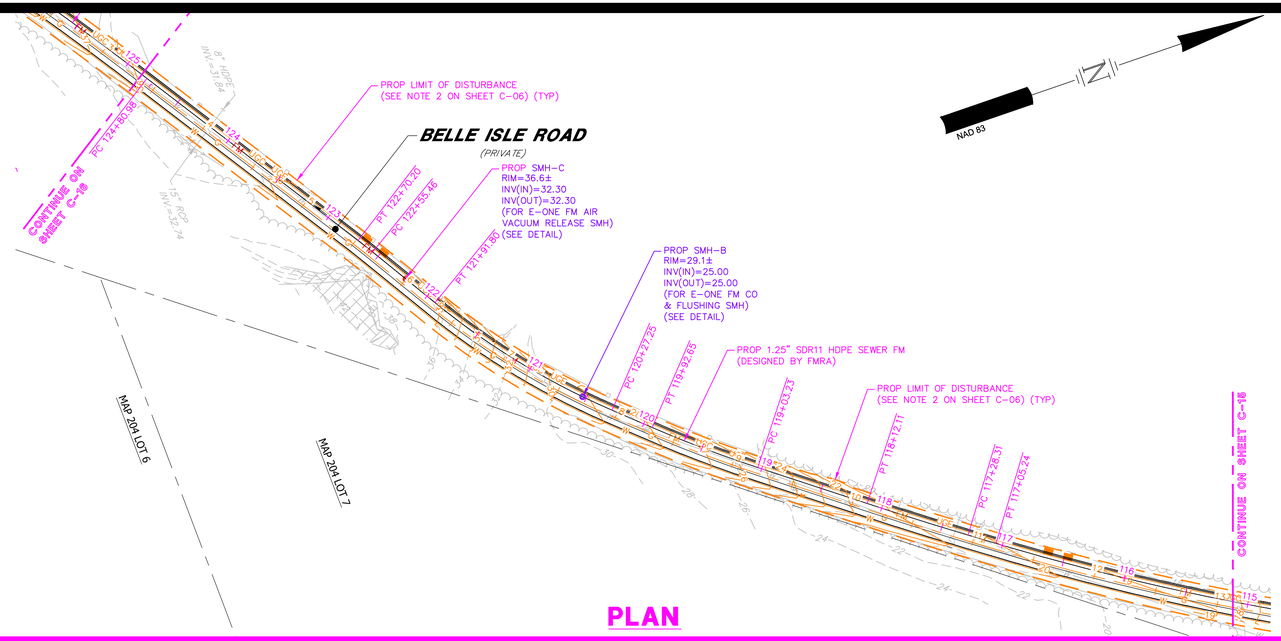
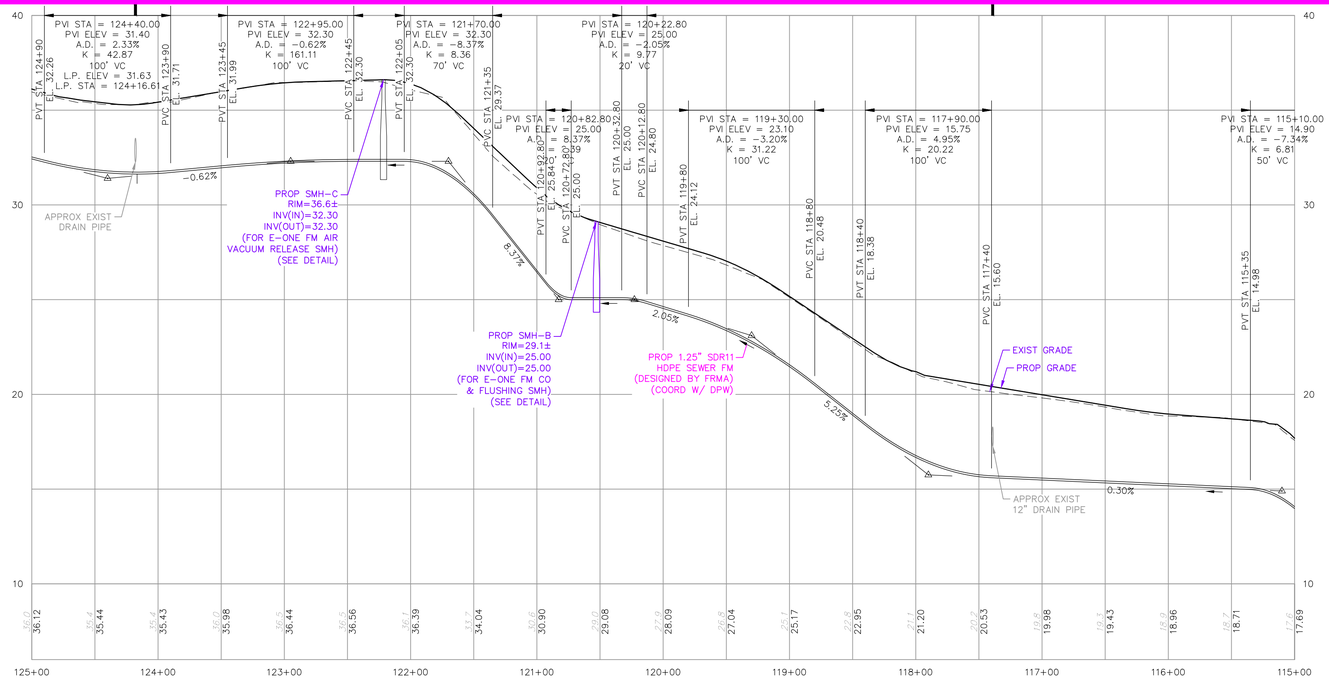


PLAN



SEWER FORCE MAIN PROFILE

NOTES

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SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

SEWER PROFILE

LADY ISLE SITE RENOVATIONS

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VERTICAL SCALE 1"=4'

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DIG SAFE
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HANNAH E. GIOVANNUCCI No. 15697 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

Mar 22, 2022 - 4:12pm
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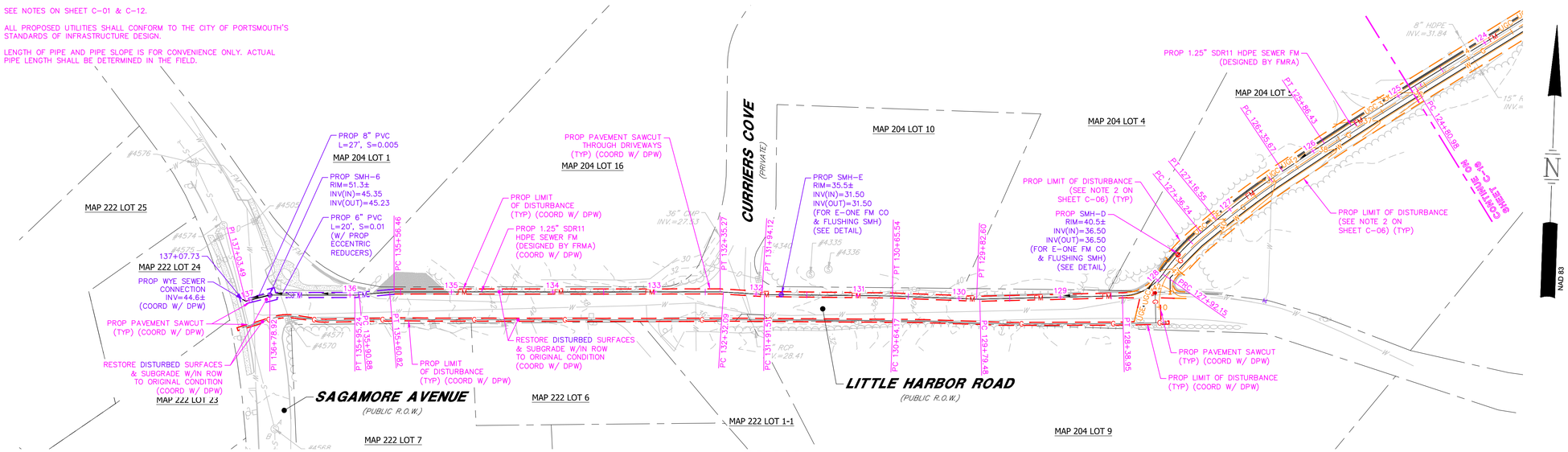
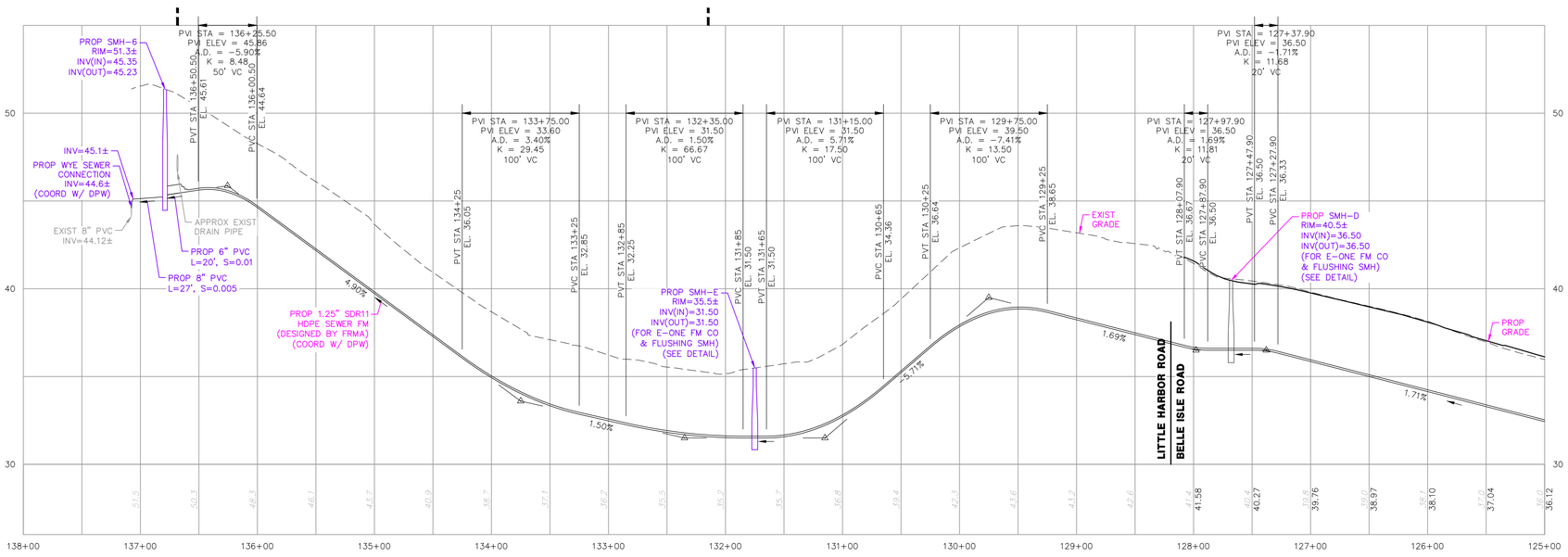


PLAN



SEWER PROFILE

HORIZONTAL SCALE 1"=60'
VERTICAL SCALE 1"=4'

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STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No. 15699 — 3/22/22 LICENSED PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

SEWER PROFILE

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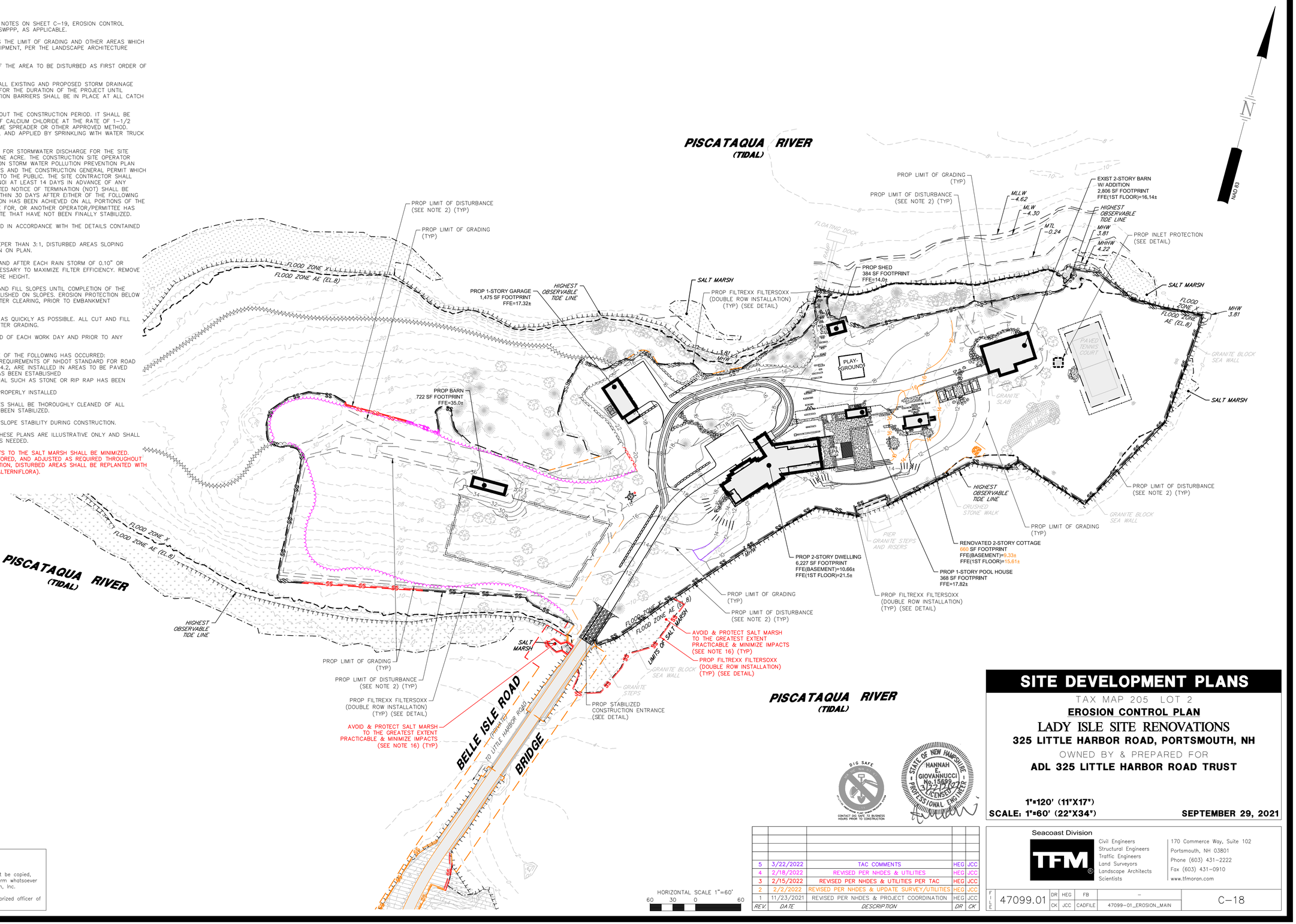
NOTES

1. SEE NOTES ON SHEET C-01, EROSION CONTROL NOTES ON SHEET C-19, EROSION CONTROL DETAILS ON SHEET C-20, AND THE APPROVED SWPPP, AS APPLICABLE.
2. THE PROPOSED LIMIT OF DISTURBANCE INCLUDES THE LIMIT OF GRADING AND OTHER AREAS WHICH WILL BE BE LANDSCAPED WITH MECHANIZED EQUIPMENT, PER THE LANDSCAPE ARCHITECTURE PLANS.
3. INSTALL SILT BARRIER ALONG THE PERIMETER OF THE AREA TO BE DISTURBED AS FIRST ORDER OF WORK.
4. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS WTHIN THE WORK LIMITS AND MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED. INLET PROTECTION BARRIERS SHALL BE IN PLACE AT ALL CATCH BASINS PRIOR TO THE DISTURBANCE OF SOIL.
5. DUST CONTROL SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. IT SHALL BE ACCOMPLISHED BY THE UNIFORM APPLICATION OF CALCIUM CHLORIDE AT THE RATE OF 1-1/2 POUNDS PER SQUARE YARD BY MEANS OF A LIME SPREADER OR OTHER APPROVED METHOD. WATER MAY ALSO BE USED FOR DUST CONTROL, AND APPLIED BY SPRINKLING WITH WATER TRUCK DISTRIBUTORS, AS REQUIRED.
6. THE SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE SITE CONSTRUCTION IF THE DISTURBANCE EXCEEDS ONE ACRE. THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH EPA REGULATIONS AND THE CONSTRUCTION GENERAL PERMIT WHICH SHALL REMAIN ON SITE AND MADE ACCESSIBLE TO THE PUBLIC. THE SITE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO SUBMIT AN eNOI AT LEAST 14 DAYS IN ADVANCE OF ANY EARTHWORK ACTIVITIES AT THE SITE. A COMPLETED NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET: FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE FOR, OR ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
7. SILT PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS CONTAINED IN THIS PLAN SET.
8. CONSTRUCT JUTE MATTING ON ALL SLOPES STEEPER THAN 3:1, DISTURBED AREAS SLOPING TOWARDS WETLANDS AND ALL LOCATIONS SHOWN ON PLAN.
9. INSPECT EROSION CONTROL MEASURES WEEKLY AND AFTER EACH RAIN STORM OF 0.10" OR GREATER. REPAIR/MODIFY SILT BARRIER AS NECESSARY TO MAXIMIZE FILTER EFFICIENCY. REMOVE SEDIMENT WHEN SEDIMENT IS 1/3 THE STRUCTURE HEIGHT.
10. PROVIDE SILT BARRIERS AT THE BASE OF CUT AND FILL SLOPES UNTIL COMPLETION OF THE PROJECT OR UNTIL VEGETATION BECOMES ESTABLISHED ON SLOPES. EROSION PROTECTION BELOW FILL SLOPES SHALL BE PLACED IMMEDIATELY AFTER CLEARING, PRIOR TO EMBANKMENT CONSTRUCTION.
11. ALL DISTURBED AREAS SHALL BE REVEGETATED AS QUICKLY AS POSSIBLE. ALL CUT AND FILL SLOPES SHALL BE SEEDED WITHIN 72 HOURS AFTER GRADING.
12. ALL WORK AREAS TO BE STABILIZED AT THE END OF EACH WORK DAY AND PRIOR TO ANY PREDICTED SIGNIFICANT RAIN EVENT.
13. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    A. BASE COURSE GRAVELS, WHICH MEET THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2, ARE INSTALLED IN AREAS TO BE PAVED
    B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
    C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED
    D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED
14. ALL CATCH BASINS, MANHOLES, AND DRAIN LINES SHALL BE THOROUGHLY CLEANED OF ALL SEDIMENT AND DEBRIS AFTER ALL AREAS HAVE BEEN STABILIZED.
15. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SLOPE STABILITY DURING CONSTRUCTION.
16. THE EROSION CONTROL PRACTICES SHOWN ON THESE PLANS ARE ILLUSTRATIVE ONLY AND SHALL BE SUPPLEMENTED BY THE SITE CONTRACTOR AS NEEDED.
16. TO THE GREATEST EXTENT PRACTICABLE, IMPACTS TO THE SALT MARSH SHALL BE MINIMIZED. EROSION CONTROLS SHALL BE INSTALLED, MONITORED, AND ADJUSTED AS REQUIRED THROUGHOUT THE DURATION OF THE PROJECT. UPON COMPLETION, DISTURBED AREAS SHALL BE REPLANTED WITH PLUGS OF SALTMARSH CORDGRASS (SPARTINA ALTERNIFLORA).



HORIZONTAL SCALE 1"=60'
60 30 0 60

REV.	DATE	DESCRIPTION	DR	CK
5	3/22/2022	TAC COMMENTS	HEG	JCC
4	2/18/2022	REVISED PER NHDES & UTILITIES	HEG	JCC
3	2/15/2022	REVISED PER NHDES & UTILITIES PER TAC	HEG	JCC
2	2/2/2022	REVISED PER NHDES & UPDATE SURVEY/UTILITIES	HEG	JCC
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

EROSION CONTROL PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=120' (11"X17")
SCALE: 1"=60' (22"X34") **SEPTEMBER 29, 2021**

DIG SAFE — CALL 811 OR 1-888-DIG-SAFE (344-7233) — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

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FILE	DR	FB	–	
47099.01	HEG			C-18
	CK	JCC	CADFILE	47099-01_EROSION_MAIN

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Mar 22, 2022 - 3:53pm
F:\MSC Projects\47099 - Little Harbor Rd & Gosport Rd - Portsmouth\47099-01 - DiLorenzo - 325 Little Harbor Rd\Design\PRODUCTION DRAWINGS\47099-01_Erosion_Main.dwg

SOIL CHARACTERISTICS

THE SOIL IN THE VICINITY OF THE SITE CONSIST OF UDORTHENTS (UNKNOWN, BUT ASSUMED TO BE HSG D), NEWFIELDS (HSG B), AND CANTON (HSG B). THESE SOILS ARE CLASSIFIED AS VARIABLE, MODERATELY DRAINED, AND WELL-DRAINED, RESPECTIVELY.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 366,773 SQUARE FEET (8.4± ACRES). CONSTRUCTION SHALL BE PHASED TO LIMIT DISTURBED AREAS TO LESS THAN 5 ACRES.

CRITICAL NOTE: THIS DRAWING IS PROVIDED FOR GENERAL GUIDANCE. ALL SPECIAL EROSION CONTROL MEASURES MUST BE EXECUTED IN ACCORDANCE WITH APPLICABLE CURRENT STATE AND LOCAL REGULATIONS, APPROVED SWPPP, AND PERMIT REQUIREMENTS.

SEQUENCE OF MAJOR ACTIVITIES

1. INSTALL PERIMETER CONTROLS, STABILIZED CONSTRUCTION ENTRANCE, AND TEMPORARY EROSION CONTROL MEASURES PER APPROVED SITE DEVELOPMENT PLANS, PERMITS, OR SWPPP IF REQUIRED, PRIOR TO EARTH MOVING OPERATIONS.
2. DEMOLISH EXISTING SITE WORK DESIGNATED FOR REMOVAL.
3. INSTALL STORMWATER TREATMENT PONDS AND SWALES BEFORE ROUGH GRADING THE SITE.
4. COMPLETE MAJOR GRADING OF SITE.
5. CONSTRUCT BUILDING PAD, STORMWATER SYSTEM, AND SITE UTILITIES.
6. CONSTRUCT PARKING AREAS.
7. WHEN ALL CONSTRUCTION ACTIVITY IS COMPLETE AND SITE IS STABILIZED, REMOVE ALL INLET PROTECTION, SILT BARRIERS, AND SEDIMENT THAT HAS BEEN TRAPPED BY THESE DEVICES.
8. CONSULT APPLICABLE REGULATIONS, PERMITS, CONDITIONS, AND APPROVED SWPPP FOR CONDITIONS RELATED TO NOTICE OF TERMINATION, IF REQUIRED.

EROSION AND SEDIMENT CONTROLS AND STABILIZATION PRACTICES

STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES AND DISTURBED AREAS WHERE CONSTRUCTION ACTIVITY WILL NOT OCCUR FOR MORE THAN TWENTY ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:

1. BASE COURSE GRAVELS, WHICH MEET THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2, HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
2. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
3. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR
4. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT BARRIERS. ALL STORM DRAIN INLETS SHALL BE PROVIDED WITH BARRIER FILTERS. STONE RIPRAP SHALL BE PROVIDED AT THE OUTLETS OF DRAINAGE PIPES WHERE EROSIVE VELOCITIES ARE ENCOUNTERED.

OFF SITE VEHICLE TRACKING

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED.

INSTALLATION, MAINTENANCE, AND INSPECTION OF EROSION AND SEDIMENT CONTROLS

A. GENERAL

THESE ARE THE GENERAL INSPECTION AND MAINTENANCE PRACTICES THAT WILL BE USED TO IMPLEMENT THE PLAN.

1. STABILIZATION OF ALL SWALES, DITCHES, AND PONDS IS REQUIRED PRIOR TO DIRECTING FLOW TO THEM.
2. THE SMALLEST PRACTICAL PORTION OF THE SITE WILL BE DENUDED AT ONE TIME. (5 AC MAX)
3. ALL CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH APPLICABLE REGULATIONS, PERMITS, AND CONDITIONS AND FOR PROJECTS REQUIRING A NHDES AOT PERMIT AND NHPDES EPA GCP, DISCHARGING TO A NON-SENSITIVE WATERBODY, AT LEAST EVERY 7 DAYS AND AFTER A 0.5 INCH RAIN EVENT OR GREATER, AND INSPECTIONS SHALL BE CONDUCTED BY THE ENVIRONMENTAL MONITOR IF ONE IS REQUIRED, PURSUANT TO ENV-WQ 1505.03(B) OR FOR PROJECTS REQUIRING A NHDES AOT PERMIT AND NHPDES EPA GCP, DISCHARGING TO A SENSITIVE WATERBODY, AT LEAST EVERY 7 DAYS AND AFTER A 0.25 INCH RAIN EVENT OR GREATER, AND INSPECTIONS SHALL BE CONDUCTED BY THE ENVIRONMENTAL MONITOR IF ONE IS REQUIRED, PURSUANT TO ENV-WQ 1505.03(B).
4. ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT WILL BE INITIATED WITHIN 24 HOURS OF REPORT.
5. BUILT UP SEDIMENT WILL BE REMOVED FROM SILT BARRIER WHEN IT HAS REACHED ONE THIRD THE HEIGHT OF THE BARRIER.
6. ALL DIVERSION DIKES WILL BE INSPECTED AND ANY BREACHES PROMPTLY REPAIRED.
7. TEMPORARY SEEDING AND PLANTING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND UNHEALTHY GROWTH.
8. A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION.
9. THE CONTRACTOR WILL BE RESPONSIBLE FOR ENSURING AN ENVIRONMENTAL MONITOR, IF ONE IS REQUIRED, PURSUANT TO ENV-WQ 1505.03(B), IS CONTRACTED.

B. FILTERS / BARRIERS

1. SILT SOCKS

   A. KNOTTED MESH NETTING MATERIAL SHALL BE DELIVERED TO SITE IN A 5 MIL CONTINUOUS, TUBULAR, HDPE 3/8" MATERIAL, FILLED WITH COMPOST CONFORMING TO THE FOLLOWING REQUIREMENTS:

PHYSICAL PROPERTY	TEST	REQUIREMENTS
PH	TMECC 04.11-A	5.0 TO 8.0
PARTICLE SIZE	TMECC 02.02-B	2" SIEVE AND MIN. 60% GREATER THAN THE ⅜" SIEVE
MOISTURE CONTENT		STND TESTING < 60%

   MATERIAL SHALL BE RELATIVELY FREE OF INERT OR FOREIGN MAN-MADE MATERIALS

   MATERIAL SHALL BE WEED FREE AND DERIVED FROM A WELL-DECOMPOSED SOURCE OF ORGANIC MATTER, FREE FROM ANY REFUSE, CONTAMINANTS OR OTHER MATERIALS TOXIC TO PLANT GROWTH.

   B. SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK SHALL BE REMOVED ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE SILT SOCK.

   C. SILT BARRIER SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREAS HAS BEEN PERMANENTLY STABILIZED.

2. SEQUENCE OF INSTALLATION

   SEDIMENT BARRIERS SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM.

3. MAINTENANCE

   A. SILT BARRIERS SHALL BE INSPECTED WEEKLY AND IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. THEY SHALL BE REPAIRED IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHALL BE REPLACED WITH A TEMPORARY CHECK DAM.

   B. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.

   C. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE THIRD (1/3) THE HEIGHT OF THE BARRIER.

   D. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

C. MULCHING

1. TIMING

   IN ORDER FOR MULCH TO BE EFFECTIVE, IT MUST BE IN PLACE PRIOR TO MAJOR STORM EVENTS. THERE ARE TWO (2) TYPES OF STANDARDS WHICH SHALL BE USED TO ASSURE THIS:

   A. APPLY MULCH PRIOR TO ANY STORM EVENT.

   THIS IS APPLICABLE WHEN WORKING WITHIN 100' OF WETLANDS. IT WILL BE NECESSARY TO CLOSELY MONITOR WEATHER PREDICTIONS, USUALLY BY CONTACTING THE NATIONAL WEATHER SERVICE, TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.

   B. REQUIRED MULCHING WITHIN A SPECIFIED TIME PERIOD.

   THE TIME PERIOD CAN RANGE FROM 14 TO 21 DAYS OF INACTIVITY ON AN AREA, WHERE THE LENGTH OF TIME VARIES WITH SITE CONDITIONS. PROFESSIONAL JUDGMENT SHALL BE USED TO EVALUATE THE INTERACTION OF SITE CONDITIONS (SOIL ERODIBILITY, SEASON OF YEAR, EXTENT OF DISTURBANCE, PROXIMITY TO SENSITIVE RESOURCES, ETC.) AND THE POTENTIAL IMPACT OF EROSION ON ADJACENT AREAS TO CHOOSE AN APPROPRIATE TIME RESTRICTION.

2. GUIDELINES FOR WINTER MULCH APPLICATION.

   WHEN MULCH IS APPLIED TO PROVIDE PROTECTION OVER WINTER (PAST THE GROWING SEASON) IT SHALL BE AT A RATE OF 6,000 POUNDS OF HAY OR STRAW PER ACRE. A TACKIFIER MAY BE ADDED TO THE MULCH.

3. MAINTENANCE

   ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED.

D. VEGETATIVE PRACTICE

1. AFTER ROUGH GRADING OF THE SUBGRADE HAS BEEN COMPLETED AND APPROVED, THE SUB GRADE SURFACE SHALL BE SCARIFIED TO A DEPTH OF 4". THEN, FURNISH AND INSTALL A LAYER OF LOAM PROVIDING A ROLLED THICKNESS AS SPECIFIED IN THESE PLANS. ANY DEPRESSIONS WHICH MAY OCCUR DURING ROLLING SHALL BE FILLED WITH ADDITIONAL LOAM, REGRADED AND REROLLED UNTIL THE SURFACE IS TRUE TO THE FINISHED LINES AND GRADES. ALL LOAM NECESSARY TO COMPLETE THE WORK UNDER THIS SECTION SHALL BE SUPPLIED BY THE SITE SUBCONTRACTOR.
2. ALL LARGE STIFF CLODS, LUMPS, BRUSH, ROOTS, DEBRIS, GLASS, STUMPS, LITTER, AND OTHER FOREIGN MATERIAL, AS WELL AS STONES OVER 1" IN DIAMETER, SHALL BE REMOVED FROM THE LOAM AND DISPOSED OF OFF SITE. THE LOAM SHALL BE RAKED SMOOTH AND EVEN.
3. THE LOAM SHALL BE PREPARED TO RECEIVE SEED BY REMOVING STONES, FOREIGN OBJECTS AND GRADING TO ELIMINATE WATER POCKETS AND IRREGULARITIES PRIOR TO PLACING SEED. FINISH GRADING SHALL RESULT IN STRAIGHT UNIFORM GRADES AND SMOOTH, EVEN SURFACES WITHOUT IRREGULARITIES TO LOW POINTS.
4. SHAPE THE AREAS TO THE LINES AND GRADES REQUIRED. THE SITE SUBCONTRACTOR'S ATTENTION IS DIRECTED TO THE SCHEDULING OF LOAMING AND SEEDING OF GRADED AREAS TO PERMIT SUFFICIENT TIME FOR THE STABILIZATION OF THESE AREAS. IT SHALL BE THE SITE SUBCONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE AREAS DURING THE CONSTRUCTION PERIOD AND REGRADE, LOAM AND RESEED ANY DAMAGED AREAS.
5. ALL AREAS DISTURBED BY CONSTRUCTION WITHIN THE PROPERTY LINES AND NOT COVERED BY STRUCTURES, PAVEMENT, OR MULCH SHALL BE LOAMED AND SEEDED.
6. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF 2 TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5.
7. IF PERMITTED PER LOCAL AND STATE REGULATIONS, FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 500 POUNDS PER ACRE OF 10-20-20 FERTILIZER.
8. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4 1/2 POUNDS AND 5 1/2 POUNDS PER INCH OF WIDTH.
9. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4" AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH.
10. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AT A RATE OF 1.5 TO 2 TONS PER ACRE. MULCH THAT BLOWS OR WASHES AWAY SHALL BE REPLACED IMMEDIATELY AND ANCHORED USING APPROPRIATE TECHNIQUES FROM THE EROSION AND SEDIMENT CONTROL HANDBOOK.
11. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED.
12. THE SITE SUBCONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED, INCLUDING CUTTING, AS SPECIFIED HEREIN AFTER UNDER MAINTENANCE AND PROTECTION.
13. UNLESS OTHERWISE APPROVED, SEEDING SHALL BE DONE DURING THE APPROXIMATE PERIODS OF EARLY SPRING TO SEPTEMBER 30, WHEN SOIL CONDITIONS AND WEATHER ARE SUITABLE FOR SUCH WORK. IN NO CASE SHALL THE WEED CONTENT EXCEED 1 PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. FOR TEMPORARY PLANTINGS AFTER SEPTEMBER 30, TO EARLY SPRING AND FOR TEMPORARY PROTECTION OF DISTURBED AREAS:

   A. FOLLOW ABOVE SLOPE, LOAM DEPTH AND GRADING REQUIREMENTS.
   B. FERTILIZER SHALL BE SPREAD AND WORKED INTO THE SURFACE AT A RATE OF 500 POUNDS PER ACRE.

   MULCHING AND SEEDING SHALL BE APPLIED AT THE FOLLOWING RATES:

WINTER RYE (FALL SEEDING)	2.5 LBS/1,000 SF
OATS (SPRING SEEDING)	2.0 LBS/1,000 SF
MULCH	1.5 TONS/ACRE

E. CATCH BASIN INLET PROTECTION

1. INLET BASKET STRUCTURE

   A. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY PRIOR TO DISTURBING PAVEMENT AND SHALL REMAIN IN PLACE AND MAINTAINED UNTIL PAVEMENT BINDER COURSE IS COMPLETE.

   B. MOLD 6X6, 42 LB. WIRE SUPPORT AROUND INLET FRAME AND GRATE AND EXTEND 6" BEYOND SIDES. SECURE FILTER FABRIC TO WIRE SUPPORT.

   C. THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC; POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWNG SPECIFICATIONS:

      GRAB STRENGTH: 45 LB. MINIMUM IN ANY PRINCIPAL DIRECTION (ASTM D1682)
      MULLEN BURST STRENGTH: MIN. 60PSI (ASTM D774)

   D. THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND A MINIMUM PERMEABILITY OF 120 GPM.

   E. THE INLET PROTECTION SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.

   F. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

F. WINTER CONSTRUCTION SEQUENCE

1. ALL PROPOSED POST-DEVELOPMENT LANDSCAPED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1 AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE PLACEMENT OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENT.
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER OCTOBER 15TH, INCOMPLETE PARKING AREAS WHERE ACTIVE CONSTRUCTION HAS STOPPED FOR THE WINTER, ALL TRAVEL SURFACES SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOWFALL AFTER EACH STORM EVENT.

TIMING OF CONTROLS/MEASURES

AS INDICATED IN THE SEQUENCE OF MAJOR ACTIVITIES, SILT BARRIERS SHALL BE INSTALLED PRIOR TO COMMENCING ANY CLEARING OR GRADING OF THE SITE. STRUCTURAL CONTROLS SHALL BE INSTALLED CONCURRENTLY WITH THE APPLICABLE ACTIVITY. AREAS WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR MORE THAN TWENTY ONE (21) DAYS WILL BE STABILIZED WITH A TEMPORARY SEED AND MULCH WITHIN FOURTEEN (14) DAYS OF THE LAST DISTURBANCE. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN AREA, SILT BARRIERS AND ANY EARTH/DIKES WILL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.

WASTE DISPOSAL

1. WASTE MATERIALS
   ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN A DUMPSTER. NO CONSTRUCTION WASTE MATERIALS WILL BE BURIED ON SITE. ALL PERSONNEL WILL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE
   ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE
   ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION

1. MATERIAL MANAGEMENT PRACTICES
   THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT WILL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:

   GOOD HOUSEKEEPING:
   THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ON SITE DURING THE CONSTRUCTION PROJECT:

   A. AN EFFORT WILL BE MADE TO STORE ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB.

   B. ALL MATERIALS STORED ON SITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.

   C. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.

   D. THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS.

   E. SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.

   F. WHENEVER POSSIBLE ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.

   HAZARDOUS PRODUCTS:
   THE FOLLOWING PRACTICES WILL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:

   A. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.

   B. ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION.

   C. SURPLUS PRODUCT THAT MUST BE DISPOSED OF WILL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.

2. PRODUCT SPECIFICATION PRACTICES
   THE FOLLOWING PRODUCT SPECIFIC PRACTICES WILL BE FOLLOWED ON SITE:

   PETROLEUM PRODUCTS:
   ALL ON SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

   FERTILIZERS:
   FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER. STORAGE WILL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.

   PAINTS:
   ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM BUT WILL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.

   CONCRETE TRUCKS:
   CONCRETE TRUCKS WILL DISCHARGE AND WASH OUT SURPLUS CONCRETE OR DRUM WASH WATER IN A CONTAINED AREA DESIGNATED ON SITE.

SPILL CONTROL PRACTICES

IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:

A. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.

B. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.

C. ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.

D. THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.

E. SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF THE SIZE.

F. THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM RECURRING AND HOW TO CLEANUP THE SPILL IF IT RECURS. A DESCRIPTION OF THE SPILL, ITS CAUSE, AND THE CLEANUP MEASURES WILL BE INCLUDED.

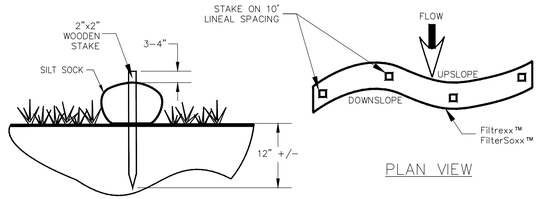
G. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.

DUST CONTROL

THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL METHODS SHALL INCLUDE, BUT NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

ROCK BLASTING & WATER QUALITY NOTES

1. IDENTIFY DRINKING WATER WELLS LOCATED WITHIN 2000 FEET OF THE PROPOSED BLASTING ACTIVITIES. DEVELOP A GROUNDWATER QUALITY SAMPLING PROGRAM TO MONITOR FOR NITRATE AND NITRITE EITHER IN THE DRINKING WATER SUPPLY WELLS OR IN OTHER WELLS THAT ARE REPRESENTATIVE OF THE DRINKING WATER SUPPLY WELLS IN THE AREA. THE PLAN MUST INCLUDE PRE AND POST BLAST WATER QUALITY MONITORING AND BE APPROVED BY NHDES PRIOR TO INITIATING BLASTING. THE GROUNDWATER SAMPLING PROGRAM MUST BE IMPLEMENTED ONCE APPROVED BY NHDES.
2. ALL ACTIVITIES RELATED TO BLASTING SHALL FOLLOW BEST MANAGEMENT PRACTICES (BMPS) TO PREVENT CONTAMINATION OF GROUNDWATER INCLUDING PREPARING, REVIEWING, AND FOLLOWING AN APPROVED BLASTING PLAN; PROPER DRILLING, EXPLOSIVE HANDING AND LOADING PROCEDURES; OBSERVING THE ENTIRE BLASTING PROCEDURES; EVALUATING BLASTING PERFORMANCE; AND HANDLING AND STORAGE OF BLASTED ROCK.
   A. LOADING PRACTICES. THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
      (1) DRILLING LOGS SHALL BE MAINTAINED BY THE DRILLER AND COMMUNICATED DIRECTLY TO THE BLASTER. THE LOGS SHALL INDICATE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED AS WELL AS GROUNDWATER CONDITIONS.
      (2) EXPLOSIVE PRODUCTS SHALL BE MANAGED ON SITE SO THAT THEY ARE EITHER USED IN THE BOREHOLE, RETURNED TO THE DELIVERY VEHICLE, OR PLACED IN SECURE CONTAINERS FOR OFF-SITE DISPOSAL.
      (3) SPILLAGE AROUND THE BOREHOLE SHALL EITHER BE PLACED IN THE BOREHOLE OR CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT IN SECURED CONTAINERS FOR OFF SITE DISPOSAL.
      (4) LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND SHALL NOT BE LEFT IN THE BLASTHOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED.
      (5) LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF CONTAMINANTS TO THE ENVIRONMENT.
      (6) EXPLOSIVES SHALL BE LOADED TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD TO PROMOTE COMPLETE DETONATION. INDUSTRY ACCEPTED LOADING PRACTICES FOR PRIMING, STEMMING, DECKING, AND COLUMN RISE NEED TO BE ATTENDED TO.
   B. EXPLOSIVE SELECTION. THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:
      (1) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION.
      (2) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT HAVE THE APPROPRIATE WATER RESISTANCE FOR THE SITE CONDITIONS PRESENT TO MINIMIZE THE POTENTIAL FOR HAZARDOUS EFFECT OF THE PRODUCT UPON GROUNDWATER.
   C. PREVENTION OF MISFIRES. APPROPRIATE PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO PREVENT MISFIRES.
   D. MUCK PILE MANAGEMENT. MUCK PILES (THE BLASTED PIECES OF ROCK) AND ROCK PILES SHALL BE MANAGED IN A MANNER TO REDUCE THE POTENTIAL FOR CONTAMINATION BY IMPLEMENTING THE FOLLOWING MEASURES:
      (1) REMOVE THE MUCK PILE FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE.
      (2) MANAGE THE INTERACTION OF BLASTED ROCK PILES AND STORMWATER TO PREVENT CONTAMINATION OF WATER SUPPLY WELLS OR SURFACE WATER.
   E. SPILL PREVENTION MEASURES AND SPILL MITIGATION. SPILL PREVENTION AND SPILL MITIGATION MEASURES SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF FUEL AND OTHER RELATED SUBSTANCES TO THE ENVIRONMENT. THE MEASURES SHALL INCLUDE AT A MINIMUM:
      (1) THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE:
         - STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE.
         - SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY.
         - LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY.
         - INSPECT STORAGE AREAS WEEKLY.
         - COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS.
         - WHEREVER POSSIBL



SECTION VIEW

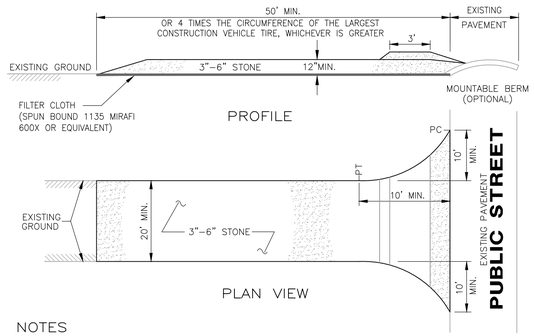
PLAN VIEW

NOTES:

1. SILT SOCK SHALL BE FILTREXX™ SILTSOXX™ NATURAL ORIGINAL OR APPROVED EQUIVALENT.
2. ALL MATERIAL AND SIZES TO MEET FILTREXX SPECIFICATIONS.
3. COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
4. SILT SOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED AS NEEDED.

FILTREXX™ FILTERSOXX™ STAKING

NOT TO SCALE

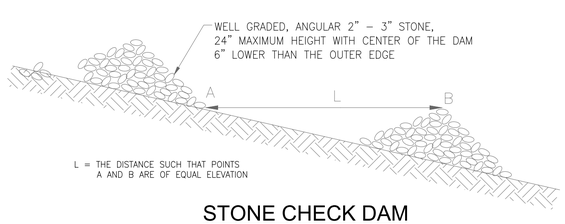


NOTES

1. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE SURFACE.
2. WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
3. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
4. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
5. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN STORM EVENT.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

STONE CHECK DAM

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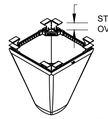
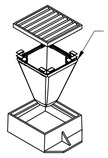


TYPICAL RECTANGULAR INLET FILTER



NOTES:

1. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
2. INSPECTION SHOULD OCCUR FOLLOWING ANY RAIN EVENT > ½".
3. EMPTY THE SEDIMENT BAG PER MANUFACTURER'S SPECIFICATIONS.
4. REMOVED CAKED ON SILT FROM SEDIMENT BAG AND FLUSH WITH MEDIUM SPRAY WITH OPTIMAL FILTRATION.
5. REPLACE BAG IF TORN OR PUNCTURED TO > ½" DIAMETER ON LOWER HALF OF BAG.

ALL PRODUCTS MANUFACTURED BY INLET & PIPE PROTECTION, INC.
A DIVISION OF ADS, INC.
WWW.INLETFILTERS.COM
(866) 287-8655 INFO@INLETFILTERS.COM

INLET PROTECTION

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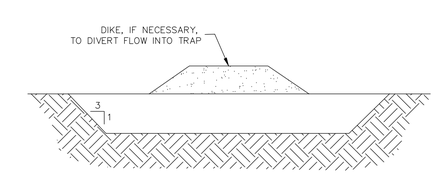
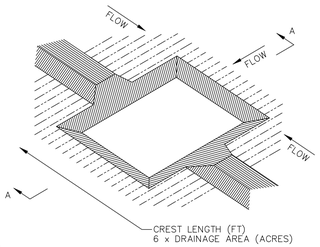


SECTION A-A

NOTES

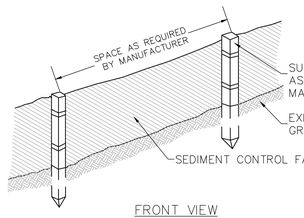
1. SEDIMENT TRAP TO BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL BASINS/PONDS ARE STABILIZED. IF IT IS DETERMINED THAT CONSTRUCTION OF A SEDIMENT TRAP IS WARRANTED, CONSULT WITH ENGINEER TO DETERMINE APPROPRIATE NUMBER AND DIMENSIONS.
2. 3,600 CF OF BASIN STORAGE IS REQUIRED FOR EVERY ACRE OF CONTRIBUTING DRAINAGE AREA.



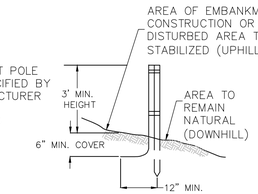
SEDIMENT TRAP – ISOMETRIC VIEW

SEDIMENT TRAP

NOT TO SCALE



FRONT VIEW



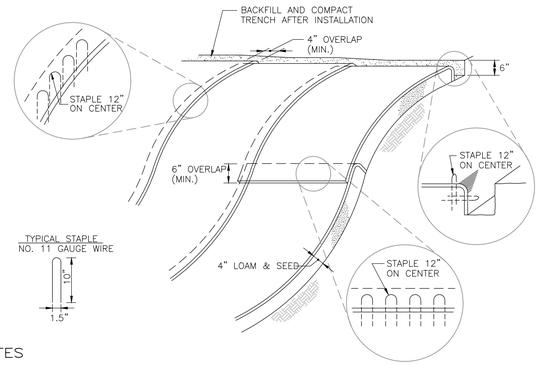
SIDE VIEW

NOTES

1. THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR BEST MANAGEMENT PRACTICE FOR SILT FENCES, OF THE NEW HAMPSHIRE STORMWATER MANUAL, DECEMBER 2008.
2. THE HEIGHT OF THE BARRIER SHALL NOT EXCEED 36 INCHES.
3. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED. SEE MANUFACTURER'S RECOMMENDATIONS.
4. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 16 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL BE AS MANUFACTURER RECOMMENDS.
5. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER IN ACCORDANCE WITH RECOMMENDATIONS.
6. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE, AND WILL EXTEND TO A MINIMUM OF 8 INCHES INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED INTO EXISTING TREES.
7. THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.
8. FILTER BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
9. FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL, AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
10. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
11. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-THIRD THE HEIGHT OF THE BARRIER.
12. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED, SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

SILT FENCE

NOT TO SCALE

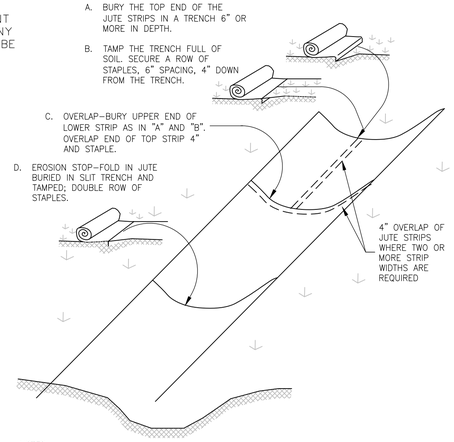


NOTES

1. INSTALL AT DISTURBED LOCATIONS WITH 2:1 SLOPES OR GREATER AND AS INDICATED PER PLANS.
2. BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" DEEP TRENCH. BACKFILL AND COMPACT TRENCH AFTER STAPLING.
3. ROLL THE BLANKET DOWN THE SLOPE OR SWALE IN THE DIRECTION OF THE WATER FLOW.
4. THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4 INCH OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SWALE, PLACE BLANKET END OVER END WITH 6 INCH (MIN.) OVERLAP AND ANCHOR DOWN SLOPE BLANKET IN A 6 INCH DEEP TRENCH.
6. BLANKET SHALL BE NORTH AMERICAN GREEN C125BN, EAST COAST EROSION CONTROL ECC-2B, AMERICAN EXCELSIOR COMPANY CURLEX III FIBRENET, ROLANKA GEONATURAL EROSION & SEDIMENT CONTROL MATTE JUTEMAT OR BIOD-OCF 30, OR APPROVED EQUAL.
7. BLANKET SHALL BE PLACED WITHIN 24-HRS AFTER SOWING SEE IN THE AREA BEING COVERED

EROSION CONTROL BLANKET

NOT TO SCALE



NOTES

1. MATTING SHALL BE INSTALLED PER MANUFACTURERS SPECIFICATIONS, INCLUDING STAPLE PATTERNS.
2. STAPLES SHALL BE BIODEGRADABLE.

JUTE MATTING

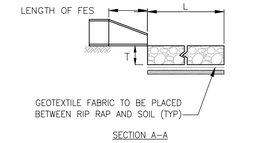
NOT TO SCALE

MAINTENANCE:

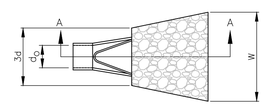
THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

CONSTRUCTION SPECIFICATIONS:

1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OR RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP RAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12".
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. ADD ANIMAL SCREEN TO FLARED END SECTION OUTLET.



SECTION A-A



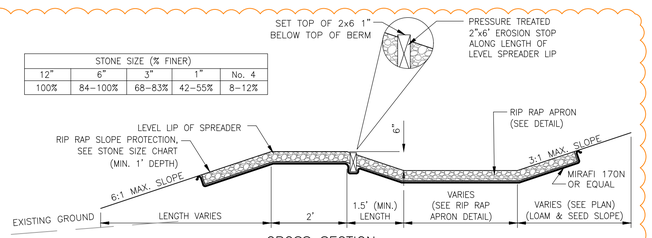
RIP RAP DIMENSIONS

LOCATION	FES-4
d50 STONE SIZE:	3"
LENGTH OF APRON (L):	4'
WIDTH OF APRON (W):	3'
DEPTH OF RIP RAP (T):	6"
% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE (INCHES)
100	4.50 TO 6.00
85	3.90 TO 5.40
50	3.00 TO 4.50
15	0.90 TO 1.50

RIP RAP AND FLARED END SECTION WITH OUTLET PROTECTION

NOT TO SCALE

STONE SIZE (% FINER)				
12"	6"	3"	1"	No. 4
100%	84-100%	68-83%	42-55%	8-12%



CROSS SECTION

LEVEL SPREADER

NOT TO SCALE

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No. 15699
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DR	CK
5	3/22/2022	TAC COMMENTS	HEG	JCC
4	2/18/2022	REVISED PER NHDES & UTILITIES	HEG	JCC
3	2/15/2022	REVISED PER NHDES & UTILITIES PER TAC	HEG	JCC
2	2/2/2022	REVISED PER NHDES & UPDATE SURVEY/UTILITIES	HEG	JCC
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

Seacoast Division

TFM

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

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www.tfmoran.com

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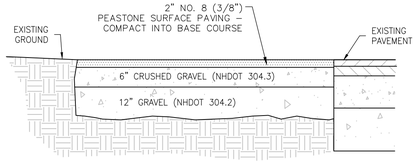
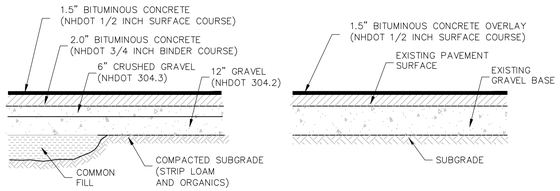


PEASTONE GRAVEL DRIVEWAY

NOT TO SCALE



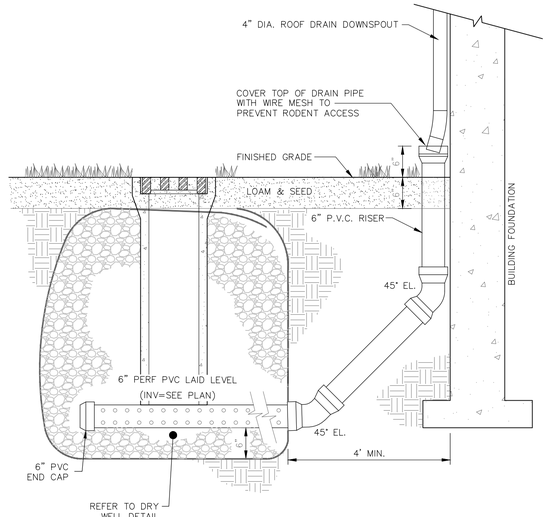
STANDARD DUTY PAVEMENT | OVERLAY

NOTES

1. SEE GRADING & EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS–SLOPE.
2. PROVIDE CLEAN BUTT TO EXISTING PAVEMENT– USE TACK COAT. A TACK COAT SHALL ALSO BE PLACED BETWEEN GRAVEL COURSE AND SUCCESSIVE LAYERS OF BITUMINOUS CONCRETE. SPECIFICALLY, A TACK COAT SHALL BE PLACED ATOP THE BINDER COURSE PAVEMENT PRIOR TO PLACING THE WEARING COURSE.
3. REMOVE ALL LOAM AND/OR YIELDING MATERIAL BELOW PAVEMENT.
4. BITUMINOUS MATERIALS SHALL CONFORM TO NHDOT SPECIFICATION SECTION 401.
5. BITUMINOUS CONCRETE SHALL BE COMPACTED TO AT LEAST 92.5% OF THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D2041 OR AASHTO T209. PLACEMENT TEMPERATURES OF BITUMINOUS CONCRETE MIXES, IN GENERAL, RANGE BETWEEN 270 AND 310 DEGREES FAHRENHEIT.
6. PAVEMENT BASE COURSE AGGREGATE SHALL CONFORM TO NHDOT SPECIFICATION SECTION 304, ITEM 304.3 AND COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY.
7. PAVEMENT SUBBASE COURSE AGGREGATE AND AGGREGATE FOR SUBGRADE REPAIR AREAS SHALL BE SUITABLE FOR USE AS STRUCTURAL FILL AND BE PROOF ROLLED AND COMPACTED TO 95% MODIFIED PROCTOR MAXIMUM DRY DENSITY.
8. THE EXPOSED SOIL SUBGRADE SHOULD BE PROOF ROLLED PRIOR TO THE PLACEMENT OF SUBBASE GRAVEL, AND SOFT AREAS SHOULD BE REPAIRED AND REPLACED.
9. ALL PARKING SPACES SHALL BE STANDARD DUTY. ALL OTHER LOCATIONS SHALL BE HEAVY DUTY.

PAVEMENT SECTIONS

NOT TO SCALE



DOWNSPOUT INFILTRATION

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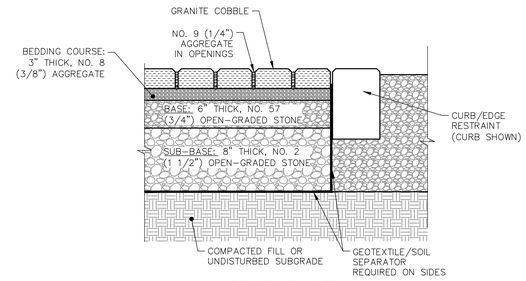


PROFILE VIEW

NOTES:

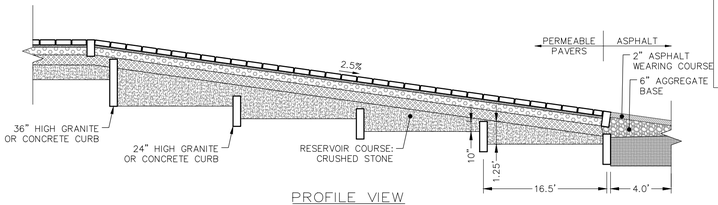
1. REFER TO LANDSCAPE ARCHITECTURE FOR ADDITIONAL DETAIL AND SPECIFIC SURFACE TREATMENT.
2. PERMEABLE PAVERS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
3. INSTALLATION OF PERMEABLE PAVER SECTION SHALL BEGIN AT LOWEST GRADE AND END AT HIGHEST GRADE.

MAINTENANCE:

1. PERMEABLE PAVERS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. PERMEABLE PAVERS FUNCTION AS AN EFFECTIVE STORMWATER TREATMENT SYSTEM AND REMAIN CLOG–FREE FOR YEARS WITH REASONABLE GOOD HOUSEKEEPING PRACTICES.
2. KEEP THE PAVEMENT FREE OF LEAVES, WEEDS, AND SEDIMENT.
3. AVOID THE USE OF SAND IN THE WINTER; IF USED, SPREAD SPARINGLY.
4. PERIODICALLY SWEEP THE OPENINGS TO REMOVE CRUST THAT FORMS ON THE SURFACE. A STIFF BRISTLE BROOM WORKS WELL FOR RESIDENTIAL WALKS AND DRIVEWAYS.
5. IF PUDDLES RESULT FROM CLOGGING, INFILTRATION RATES CAN BE RESTORED TO 100% CAPACITY BY REMOVING THE AGGREGATE FROM THE OPENINGS AND REPLACING IT WITH CLEAN MATERIAL.
6. DO NOT PRESSURE WASH.
7. MINIMIZE APPLICATION OF SALT FOR ICE CONTROL.
8. INSPECT ANNUALLY FOR PAVER DETERIORATION.
9. MONITOR PERIODICALLY TO ENSURE THAT THE PAVERS DRAIN EFFECTIVELY AFTER STORMS.
10. PERIODICALLY ADD JOINT MATERIAL TO REPLACE LOST MATERIAL.
11. MAJOR CLOGGING MAY NECESSITATE REPLACEMENT OF PAVERS AND POSSIBLY FILTER COURSE AND SUB–BASE COURSE.

PERMEABLE PAVER

NOT TO SCALE



PROFILE VIEW

MAINTENANCE:

- PERMEABLE PAVERS FUNCTION AS AN EFFECTIVE STORMWATER TREATMENT SYSTEM AND REMAIN CLOG–FREE FOR YEARS WITH REASONABLE GOOD HOUSEKEEPING PRACTICES.
- KEEP THE PAVEMENT FREE OF LEAVES, WEEDS, AND SEDIMENT.
- AVOID THE USE OF SAND IN THE WINTER; IF USED, SPREAD SPARINGLY.
- PERIODICALLY SWEEP THE OPENINGS TO REMOVE CRUST THAT FORMS ON THE SURFACE. A STIFF BRISTLE BROOM WORKS WELL FOR RESIDENTIAL WALKS AND DRIVEWAYS.
- IF PUDDLES RESULT FROM CLOGGING, INFILTRATION RATES CAN BE RESTORED TO 100% CAPACITY BY REMOVING THE AGGREGATE FROM THE OPENINGS AND REPLACING IT WITH CLEAN MATERIAL.
- DO NOT PRESSURE WASH.
- MINIMIZE APPLICATION OF SALT FOR ICE CONTROL.
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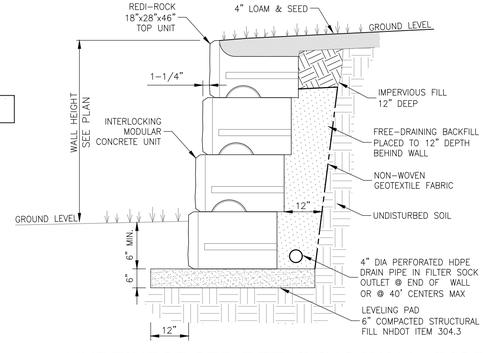
- MONITOR PERIODICALLY TO ENSURE THAT THE PAVERS DRAIN EFFECTIVELY AFTER STORMS.
- PERIODICALLY ADD JOINT MATERIAL TO REPLACE LOST MATERIAL.
- MAJOR CLOGGING MAY NECESSITATE REPLACEMENT OF PAVERS AND POSSIBLY FILTER COURSE AND SUB–BASE COURSE.

PERMEABLE PAVER DRIVEWAY

NOT TO SCALE



UNREINFORCED RETAINING WALL (MODULAR CONCRETE UNIT)

NOT TO SCALE

GENERAL NOTES

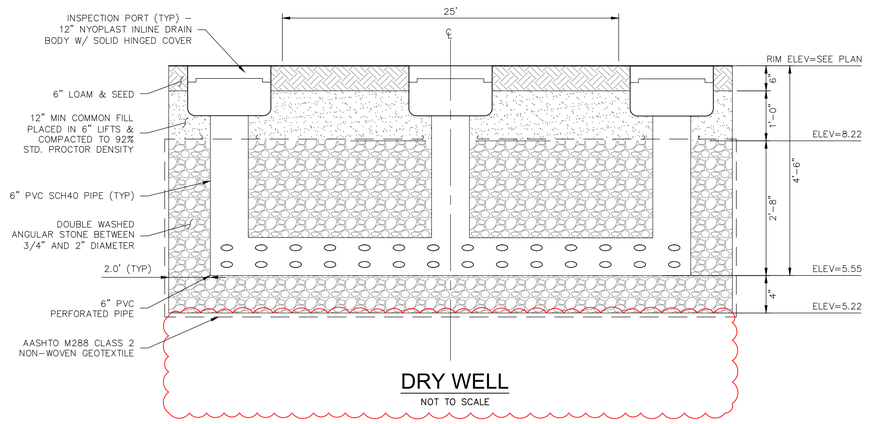
1. THIS DETAIL IS ONLY FOR WALLS LESS THAN 4 FEET IN HEIGHT.
2. WALL DESIGNS SHALL CONSIDER EFFECTS OF SLOPE, TRAFFIC LOADS, AND/OR BUILDING LOADS AS REQUIRED.
3. BLOCK COLOR SHALL BE DETERMINED BY OWNERS REPRESENTATIVE.
4. FINAL WALL DESIGN SHALL BE SUBJECT TO THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
5. IF CONDITIONS ARE DIFFERENT THAN THOSE STATED IN THESE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR MUST CONTACT THE DESIGN ENGINEER PRIOR TO PROCEEDING WITH THE CONSTRUCTION OF THE WALL.

MANUFACTURER'S DESIGN

1. DESIGN SHALL BE FROM THE WALL MANUFACTURER.
2. DESIGN CALCULATIONS AND PLANS SHALL BE SUBMITTED TO THE OWNER AND ENGINEER OF RECORD FOR APPROVAL.
3. DESIGN CALCULATIONS TO INCLUDE SAFETY FACTORS AGAINST OVERTURNING, SLIDING, BEARING CAPACITY, GEOGRID PULLOUT AND GLOBAL STABILITY. MINIMUM FACTORS OF SAFETY ARE INDICATED BELOW.
4. THE WALL DESIGN ENGINEER SHALL COMPLETE SUFFICIENT INSPECTIONS DURING CONSTRUCTION TO CERTIFY WORK IS COMPLETE IN ACCORDANCE WITH DESIGN.

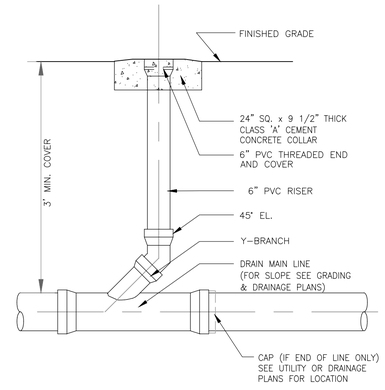
DRAINAGE NOTES

1. CONTRACTOR SHALL DIRECT SURFACE RUNOFF AWAY FROM THE WALL DURING CONSTRUCTION.
2. ANY SURFACE DRAINAGE FEATURES, FINISH GRADING, PAVEMENT OR OTHER SURFACE TREATMENT SHALL BE INSTALLED IN THE AREA OF THE WALL CONCURRENTLY WITH WALL CONSTRUCTION



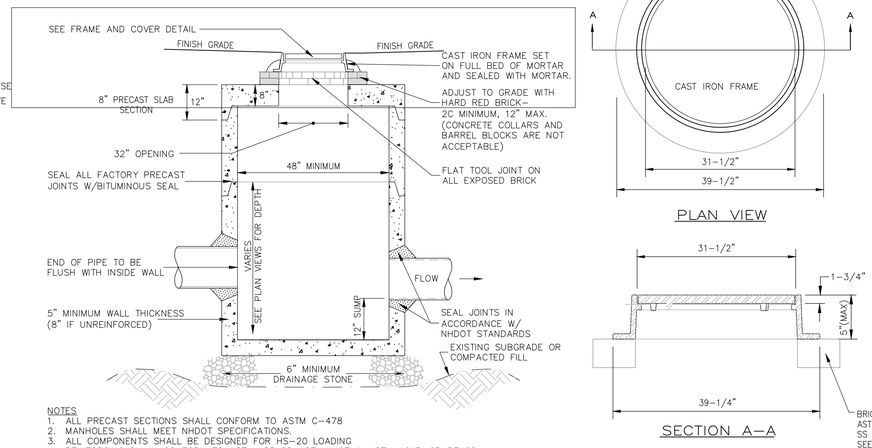
DRY WELL

NOT TO SCALE



DRAINAGE CLEAN OUT

NOT TO SCALE



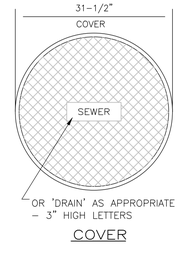
NOTES

1. ALL PRECAST SECTIONS SHALL CONFORM TO ASTM C–478
2. MANHOLES SHALL MEET NHDOT SPECIFICATIONS.
3. ALL COMPONENTS SHALL BE DESIGNED FOR HS–20 LOADING
4. REINFORCING SHALL CONFORM TO ASTM 185 OR ASTM 1497 & ASTM A615, GRADE 60.
5. ALL CONCRETE SHALL BE NHDOT CLASS A.

SLAB TOP MANHOLE

NOT TO SCALE

PLAN VIEW



COVER

SECTION A–A

NOTES

1. FRAMES AND COVERS SHALL BE MANUFACTURED FROM DUCTILE IRON IN ACCORDANCE WITH ISO 1083.
2. COVERS SHALL BE ON MAN OPERABLE USING STANDARDS TOOLS AND SHALL BE CAPABLE OF WITHSTANDING A TEST LOAD OF 120,000 LBS (H20 REQUIREMENT).
3. FRAME SHALL INCORPORATE A SEATING GASKET.
4. FLANGE SHALL INCORPORATE BEDDING SLOTS AND BOLT HOLES.
5. ALL COMPONENTS SHALL BE BLACK COATED.
6. MANHOLE FRAME AND COVER SHALL BE PER TOWN OF TILTON STANDARDS.

MANHOLE FRAME AND COVER

NOT TO SCALE

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

DIG SAFE — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No.15699 — 12/31/2022 — LICENSED PROFESSIONAL ENGINEER

REV	DATE	DESCRIPTION	DR	CK
5	3/22/2022	TAC COMMENTS	HEG	JCC
4	2/18/2022	REVISED PER NHDES & UTILITIES	HEG	JCC
3	2/15/2022	REVISED PER NHDES & UTILITIES PER TAC	HEG	JCC
2	2/2/2022	REVISED PER NHDES & UPDATE SURVEY/UTILITIES	HEG	JCC
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

Seacoast Division

TFM

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

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www.tfmoran.com

FILE	47099.01	DR	HEG	FB	–	C–21
		CK	JCC	CADFILE	47099–01_DETAILS_MAIN	

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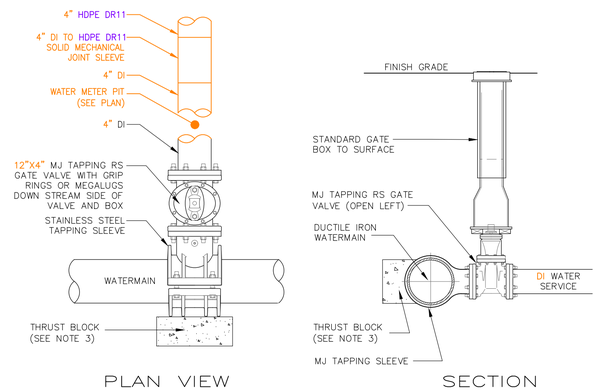
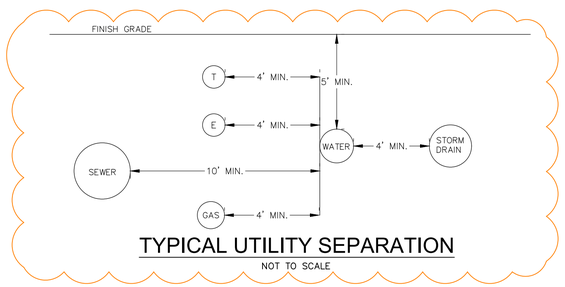


NOTES

1. TAPPING SLEEVES SHALL BE STAINLESS STEEL (SS) WITH SS HARDWARE.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTHS OF 6' FROM TOP OF PIPE TO FINISH GRADE PER NHDOT REQUIREMENTS WITHIN THE RIGHT OF WAY.
3. PRECAST CONCRETE THRUST BLOCK TO BE USED, SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATERMAIN.

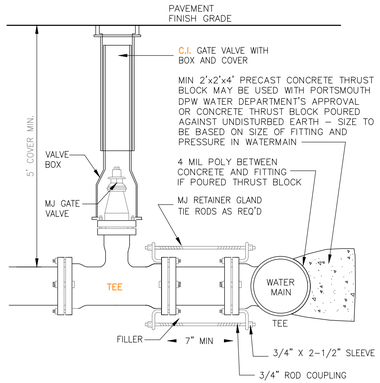
WATER SERVICE WET TAP INSTALLATION

NOT TO SCALE



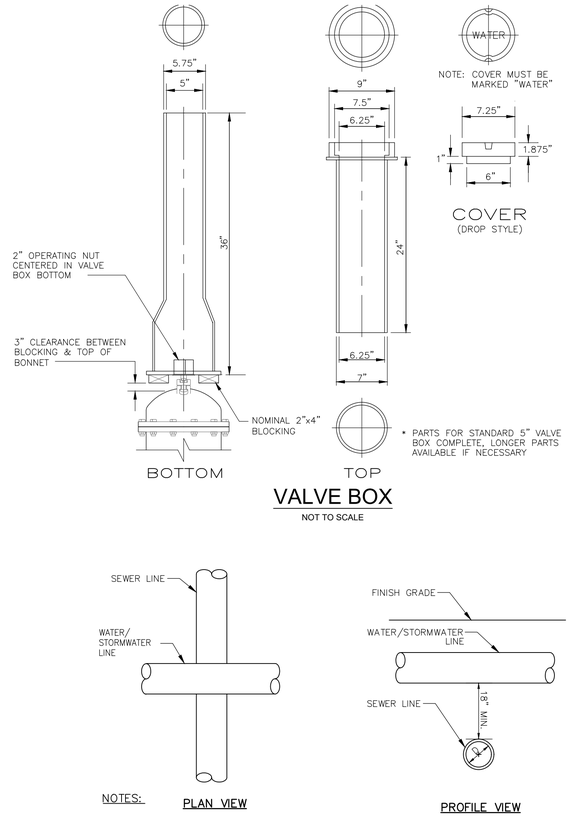
TYPICAL UTILITY SEPARATION

NOT TO SCALE



BURIED GATE VALVE

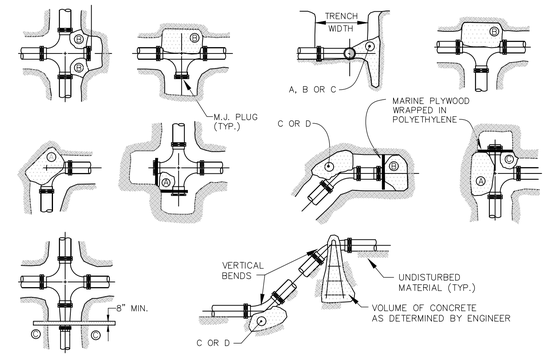
NOT TO SCALE



* PARTS FOR STANDARD 5" VALVE BOX COMPLETE, LONGER PARTS AVAILABLE IF NECESSARY

VALVE BOX

NOT TO SCALE



BEARING AREA REQUIRED, SQUARE FEET

TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS, pfs	4" AND LESS DEGREE BEND				6" AND 8" DEGREE BEND				10" AND 12" DEGREE BEND			
	11 1/4	22 1/2	45	90	11 1/4	22 1/2	45	90	11 1/4	22 1/2	45	90
LOOSE SAND OR MEDIUM CLAY – 2,000	1.0	2.0	2.7	4.0	1.5	3.0	6.0	10.0	3.0	6.2	12.0	22.0
PACKED GRAVEL AND SAND – 4,000	1.0	1.0	1.5	2.0	1.0	1.5	3.0	5.0	1.5	3.1	6.0	11.0
ROCK – 10,000	1.0	1.0	1.0	1.0	1.0	1.0	1.2	2.0	1.0	1.3	2.4	4.4

BEARING AREA REQUIRED, SQUARE FEET

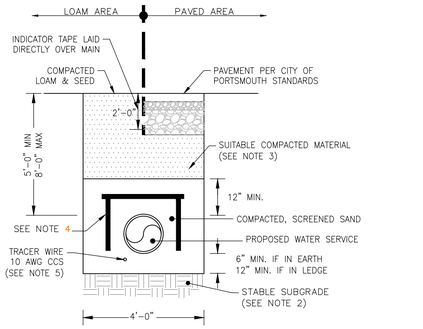
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS, pfs	14" AND 16" DEGREE BEND OR DEFLECTION				18" AND 20" DEGREE BEND OR DEFLECTION			
	11 1/4	22 1/2	45	90	11 1/4	22 1/2	45	90
LOOSE SAND OR MEDIUM CLAY – 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0
PACKED GRAVEL AND SAND – 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5
ROCK – 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5

NOTES

1. ALL MATERIAL, INSTALLATION PROCEDURES, MANUFACTURERS, AND DIMENSIONAL REQUIREMENTS SHALL CONFORM TO PORTSMOUTH'S INFRASTRUCTURE DESIGN STANDARDS AND PORTSMOUTH DPW'S ESTABLISHED RULES AND PROCEDURES.
2. A PRECAST CONCRETE THRUST BLOCK IS PREFERRED BY PORTSMOUTH DPW AND MUST CONFORM TO PORTSMOUTH DPW'S INFRASTRUCTURE DESIGN STANDARDS.
3. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED. EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO PIPE JOINTS SHALL BE COVERED WITH CONCRETE.
4. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
5. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS. PLACE ROOFING FELT AROUND HYDRANT ELBOW BEFORE POURING THRUST BLOCKS AND ENSURE CONCRETE DOES NOT PLUG HYDRANT DRAIN PORTS.

THRUST BLOCKS

NOT TO SCALE



NOTES

1. ALL MATERIAL, INSTALLATION PROCEDURES, MANUFACTURERS, AND DIMENSIONAL REQUIREMENTS SHALL CONFORM TO PORTSMOUTH'S INFRASTRUCTURE DESIGN STANDARDS AND PORTSMOUTH DPW'S ESTABLISHED RULES AND PROCEDURES.
2. IN LOCATIONS WITH EXISTING FILL SOILS, CONSULT WITH THE GEOTECHNICAL ENGINEER FOR METHODS TO PREPARE STABLE SUBGRADE AND REMOVAL OF MATERIAL IF NECESSARY.
3. SUITABLE MATERIAL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER 6" IN THE LARGEST DIMENSION, OR ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. SUITABLE MATERIAL SHALL BE PLACED IN 12" LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
4. RIGID STYROFOAM INSULATION (DOW HI-40 OR EQUAL) WITH 6" CLEAN SAND BLANKET AROUND WATER PIPE WHERE WATER AND DRAIN PIPE SEPARATION IS LESS THAN 18".
5. TRACER WIRE SPECIFIED FOR NON-METALLIC WATER LINES SHALL BE INSTALLED BELOW AND TO THE SIDE OF THE PIPE AND PER THE MANUFACTURER REQUIREMENTS. TRACER WIRE PRODUCT SHALL BE SELECTED FOR OPEN CUT INSTALLATION TECHNIQUE.

WATER TRENCH

NOT TO SCALE

NOTES:

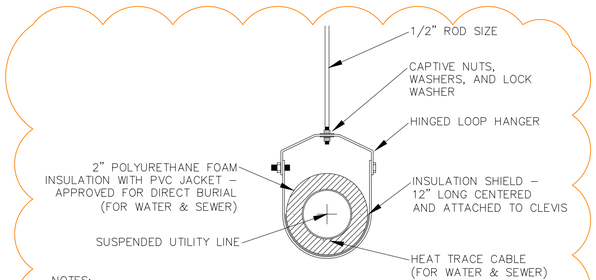
1. A 10 FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPERATION SHALL BE PROVIDED BETWEEN ALL WATER/STORMWATER AND SANITARY SEWER LINES. AN 18" MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/STORMWATER AND SANITARY SEWER CROSSINGS.
2. PROTECTION OF WATER SUPPLIES
   1. THERE SHALL BE NO PHYSICAL CONNECTION BETWEEN A PUBLIC OR PRIVATE POTABLE WATER SUPPLY SYSTEM AND A SEWER OR SEWER APPURTENANCE WHICH WOULD PERMIT THE PASSAGE OF SEWAGE OR POLLUTED WATER INTO THE POTABLE SUPPLY. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SEWER OR SEWER MANHOLE.
   2. NO SEWER SHALL BE LOCATED WITHIN THE WELL PROTECTED RADII ESTABLISHED IN ENV-WS 300 FOR ANY PUBLIC WATER SUPPLY WELLS OR WITHIN 100 FEET OF ANY PRIVATE WATER SUPPLY WELL.
   3. SEWERS SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN.
   4. A DEVIATION FROM THE SEPARATION REQUIREMENTS OF (2) OR (3) ABOVE SHALL BE ALLOWED WHERE NECESSARY TO AVOID CONFLICT WITH SUBSURFACE STRUCTURES, UTILITY CHAMBERS, AND BUILDING FOUNDATIONS, PROVIDED THAT THE SEWER IS CONSTRUCTED IN ACCORDANCE WITH THE FORCE MAIN CONSTRUCTION REQUIREMENTS SPECIFIED IN ENV-WQ 704.06.
   5. WHENEVER SEWERS MUST CROSS WATER MAINS, THE SEWER SHALL BE CONSTRUCTED AS FOLLOWS:
      1. VERTICAL SEPARATION OF THE SEWER AND WATER MAIN SHALL BE NOT LESS THAN 18 INCHES, WITH WATER ABOVE SEWER; AND
      2. SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATER MAIN.

PLAN VIEW

PROFILE VIEW

WATER/STORMWATER & SEWER CROSSING

NOT TO SCALE



NOTES:

1. HEAT TRACE CABLE SHALL BE RATED 5 WATTS/FT, TEMPERATURE CONTROLLED WITH GROUND FAULT CIRCUIT INTERRUPTER PROTECTION.
2. HEAT TRACE CABLE SHALL RUN ALONG BOTTOM OF PIPE AND ATTACHED WITH ADHESIVE ALUMINUM TAPE.

SUSPENDED UTILITIES

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DIG SAFE – CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE – HANNAH E. GIOVANNUCCI No. 15698 – 3/22/2022 – LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DR	CK
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3	2/15/2022	REVISED PER NHDES & UTILITIES PER TAC	HEG	JCC
2	2/2/2022	REVISED PER NHDES & UPDATE SURVEY/UTILITIES	HEG	JCC
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
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		CK	JCC	CADFILE	47099-01_DETAILS_MAIN	

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GENERAL NOTES

1. IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE WITH REINFORCEMENT. IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H-20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.
2. BARRELS, CONE SECTIONS AND CONCRETE GRADE RINGS SHALL BE PRECAST REINFORCED CONCRETE AND SHALL CONFORM ENV-WQ 704.12 & 704.13.
3. PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478-06.
4. BASE SECTIONS SHALL BE OF MONOLITHIC CONSTRUCTION TO A POINT AT LEAST 6 INCHES ABOVE THE CROWN OF THE INCOMING PIPE.
5. MANHOLE CONE SECTIONS SHALL BE ECCENTRIC IN SHAPE.
6. ALL PRECAST SECTIONS AND BASES SHALL HAVE THE DATE OF MANUFACTURE AND THE NAME OR TRADEMARK OF THE MANUFACTURER IMPRESSED OR INDELIBLY MARKED ON THE INSIDE WALL.
7. ALL PRECAST SECTIONS AND BASES SHALL BE COATED ON THE EXTERIOR WITH A BITUMINOUS DAMP-PROOFING COATING.
8. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H-20 LOADS.
9. HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF AN OVERLAPPING TYPE, SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW OF AN ELASTOMERIC OR MASTIC-LIKE SEALANT. APPROVED ELASTOMERIC SEALANTS ARE:

   SIKAFLEX-12-SL

   SONNEBORN BUILING PRODUCTS-SONOLASTIC SL-1
10. THE MINIMUM INTERNAL DIAMETER OF MANHOLES SHALL BE 48 INCHES. FOR SEWERS LARGER THAN 24-INCH DIAMETER. MANHOLE DIAMETERS SHALL BE INCREASED SO AS TO PROVIDE AT LEAST 12-INCHES OF SHELF ON EACH SIDE OF THE SEWER.
11. LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE TO ENV-WQ 704.17.
    (a) ALL MANHOLES SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST IN ACCORDANCE WITH THE ASTM C1244 STARNDARD IN EFFECT WHEN THE TESTING IS PERFORMED.
    (b) THE MANHOLE VACUUM TEST SHALL CONFORM TO THE FOLLOWING:
        1. THE INITIAL VACUUM GUAGE TEST PRESSURE SHALL BE 10 INCHES Hg.
        2. THE MINIMUM ACCEPTABLE TEST HOLD TIME FOR 1-INCH Hg PRESSURE DROP TO 9 INCHES SHALL BE:
           A. NOT LESS THAN 2 MINUTES FOR MANHOLES LESS THAN 10 FEET DEEP.
           B. NOT LESS THAN 2.5 MINUTES FOR MANHOLES 10 TO 15 FEET DEEP.
           C. NOT LESS THAN 3 MINUTES FOR MANHOLES MORE THAN 15 FEET DEEP.
    (c) THE MANHOLE SHALL BE REPAIRED AND RETESTED IF THE TEST HOLD TIMES FAIL TO ACHIEVE THE ACCEPTANCE LIMITS SPECIFIED IN (b) ABOVE.
    (d) INVERTS AND SHELVES SHALL NOT BE INSTALLED UNTIL AFTER SUCCESSFUL TESTING IS COMPLETE.
    (e) FOLLOWING COMPLETION OF THE LEAKAGE TEST, THE FRAME AND COVER SHALL BE PLACED ON TOP OF THE MANHOLE OR SOME OTHER MEANS USED TO PREVENT
12. ACCIDENTAL ENTRY BY UNAUTHORIZED PERSONS, CHILDREN OR ANIMALS, UNTIL THE CONTRACTOR IS READY TO MAKE FINAL ADJUSTMENT TO GRADE.
13. BRICK MASONRY FOR SHELF, INVERT AND GRADE ADJUSTMENT SHALL COMPLY WITH ASTM C32-05, CLAY OR SHALE, FOR GRADE SS HARD BRICK.

    MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT AND SAND WITH OR WITHOUT HYDRATED LIME ADDITION. PROPORTIONS IN MORTAR OF PARTS BY VOLUMES SHALL BE:
    (a) 4.5 PARTS SAND AND 1.5 PARTS CEMENT; OR
    (b) 4.5 PARTS SAND, 1 PART CEMENT AND 0.5 PART HYDRATED LIME

    CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150-05. HYDRATED LIME SHALL BE TYPE S CONFORMING TO ASTM C207-06 "STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES". SAND SHALL CONSIST OF INERT NATURAL SAND CONFORMING TO ASTM C33-03 "STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES".
14. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED OR PRECAST CONCRETE SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF THE PIPE AND FLOW. AT CHANGES IN DIRECTIONS, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.
15. FRAMES AND COVERS: MANHOLES FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN, CLASS 30, CONFORMING TO ASTM A48/48M AND PROVIDE A 30-INCH CLEAR OPENING. 3-INCH WORD (MINIMUM HEIGHT) LETTERS "SEWER" SHALL BE PLAINLY CAST INTO THE TOP SURFACE. THE CASTING SHALL BE OF EVEN GRAINED CAST IRON, SMOOTH, AND FREE FROM SCALE, LUMPS, BLISTERS, SAND HOLES AND DEFECTS. CONTACT SURFACES OF COVERS AND FRAMES SHALL BE MACHINED AT THE FOUNDRY TO PREVENT ROCKING OF COVERS IN ANY ORIENTATION.
16. BEDDING: PRECAST BASES SHALL BE PLACED ON A 6-INCH LAYER OF COMPACTED BEDDING MATERIAL THAT CONFORMS TO ASTM C33-03 NO. 67 STONE AND FREE FROM CLAY, LOAM AND ORGANNIC MATTER. THE EXCAVATION SHALL BE PROPERLY DEWATERED WHILE PLACING BEDDING MATERIAL AND SETTING OF THE BASE OR POURING CONCRETE. WATER-STOPS SHALL BE USED AT THE HORIZONTAL JOINT OF THE CAST-IN-PLACE MANHOLES.

100% PASSING	1" SCREEN
90-100% PASSING	3/4" SCREEN
20-55% PASSING	3/8" SCREEN
0-10% PASSING	#4 SIEVE
0-5% PASSING	#8 SIEVE

17. FLEXIBLE JOINT: A FLEXIBLE JOINT SHALL BE PROVIDED WIbHIN THE FOLLOWING DISTANCES FROM ANY MANHOLE CONNECTION: (a) WITHIN 48 INCHES FOR REINFORCED CONCRETE PIPE (RCP). (b) WITHIN 60 INCHES FOR PVC PIPE LARGER THAN 15" DIAMETER.
18. NO FLEXIBLE JOINT SHALL BE REQUIRED FOR DUCTILE IRON PIPE OR PVC PIPE UP THROUGH 15-INCH DIAMETER.
19. PIPE TO MANHOLE JOINTS SHALL BE ONLY AS FOLLOWS:
    A. ELASTOMERIC, RUBBER SLEEVE WITH WATERTIGHT JOINTS AT THE MANHOLE OPENING AND PIPE SURFACES.
    B. CAST INTO WALL OR SECUREED WITH STAINLESS STEEL CLAMPS.
    C. ELASTOMERIC SEALING RING CAST IN THE MANHOLE OPENING WITH THE SEAL FORMED ON THE SURFACE OF THE PIPE BY COMPRESSION OF THE RING.
    D. ON-SHRINK GROUTED JOINTS WHERE WATERTIGHT BONDING TO THE MANHOLE AND PIPE CAN BE OBTAINED.
20. THE INVERT OF THE INCOMING PIPE SHALL BE NO MORE THAN 6 INCHES ABOVE THE OUTGOING PIPE UNLESS A DROP ENTRY IS USED.

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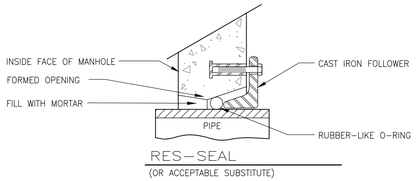

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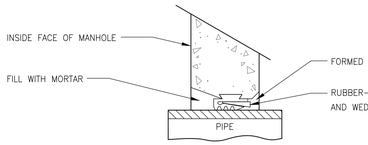

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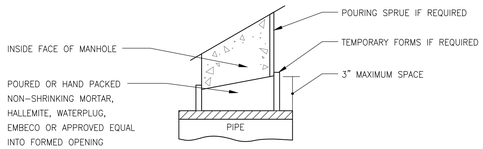

NON-SHRINKING MORTAR
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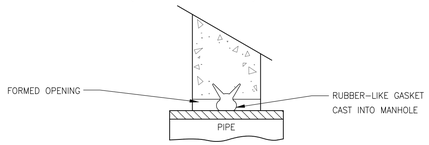

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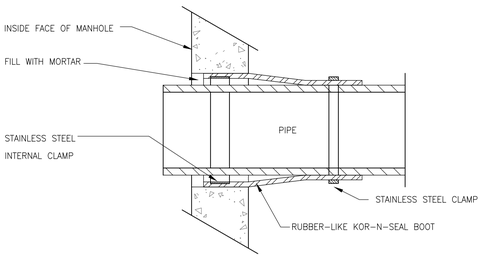

KOR-N-SEAL JOINT SLEEVE
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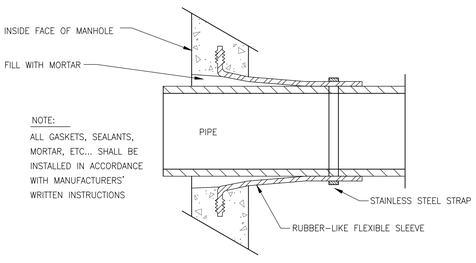
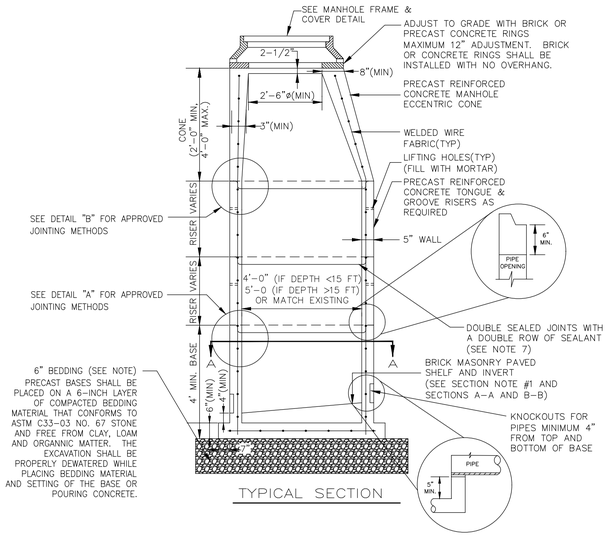


LOCK-JOINT FLEXIBLE MANHOLE SLEEVE
(OR ACCEPTABLE SUBSTITUTE)

DETAIL "A" – PIPE TO MANHOLE JOINTS



TYPICAL SECTION

NOTES

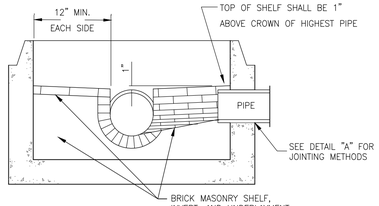
1. UNDERLAYMENT OF MANHOLE INVERT AND SHELF SHALL BE BRICK MASONRY PER ENV-WQ 704.12(K).
2. INVERT AND SHELF TO BE PLACED AFTER EACH LEAKAGE TEST.
3. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT.
4. INVERT BRICKS SHALL BE LAID ON EDGE.
5. PRECAST CONCRETE MANHOLES SHALL MEET AASHTO M199-93/ ASTM C478-90B, RATED FOR HS-20 LOADING WITH CONCRETE STRENGTH OF 4000 PSI OR GREATER.
6. ALL PRECAST SECTIONS AND BASES SHALL BE COATED ON THE EXTERIOR WITH A BITUMINOUS DAMP-PROOFING COATING.
7. HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF AN OVERLAPPING TYPE, SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW OF AN ELASTOMERIC OR MASTIC-LIKE SEALANT.

   ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

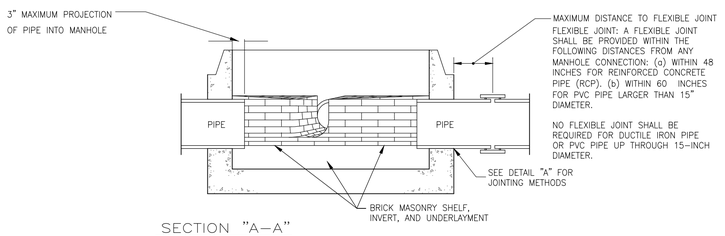
   STATE OF NEW HAMPSHIRE APPROVED PRODUCTS
   A) SIKAFLEX-12-SL
   B) SONNEBORN BUILDING PRODUCTS SONOLASTIC SL-1
8. MANHOLE STEPS ARE PROHIBITED BY TILTON SEWER COMMISSION.

NOTES:

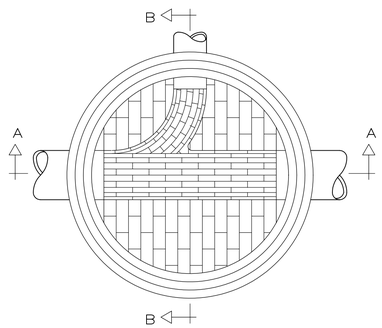
1. INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST.
2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.
3. BASE SECTION TO BE FULL WALL THICKNESS AND MONOLITHIC TO A POINT 6" ABOVE THE PIPE CROWN.



SECTION "B-B"

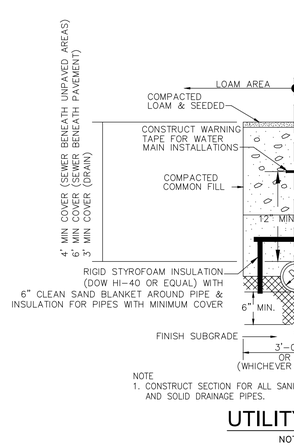


SECTION "A-A"



TYPICAL MANHOLE – PLAN VIEW

STANDARD MANHOLE
NOT TO SCALE



NOTE
1. CONSTRUCT SECTION FOR ALL SANITARY SEWERS AND SOLID DRAINAGE PIPES.

UTILITY TRENCH
NOT TO SCALE

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No. 15698
3/22/22
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DR	CK
5	3/22/2022	TAC COMMENTS	HEG	JCC
4	2/18/2022	REVISED PER NHDES & UTILITIES	HEG	JCC
3	2/15/2022	REVISED PER NHDES & UTILITIES PER TAC	HEG	JCC
2	2/2/2022	REVISED PER NHDES & UPDATE SURVEY/UTILITIES	HEG	JCC
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
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SEWER SERVICE NOTES

1) MINIMUM SIZE PIPE FOR SEWER SERVICE SHALL BE FOUR INCHES.

2) PIPE AND JOINT MATERIALS:
   A. PLASTIC SEWER PIPE
      1. PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	*PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F789	PVC (SOLID WALL)	4" THROUGH 18" (T-1 TO T-3)
F794	PVC (RIBBED WALL)	8" THROUGH 36"
D2680	*ABS (COMPOSITES WALL)	8" THROUGH 15"

      *PVC: POLY VINYL CHLORIDE
      *ABS: ACRYLONITRILE-BUTADIENE-STYRENE

      2. JOINTS SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212 AND SHALL BE PUSH-ON, BELL AND SPIGOT TYPE.

      ABS TRUSS PIPE AND FITTINGS SHALL CONFORM TO ASTM D-2680, POLYMER COMPOUNDING SHALL BE TO ASTM D-1788 (CLASS 322).

      JOINTS FOR ABS TRUSS PIPE SHALL BE CHEMICAL WELDED COUPLINGS TYPE SC IN ACCORDANCE WITH ASTM D-2680, FORMING A CHEMICAL WELDED JOINT.

   B. DUCTILE-IRON PIPE, FITTINGS AND JOINTS.

      1. DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE UNITED STATES OF AMERICA STANDARDS INSTITUTE:
         A21.50 THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A-536 DUCTILE IRON CASTINGS.
         A21.51 DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL MOLDS OR SAND-LINED MOLDS FOR WATER OR OTHER LIQUIDS.
      2. JOINTS SHALL BE OF THE MECHANICAL OR PUSH-ON TYPE. JOINTS AND GASKETS SHALL CONFORM TO:
         A21.11 RUBBER GASKETS JOINTS FOR CAST IRON PRESSURE PIPE & FITTINGS

3) DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.

4) JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER-TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.

5) TEES AND WYES: WHERE A TEE OR WYE IS NOT AVAILABLE IN THE EXISTING STREET SEWER, AN APPROPRIATE CONNECTION SHALL BE MADE, FOLLOWING MANUFACTURERS' INSTRUCTIONS USING A BOLTED, CLAMPED OR EPOXY-CEMENTED SADDLE TAPPED INTO A SMOOTHLY DRILLED OR SAWN OPENING IN THE SEWER. THE PRACTICE OF BREAKING AN OPENING WITH A SLEDGE HAMMER, STUFFING CLOTH OR OTHER SUCH MATERIAL AROUND THE JOINT, OR APPLYING MORTAR TO HOLD THE CONNECTION, AND ANY OTHER SIMILAR CRUDE PRACTICES OR INEPT OR HASTY IMPROVISATIONS WILL NOT BE PERMITTED. THE CONNECTION SHALL BE CONCRETE ENCASED AS SHOWN IN THE DETAIL UP TO AND INCLUDING 15" DIAMETER.

6) SEWER SERVICE INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 6 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND RE-FILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.

   THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE FOUNDATION AT A GRADE OF NOT LESS THAN 1/8" INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.

7) TESTING: THE COMPLETED SEWER SERVICE SHALL BE SUBJECTED TO A THIRD PARTY LEAKAGE TEST IN ANY OF THE FOLLOWING MANNERS: (PRIOR TO BACKFILLING)

   A. AN OBSERVATION TEE SHALL BE INSTALLED AS SHOWN AND WHEN READY FOR TESTING, AN INFLATABLE BLADDER OR PLUG SHALL BE INSERTED JUST UPSTREAM FROM THE OPENING IN THE TEE. AFTER INFLATION, WATER SHALL BE INTRODUCED INTO THE SYSTEM ABOVE THE PLUG TO A HEIGHT OF 5 FEET ABOVE THE LEVEL OF THE PLUG.

   B. THE PIPE SHALL BE LEFT EXPOSED AND LIBERALLY HOSED WITH WATER, TO SIMULATE, AS NEARLY AS POSSIBLE, WET TRENCH CONDITIONS OR, IF TRENCH IS WET, THE GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. INSPECTIONS FOR LEAKS SHALL BE MADE THROUGH THE CLEANOUT WITH A FLASHLIGHT.

   C. DRY FLUORESCENE DYE SHALL BE SPRINKLED INTO THE TRENCH OVER THE PIPE. IF THE TRENCH IS DRY, THE PIPE SHALL BE LIBERALLY HOSED WITH WATER, OR IF THE TRENCH IS WET, GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. OBSERVATION FOR LEAKS SHALL BE MADE IN THE FIRST DOWN-STREAM MANHOLE.

   LEAKAGE OBSERVED IN ANY ONE OF THE ABOVE ALTERNATE TESTS SHALL BE CAUSE FOR NON-ACCEPTANCE AND THE PIPE SHALL BE DUG-UP IF NECESSARY AND RE-LAID SO AS TO ASSURE WATER TIGHTNESS.

8) ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.

9) WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE.

10) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATERIAL AND MEETING ASTM C33-67.

100% PASSING	1 INCH SCREEN
90%-100% PASSING	3/4 INCH SCREEN
20%-55% PASSING	3/8 INCH SCREEN
0%-10% PASSING	#4 SIEVE
0%-5% PASSING	#8 SIEVE

   WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1 1/2 INCH SHALL BE USED.

11) LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE TEE OR WYE AS DESCRIBED IN THE TYPICAL "CHIMNEY" DETAIL, TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPEFINDER.

12) CHIMNEYS: IF VERTICAL DROP INTO SEWER IS GREATER THAN 4 FEET, A CHIMNEY SHALL BE CONSTRUCTED FOR THE SEWER CONNECTION. CHIMNEY INSTALLATION AS RECOMMENDED BY THE PIPE MANUFACTURER MAY BE USED IF APPROVED BY THE ENGINEER.

GRAVITY SEWER NOTES

1. MINIMUM SIZE PIPE FOR GRAVITY SEWER SHALL BE 8-INCHES.

2. PIPE AND JOINT MATERIALS FOR PLASTIC SEWER PIPE SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034-04a	* PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679-03	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F794-03	PVC (RIBBED WALL)	8" THROUGH 36"
F1760-01(2005)e1	PVC, RECYCLED	ALL DIAMETERS

   *PVC: POLY VINYL CHLORIDE

3. PLASTIC SEWER PIPE SHALL HAVE A PIPE STIFFNESS RATING OF AT LEAST 46 POUNDS PER SQUARE INCH AT 5 PERCENT PIPE DIAMETER DEFLECTION, AS MEASURED IN ACCORDANCE WITH ASTM D2412-02 DURING MANUFACTURE.

4. JOINTS SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212-96(a)(2003)e1 AND SHALL BE PUSH-ON, BELL AND SPIGOT TYPE.

5. DUCTILE-IRON PIPE, FITTINGS AND JOINTS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA).

   AWWA C151/A21.51-02 THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A-536-84 (2004) DUCTILE IRON CASTINGS.

   AWWA C151/A21.51-02 DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL MOLDS OR SAND-LINED MOLDS FOR WATER OR OTHER LIQUIDS.

   JOINTS SHALL BE OF THE MECHANICAL OR PUSH-ON TYPE. JOINTS AND GASKETS SHALL CONFORM TO AWWA C151/A21.11 RUBBER GASKETS JOINTS FOR CAST IRON PRESSURE PIPE & FITTINGS.

6. CONCRETE PIPE SHALL CONFORM TO AWWA C302-04.

7. PRESTRESSED CONCRETE CYLINDER PIPE AND FITTINGS SHALL CONFORM TO AWWA C301-99.

   JOINTS SEALS FOR CONCRETE CYLINDER PIPE SHALL BE OIL RESISTANT ELASTOMERIC MATERIAL CONFORMING TO ASWWA C301-99 SPECIFICATIONS.

8. DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.

9. GRAVITY SEWER PIPE TESTING SHALL BE AS FOLLOWS:

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

   LOW PRESSURE AIR TESTING SHALL BE IN CONFORMANCE WITH:

   ASTM F1417-92(2005) "STANDARD TEST METHOD FOR INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW PRESSURE AIR".

   UNI-BELL PVC PIPE ASSOCIATION UNI-B-6, "LOW PRESSURE AIR TESTING OF INSTALLED SEWER PIPE".

10. ALL NEW GRAVITY SEWERS SHALL BE CLEANED AND VISUALLY INSPECTED AND SHALL BE TRUE TO LINE AND GRADE FOLLOWING INSTALLATION AND PRIOR TO USE.

11. ALL PLASTIC SEWER PIPE SHALL BE DEFLECTION TESTED NOT LESS THAN 30 DAYS FOLLOWING INSTALLATION.

12. THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5.0 PERCENT OF THE AVERAGE INSIDE DIAMETER.

13. TRENCH CONSTUCTION SHALL CONFORM TO THE FOLLOWING:

   SEWERS SHALL BE BURIED TO A MINIMUM DEPTH OF 6' BELOW GRADE IN ALL ROADWAY LOCATIONS AND TO A MINIMUM DEPTH OF 4 FEET BELOW GRADE IN ALL CROSS COUNTRY LOCATIONS.

   WHERE SEWER LINES CROSS WATER PIPES, A MINIMUM OF 18" VERTICAL SEPARATION BETWEEN THE TWO OUTSIDE PIPE WALLS SHALL BE OBSERVED. AT SEWER/WATER INTERSECTIONS, A MINIMUM OF 6 FEET SHALL BE PROVIDED FROM THE WATER LINE TO THE SEWER PIPE JOINT. 12" SEPARATION BETWEEN THE TWO OUTSIDE PIPE WALLS SHALL BE REQUIRED BETWEEN SEWER LINES AND ALL OTHER PIPES.

   TRENCH DIMENSIONS FOR SEWER PIPE LESS THAN 15 INCHES IN DIAMETER, THE ALLOWABLE TRENCH WIDTH AT A PLANE 12 INCHES ABOVE THE PIPE SHALL BE NO MORE THAN 36 INCHES AND FOR PIPE 15 INCHES AND LARGER, THE ALLOWABLE WIDTH SHALL BE EQUAL TO THE PIPES OUTSIDE DIAMETER PLUS 24 INCHES.

   PIPE TRENCH BEDDING MATERIAL AND FILL MATERIAL FOR EXCAVATION BELOW GRADE SHALL BE SCREENED GRAVEL OR CRUSHED STONE TO ASTM C33-03 STONE SIZE NO. 67. THE PIPE SAND BLANKET MATERIAL SHALL BE GRADED SAND FREE FROM ANY ORGANIC MATERIALS, GRADED SUCH THAT 100 PERCENT PASSED THE 1/2-INCH SIEVE AND A MAXIMUM OF 15 PERCENT PASSES A #200 SIEVE. IN LIEU OF A SAND BLANKET, A STONE ENVELOPE 6 INCHES THICK COMPLETELY AROUND THE PIPE USING 3/4-INCH STONE MAY BE USED.

   PIPE BEDDING MATERIAL SHALL EXTEND FROM A HORIZONTAL PLANE THROUGH THE PIPE AXIS TO 6-INCHES BELOW THE BOTTOM OF THE OUTSIDE SURFACE OF THE PIPE.

   PIPE SAND BLANKET MATERIAL SHALL COVER THE PIPE A MINIMUM OF 12 INCHES ABOVE THE CROWN OF THE OUTSIDE SURFACE.

   COMPACTION SHALL BE IN 12-INCH LAYERS FOR BEDDING AND BLANKET MATERIALS.

   BACKFILL MATERIAL SHALL BE IN 3-FOOT LAYERS TO THE GROUND SURFACE EXCEPT FOR ROAD CONSTRUCTION WHERE THE FINAL 3-FEET SHALL BE COMPACTED IN 12-INCH LAYERS TO THE ROAD BASE SURFACE.

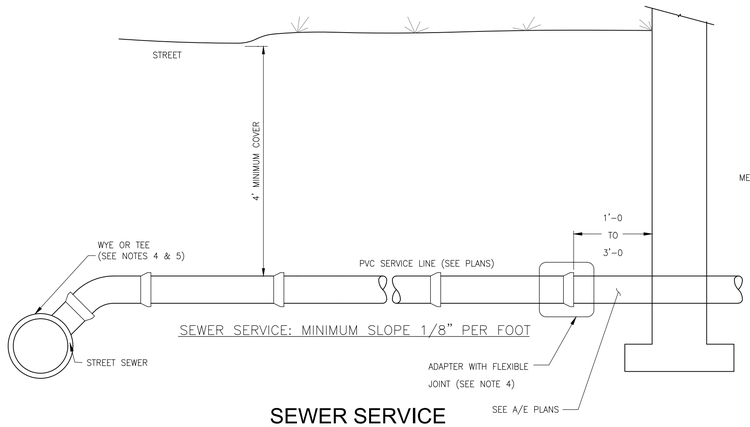
   TRENCH BACKFILL MATERIAL IN ROADWAY LOCATIONS SHALL BE NATURAL MATERIALS EXCAVATED FROM THE TRENCH DURING CONSTRUCTION, EXCLUDING DEBRIS, PAVEMENT PIECES, ORGANIC MATTER, TOP SOIL, WET OR SOFT MUCK, PEAT, CLAY, EXCAVATED LEDGE, ROCKS OVER 6 INCHES IN THE LARGEST DIMENSION, OR ANY OTHER UNSUITABLE MATERIAL NOT APPROVED BY THE ENGINEER.

   TRENCH BACKFILL AT CROSS-COUNTRY LOCATIONS SHALL BE AS DESCRIBED ABOVE EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLE RECONSTRUCTION, WHEN NECESSARY WILL BE PRESERVED. BACKFILL SHALL BE MOUNDED 6-INCHES ABOVE ORIGINAL GROUND.

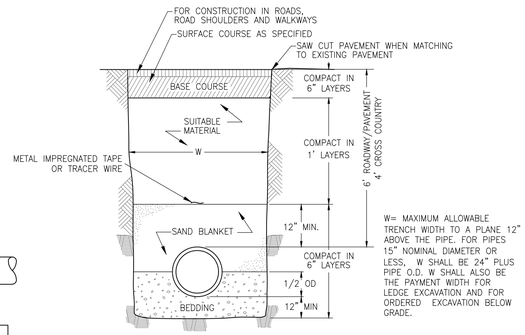
   BASE COURSE MATERIALS FOR TRENCH REPAIRS SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.

   WHERE SHEETING IS PLACED ALONG SIDE OF THE PIPE AND EXTENDS BELOW MID-DIAMETER, THE SHEETING SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN ONE FOOT ABOVE THE TOP OF THE PIPE AND AT LEAST 3 FEET BELOW FINISH GRADE.

   TRENCHES FOR SEWER PIPES WITH SLOPES OVER 0.08 FEET PER FOOT AND TRENCHES FOR SEWER PIPES BELOW THE SEASONAL HIGH GROUND WATER LEVEL SHALL HAVE IMPERVIOUS TRENCH DAMS CONSTRUCTED EVERY 300 FEET TO PREVENT POTENTIAL DISTURBANCE TO PIPE BEDDING AND BLANKET MATERIALS.



SEWER SERVICE
NOT TO SCALE



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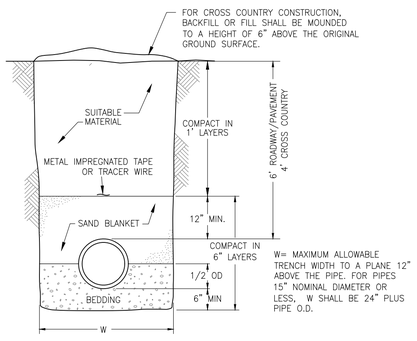

EARTH CONSTRUCTION
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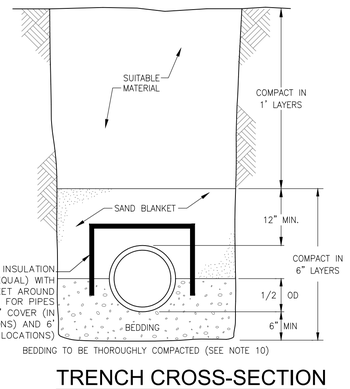

TRENCH CROSS-SECTION
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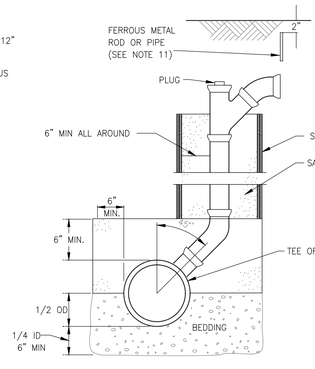

CHIMNEY
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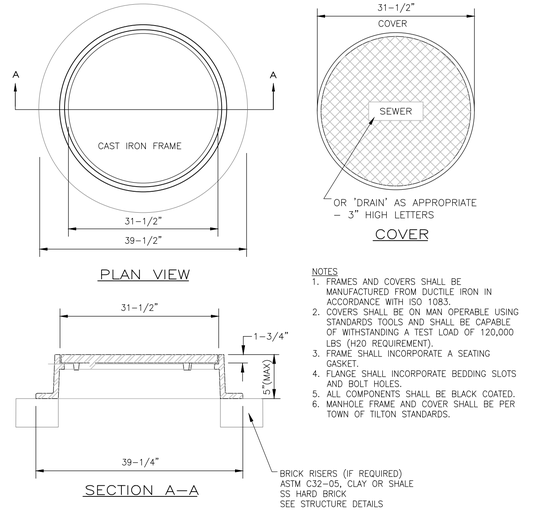

NOTES
1. FRAMES AND COVERS SHALL BE MANUFACTURED FROM DUCTILE IRON IN ACCORDANCE WITH ISO 1083.
2. COVERS SHALL BE ON MAN OPERABLE USING STANDARDS TOOLS AND SHALL BE CAPABLE OF WITHSTANDING A TEST LOAD OF 120,000 LBS (H20 REQUIREMENT).
3. FRAME SHALL INCORPORATE A SEATING GASKET.
4. FLANGE SHALL INCORPORATE BEDDING SLOTS AND BOLT HOLES.
5. ALL COMPONENTS SHALL BE BLACK COATED.
6. MANHOLE FRAME AND COVER SHALL BE PER TOWN OF TILTON STANDARDS.

MANHOLE FRAME AND COVER
NOT TO SCALE

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No. 15691
LICENSED
PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

REV.	DATE	DESCRIPTION	DR	CK
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3	2/15/2022	REVISED PER NHDES & UTILITIES PER TAC	HEG	JCC
2	2/2/2022	REVISED PER NHDES & UPDATE SURVEY/UTILITIES	HEG	JCC
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

Seacoast Division
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		CK	JCC	CADFILE	47099-01_DETAILS_MAIN	

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Mar 22, 2022 - 3:53pm
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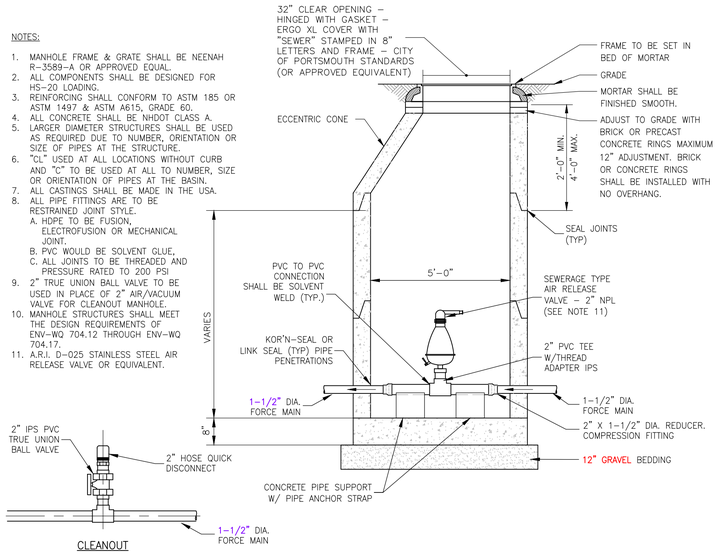
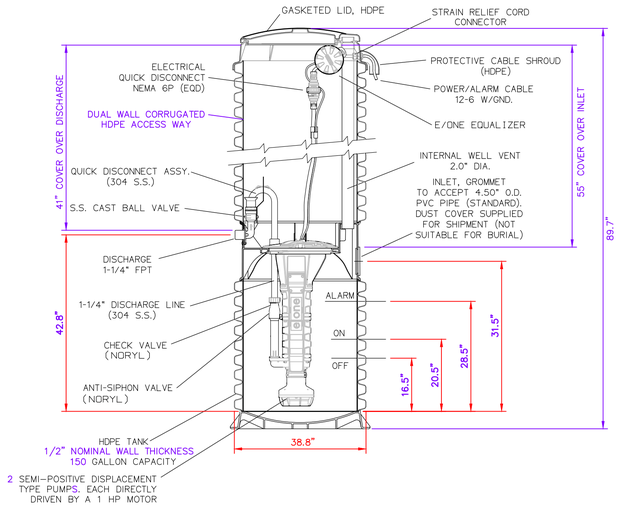
NOTES:

1. MANHOLE FRAME & GRATE SHALL BE NEENAH R-3589-A OR APPROVED EQUAL.
2. ALL COMPONENTS SHALL BE DESIGNED FOR HS-20 LOADING.
3. REINFORCING SHALL CONFORM TO ASTM 185 OR ASTM 1497 & ASTM A615, GRADE 60.
4. ALL CONCRETE SHALL BE NHDOT CLASS A.
5. LARGER DIAMETER STRUCTURES SHALL BE USED AS REQUIRED DUE TO NUMBER, ORIENTATION OR SIZE OF PIPES AT THE STRUCTURE.
6. "CL" USED AT ALL LOCATIONS WITHOUT CURB AND "C" TO BE USED AT ALL TO NUMBER, SIZE OR ORIENTATION OF PIPES AT THE BASIN.
7. ALL CASTINGS SHALL BE MADE IN THE USA.
8. ALL PIPE FITTINGS ARE TO BE RESTRAINED JOINT STYLE.
   A. HDPE TO BE FUSION, ELECTROFUSION OR MECHANICAL JOINT.
   B. PVC WOULD BE SOLVENT GLUE,
   C. ALL JOINTS TO BE THREADED AND PRESSURE RATED TO 200 PSI
9. 2" TRUE UNION BALL VALVE TO BE USED IN PLACE OF 2" AIR/VACUUM VALVE FOR CLEANOUT MANHOLE.
10. MANHOLE STRUCTURES SHALL MEET THE DESIGN REQUIREMENTS OF ENV-WQ 704.12 THROUGH ENV-WQ 704.17.
11. A.R.I. D-025 STAINLESS STEEL AIR RELEASE VALVE OR EQUIVALENT.



E-ONE AIR VACUUM RELEASE MANHOLE

NOT TO SCALE



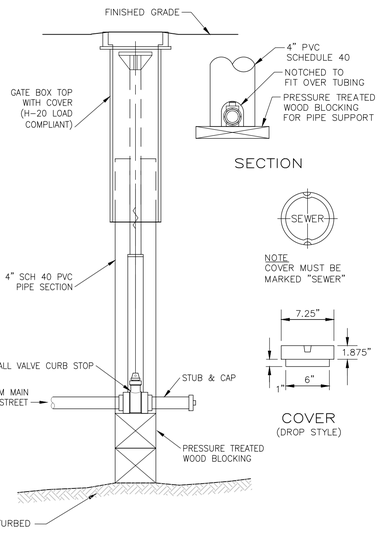
CONCRETE BALLAST MAY BE REQUIRED SEE INSTALLATION INSTRUCTION FOR DETAILS

NOTES:

1. ACTUAL E-ONE PUMP AND SPECIFICATION MUST BE DESIGNED AND PROVIDED BY EONE DESIGNER OR EQUAL.
2. THE PUMP CORE CONTAINS BUILT IN CHECK AND ANTI-SIPHON VALVES. IN ADDITION, THERE IS A REDUNDANT UNILATERAL CHECK AND ISOLATION VALVE AT THE LOT LINE WITH THE STAINLESS STEEL ASSEMBLY.
3. THE STATION MONITOR CONTAINS A HIGH LEVEL ALARM. THE HIGH LEVEL ALARM IS RUN OFF A REDUNDANT RUN SWITCH THAT OVERRIDES THE RUN SWITCH IF IT SHOULD SEE A POWER FAILURE.
4. THE ALARM PANEL HAS THE OPTION TO CONNECT A PORTABLE GENERATOR WITH A 20 AMP, 240 VOLT SUPPLY. POWER TRANSFERS AUTOMATICALLY IF THE PUMP IS CALLING TO RUN.
5. THE PUMP RATED TO 700 GPD.
6. THE TANK HAS A 150-GAL VOLUME.
7. IN CASE OF A POWER FAILURE, A BATTERY BACKUP REMOTE SENTRY ALARM PANEL SHALL BE USED IN CONJUNCTION WITH THE E-ONE PUMP SYSTEM.
8. A BACKUP GENERATOR WILL BE PROVIDED THAT SHALL BE AMPLE ENOUGH TO SUPPLY POWER TO RUN THE GRINDER PUMP AND ALARM SYSTEM. THERE SHALL BE ENOUGH FUEL ON SITE TO RUN THE GENERATOR FOR A MINIMUM OF 6 HRS.
9. SEWER PUMP ASSEMBLY AND TANK SHOULD BE PROTECTED WITHIN A SEWER MANHOLE IN PAVED AREAS.

E-ONE DH152 PUMP

NOT TO SCALE



NOTES:

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2. ALL COMPONENTS SHALL BE DESIGNED FOR HS-20 LOADING.
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5. LARGER DIAMETER STRUCTURES SHALL BE USED AS REQUIRED DUE TO NUMBER, ORIENTATION OR SIZE OF PIPES AT THE STRUCTURE.
6. "CL" USED AT ALL LOCATIONS WITHOUT CURB AND "C" TO BE USED AT ALL TO NUMBER, SIZE OR ORIENTATION OF PIPES AT THE BASIN.
7. ALL CASTINGS SHALL BE MADE IN THE USA.
8. INSTALL PIPE SUPPORTS ON THE SWEEP ELBOW.
9. ALL PIPE FITTINGS ARE TO BE RESTRAINED JOINT STYLE.
   A. HDPE TO BE FUSION, ELECTROFUSION OR MECHANICAL JOINT.
   B. PVC WOULD BE SOLVENT GLUE,
   C. ALL JOINTS TO BE THREADED AND PRESSURE RATED TO 200 PSI
10. MANHOLE STRUCTURES SHALL MEET THE DESIGN REQUIREMENTS OF ENV-WQ 704.12 THROUGH ENV-WQ 704.17.
11. A.R.I. D-025 STAINLESS STEEL AIR RELEASE VALVE OR EQUIVALENT.

FORCE MAIN CURB STOP

NOT TO SCALE

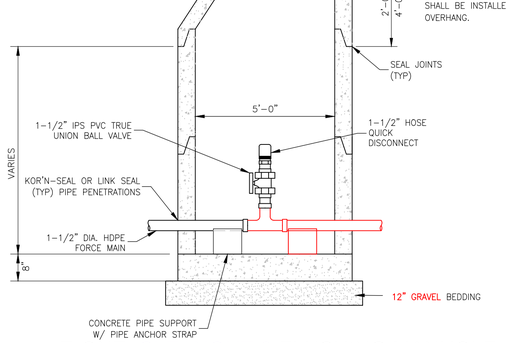
PRESSURE SEWER TESTING NOTES

1. PIPE AND JOINT MATERIALS:
   A. PRESSURE SEWERS SHALL BE CONSTRUCTED OF DUCTILE IRON (DI), HIGH DENSITY POLYETHYLENE (HDPE), OR PVC MATERIAL.
   B. PRESSURE SEWERS SHALL BE TREATED AS GRAVITY SEWERS FOR PURPOSES OF FOUNDATION BEDDING AND BACKFILL REQUIREMENTS.
   C. PVC PIPE USED PRESSURE SEWERS SHALL BE CERTIFIED BY ITS MANUFACTURER AS CONFORMING TO THE ASTM D2241 OR ASTM D1785 STANDARDS IN EFFECT WHEN THE PIPE IS MANUFACTURED.
   D. HDPE PIPE USED FOR PRESSURE SEWERS SHALL BE CERTIFIED BY ITS MANUFACTURER AS CONFORMING TO THE ASTM D3035 STANDARD IN EFFECT WHEN THE PIPE IS MANUFACTURED.
   E. IF DI PIPE IS USED IN AN ENVIRONMENT THAT COULD CAUSE CORROSION OR OTHER DETERIORATION OF OR DAMAGE TO AN IRON PIPE, OR OTHERWISE REDUCE THE TYPICAL LIFE EXPECTANCY OF THE PIPE, SUCH AS MAY OCCUR WITH CERTAIN SOIL TYPES, LOW PH LEVELS, OR WATER CONDITIONS, THE PIPE SHALL BE PROTECTED AGAINST CORROSION, SUCH AS WITH CATHODIC PROTECTION.
2. TESTING: THE COMPLETED SEWER SERVICE SHALL BE SUBJECTED TO A THIRD PARTY LEAKAGE TEST ANY OF THE FOLLOWING MANNERS: (PRIOR TO BACKFILLING) PRESSURE SEWERS SHALL BE TESTED IN ACCORDANCE WITH SECTION 5 OF THE AWWA C600, "INSTALLATION OF CAST IRON WATER MAINS AND THEIR APPURTENANCES"STANDARD IN EFFECT WHEN THE TEST IS CONDUCTED AT A PRESSURE EQUAL TO THE GREATER OF 150 PERCENT OF THE DESIGN OPERATING TOTAL DYNAMIC HEAD OR AT LEAST 100 PSI.
3. DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.
4. JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER-TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.
5. SEWER SERVICE INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 6 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 11. BEDDING AND RE-FILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.
6. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.
7. THE CENTERLINE OF ALL BUILDING CONNECTIONS SHALL ENTER THE TOP HALF OF THE SEWER.
8. ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.
9. PRESSURE SEWERAGE SHALL HAVE AN ISOLATION VALVE OR CURB STOP VALVE INSTALLED AT THE PROPERTY LINE / LIMITED COMMON AREA. IF A CHECK VALVE IS USED AT THE PROPERTY LINE, THE VALVE SHALL BE INSTALLED WITHIN A VAULT TO FACILITATE MAINTENANCE.
10. WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE.
11. BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATERIAL AND MEETING ASTM C33/C33M STONE SIZE 67 AND FREE FROM CLAY, LOAM AND ORGANNIC MATTER. THE EXCAVATION SHALL BE PROPERLY DEWATERED WHILE PLACING BEDDING MATERIAL AND SETTING OF THE BASE OR POURING CONCRETE.

100% PASSING	1 INCH SCREEN
90%-100% PASSING	3/4 INCH SCREEN
20%-55% PASSING	3/8 INCH SCREEN
0%-10% PASSING	#4 SIEVE
0%-5% PASSING	#8 SIEVE

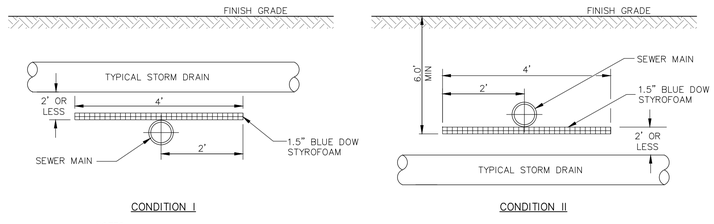
WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1 1/2 INCH SHALL BE USED.

12. LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS.
13. INTERNAL STEPS IN MANHOLES ARE PROHIBITED PER PORTSMOUTH DPW STANDARDS.



E-ONE CLEANOUT & FLUSHING MANHOLE

NOT TO SCALE



NOTES:

1. THE LENGTH OR WIDTH OF INSULATION SHALL EXTEND 1 STORM DRAIN PIPE DIAMETER BEYOND THE EDGE OF STORM DRAIN PIPE IN EACH DIRECTION OR A MINIMUM OF 2' BEYOND THE CENTERLINE OF THE STORM DRAIN PIPE, WHICHEVER IS GREATER.
2. ALL BUTT JOINT SEAMS TO BE OVERLAPPED WITH A 1' PIECE OF INSULATION CENTERED OVER SEAM.

INSULATION AT STORM DRAIN AND SEWER MAIN INTERSECTING RUNS

NOT TO SCALE

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

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Seacoast Division
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Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
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www.tfmoran.com

FILE	47099.01	DR	HEG	FB	–	C-25
		CK	JCC	CADFILE	47099-01_DETAILS_MAIN	

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DIG SAFE – CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE – HANNAH E. GIOVANNUCCI No. 15690 – LICENSED PROFESSIONAL ENGINEER

Mar 22, 2022 - 3:54pm
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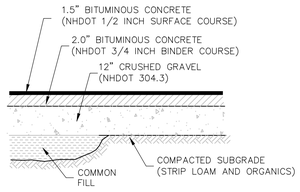
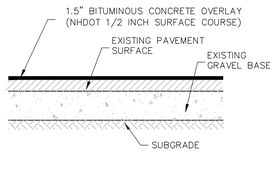


STANDARD DUTY PAVEMENT



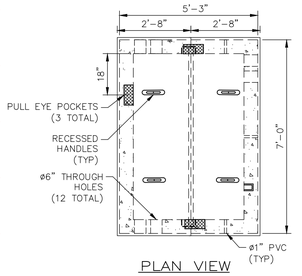
OVERLAY

NOTES

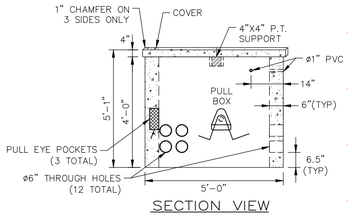
1. SEE GRADING & DRAINAGE PLAN & DRIVEWAY GRADING & PROFILE FOR PAVEMENT SLOPE AND CROSS–SLOPE.
2. PROVIDE CLEAN BUTT TO EXISTING PAVEMENT – USE TACK COAT. A TACK COAT SHALL ALSO BE PLACED BETWEEN GRAVEL COURSE AND SUCCESSIVE LAYERS OF BITUMINOUS CONCRETE. SPECIFICALLY, A TACK COAT SHALL BE PLACED ATOP THE BINDER COURSE PAVEMENT PRIOR TO PLACING THE WEARING COURSE.
3. REMOVE ALL LOAM AND/OR YIELDING MATERIAL BELOW PAVEMENT.
4. BITUMINOUS MATERIALS SHALL CONFORM TO NHDOT SPECIFICATION SECTION 401.
5. BITUMINOUS CONCRETE SHALL BE COMPACTED TO AT LEAST 92.5% OF THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D2041 OR AASHTO T209. PLACEMENT TEMPERATURES OF BITUMINOUS CONCRETE MIXES, IN GENERAL, RANGE BETWEEN 270 AND 310 DEGREES FAHRENHEIT.
6. PAVEMENT BASE COURSE AGGREGATE SHALL CONFORM TO NHDOT SPECIFICATION SECTION 304, ITEM 304.3 AND COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY.
7. PAVEMENT SUBBASE COURSE AGGREGATE AND AGGREGATE FOR SUBGRADE REPAIR AREAS SHALL BE SUITABLE FOR USE AS STRUCTURAL FILL AND BE PROOF ROLLED AND COMPACTED TO 95% MODIFIED PROCTOR MAXIMUM DRY DENSITY.
8. THE EXPOSED SOIL SUBGRADE SHOULD BE PROOF ROLLED PRIOR TO THE PLACEMENT OF SUBBASE GRAVEL, AND SOFT AREAS SHOULD BE REPAIRED AND REPLACED.

PAVEMENT SECTIONS

NOT TO SCALE



PLAN VIEW



SECTION VIEW

ESTIMATED VAULT WEIGHTS:

COVER (EACH)	= 675 LBS
BASE	= 6,500 LBS
TOTAL:	= 7,850 LBS

NOTES:
1. ELECTRIC PULLBOX SHALL BE PER THE STANDARDS OF EVERSOURCE.
2. REINFORCEMENT STEEL CONFORMS TO: ASTM A615 GRADE 60
3. CONCRETE: FC = 5,000 PSI @ 28 DAYS MINIMUM
4. DESIGN LOADING: AASHTO–HS20–44
5. BUTYL RUBBER JOINT SEALANT PROVIDED

ELECTRIC PULL BOX

NOT TO SCALE

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DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No. 15690
LICENSED PROFESSIONAL ENGINEER
12/22/22

REV.	DATE	DESCRIPTION	DR	CK
5	3/22/2022	TAC COMMENTS	HEG	JCC
4	2/18/2022	REVISED PER NHDES & UTILITIES	HEG	JCC
3	2/15/2022	REVISED PER NHDES & UTILITIES PER TAC	HEG	JCC
2	2/2/2022	REVISED PER NHDES & UPDATE SURVEY/UTILITIES	HEG	JCC
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

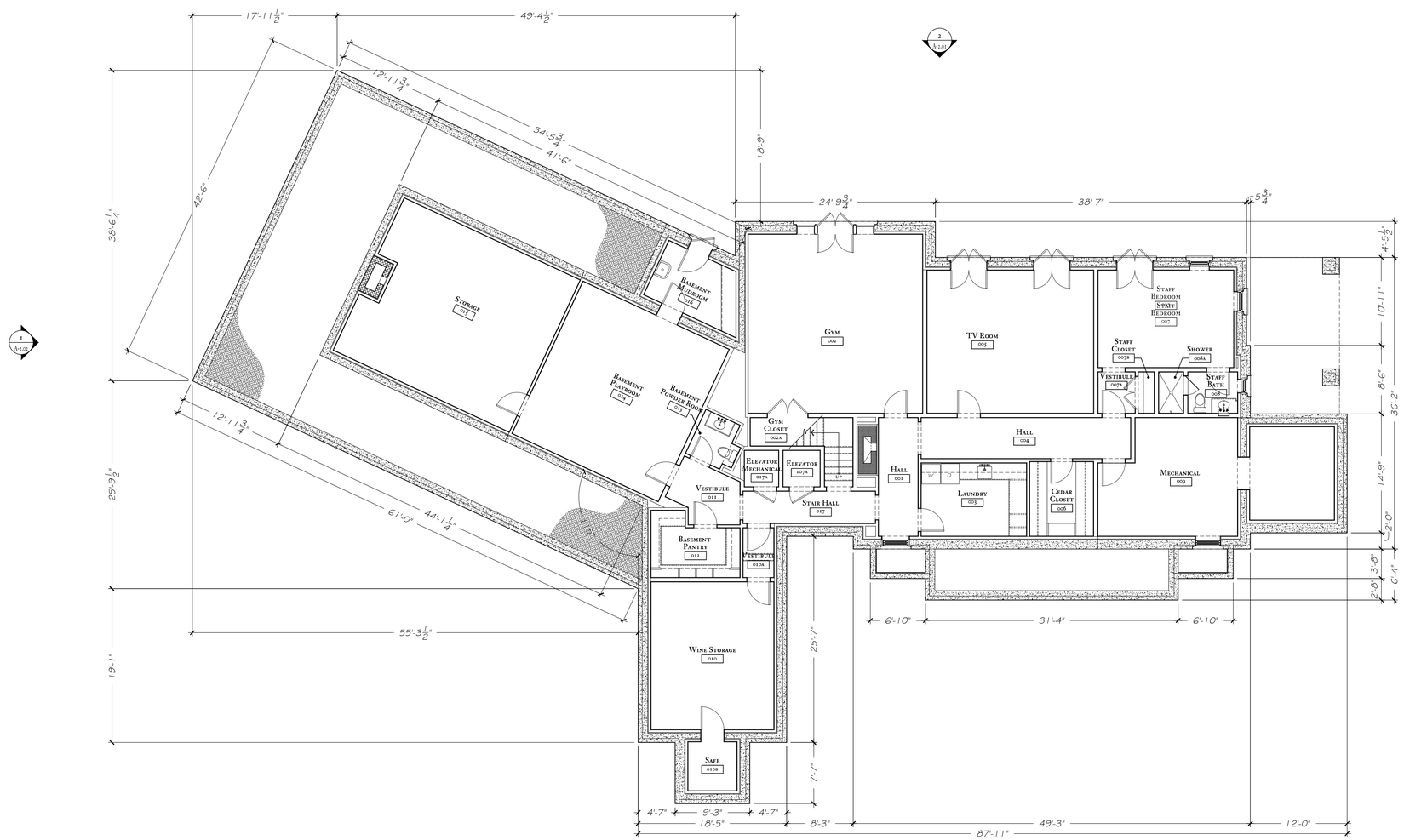
Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431–2222
Fax (603) 431–0910
www.tfmoran.com

FILE					
47099.01	DR: HEG	FB: –			C–26
	CK: JCC	CADFILE: 47099–01_DETAILS_MAIN			

Mar 22, 2022 - 3:54pm
F:\MSC Projects\47099 - Little Harbor Rd & Gosport Rd - Portsmouth\47099-01 - DiLorenzo - 325 Little Harbor Rd\Design\PRODUCTION DRAWINGS\47099-01_Details_Main.dwg

Gross Floor Area at Main House

	Conditioned sq.ft.	Unconditioned sq.ft.
Basement	3,382 sq.ft.	1,050 sq.ft.
First Floor	3,897 sq.ft.	1,496 sq.ft.
Second Floor	3,487 sq.ft.	--
Total	10,766 sq.ft.	2,546 sq.ft.
	13,312 sq.ft.	



1 / A-1.00 — Basement Floor Plan - Overall

Scale: 1/8" = 1'-0"

FOR PERMIT ONLY:
NOT FOR CONSTRUCTION

ISSUED FOR PERMIT	*6/24/21*

A New Residence & Garage
at
Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Basement
Overall Plan

Date :	Sheet Number :
June 24, 2021	MH A-1.00
Scale : *1/8" = 1'-0"*	
Drawn By : *PM / AB*	

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Gross Floor Area at Main House		
	Conditioned sq.ft.	Unconditioned sq.ft.
Basement	3,382 sq.ft.	1,050 sq.ft.
First Floor	3,897 sq.ft.	1,496 sq.ft.
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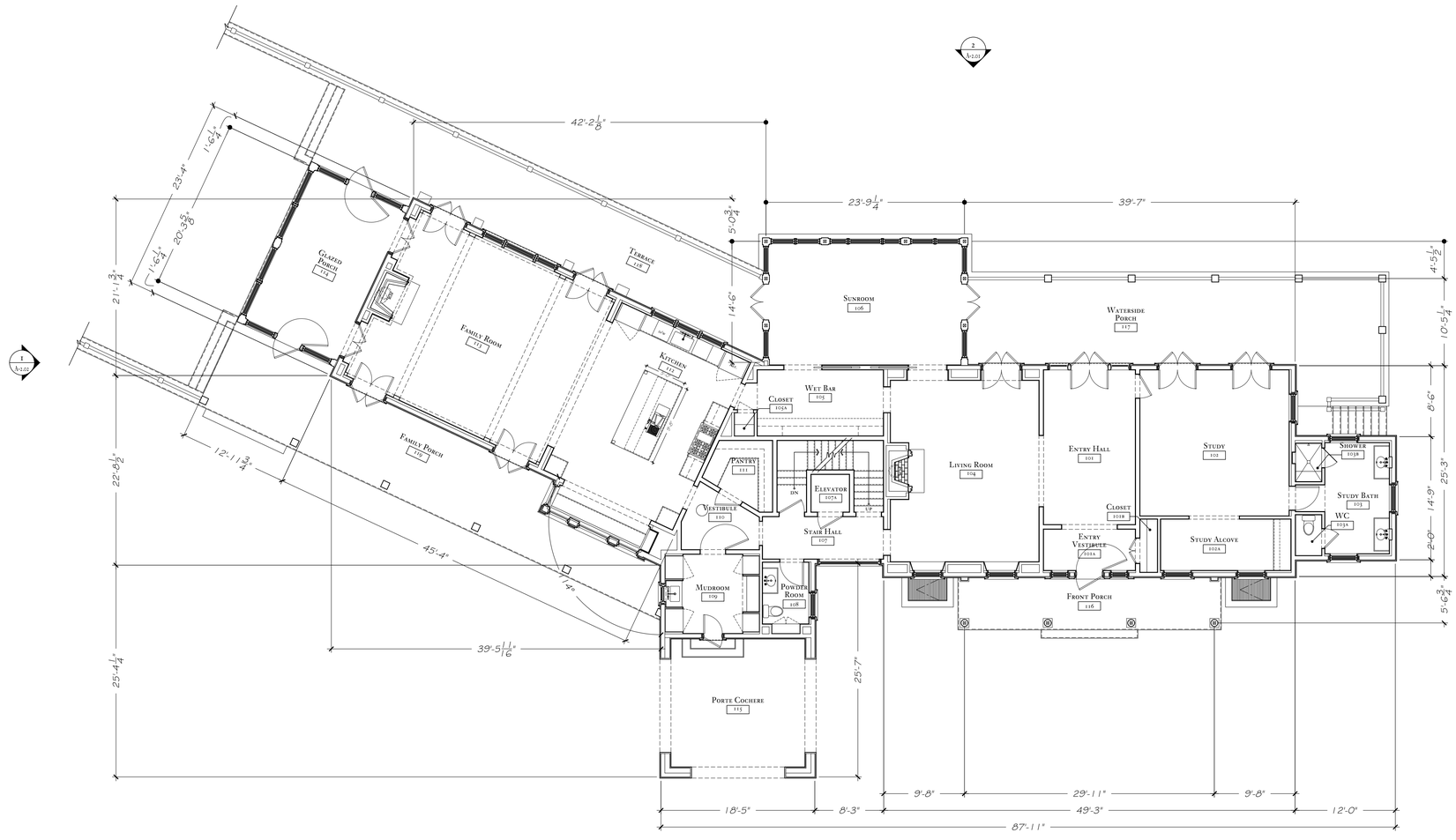
Total	10,766 sq.ft.	2,546 sq.ft.
	13,312 sq.ft.	



1 / A-1.01 First Floor Plan - Overall

Scale: 1/8" = 1'-0"

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A New Residence & Garage

at

Lady Isle
Portsmouth, New Hampshire

Sheet Title :

First Floor
Overall Plan

Date : *June 24, 2021*

Scale : *1/8" = 1'-0"*

Drawn By : *PM / AB*

Sheet Number :

MH
A-1.01

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Gross Floor Area at Main House		
	Conditioned sq.ft.	Unconditioned sq.ft.
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First Floor	3,897 sq.ft.	1,496 sq.ft.
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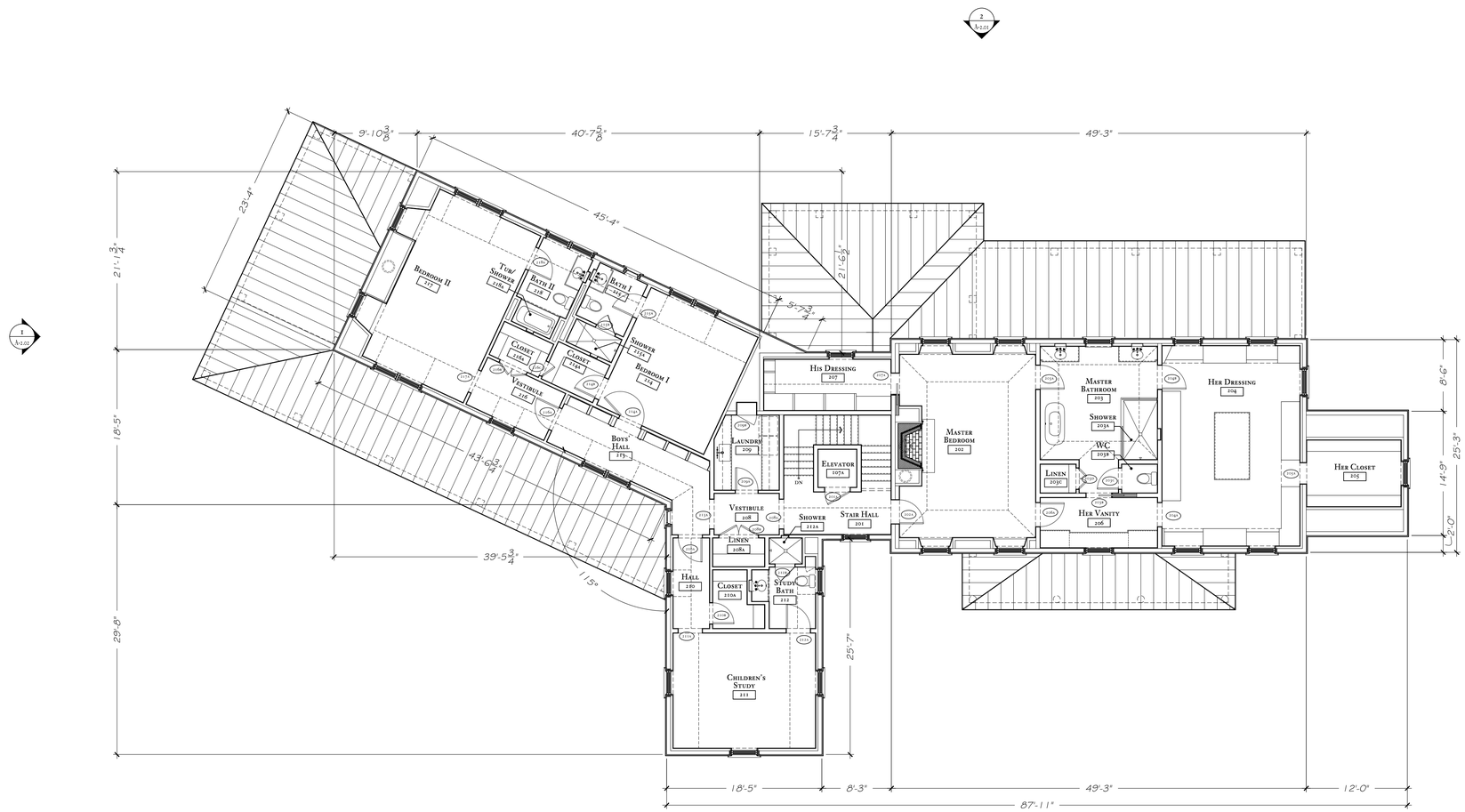

1 / A-1.02 Second Floor Plan - Overall

Scale: 1/8" = 1'-0"

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NOT FOR CONSTRUCTION

ISSUED FOR PERMIT 6/24/21

A New Residence & Garage

at

Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Second Floor
Overall Plan

Date : *June 24, 2021*

Scale : *1/8" = 1'-0"*

Drawn By : *PM / AB*

Sheet Number :

MH
A-1.02

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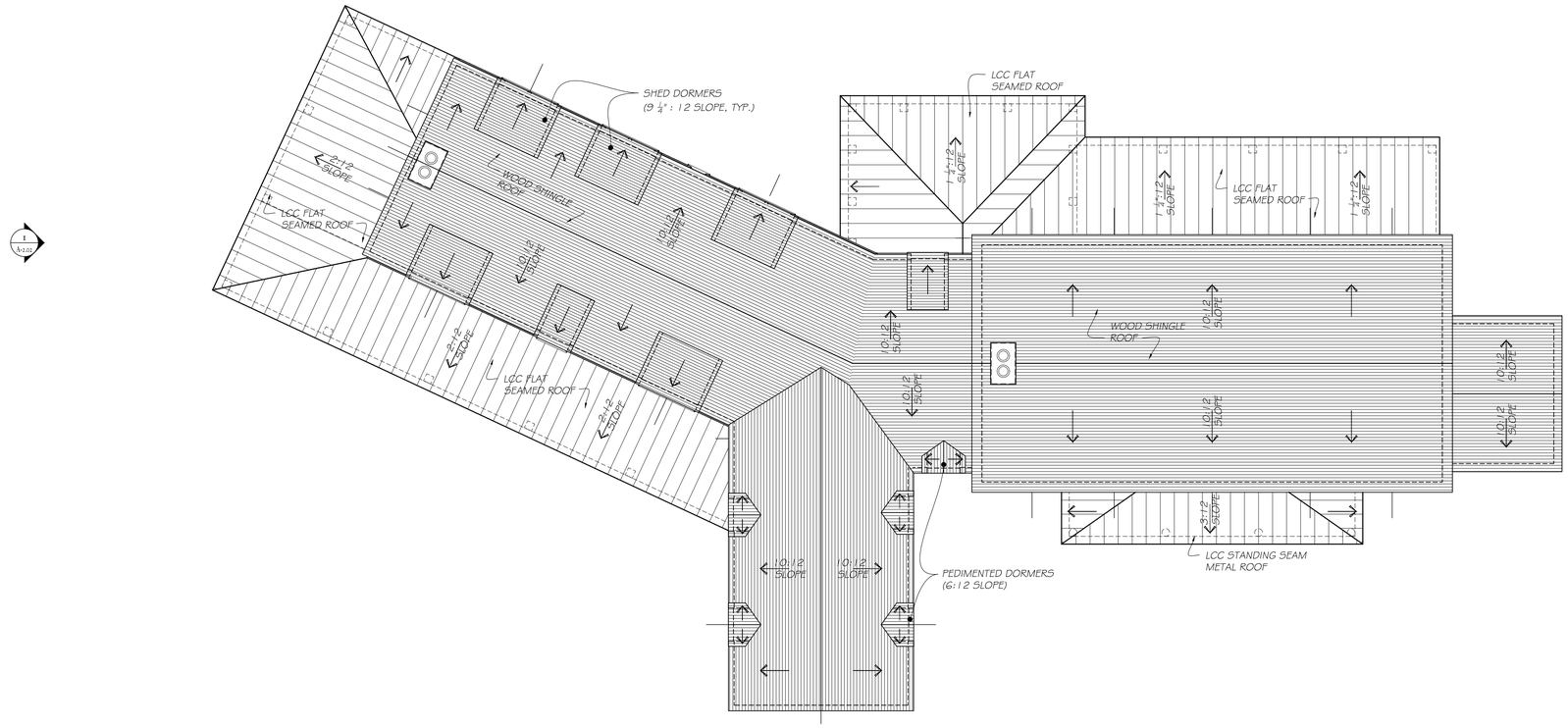

1 / A-1.03 — Roof Plan - Overall

Scale: 1/8" = 1'-0"

FOR PERMIT ONLY:
NOT FOR CONSTRUCTION

ISSUED FOR PERMIT	*6/24/21*

A New Residence & Garage

at

Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Roof
Overall Plan

Date :	Sheet Number :
June 24, 2021	MH A-1.03
Scale : *1/8" = 1'-0"*	
Drawn By : *PM / AB*	

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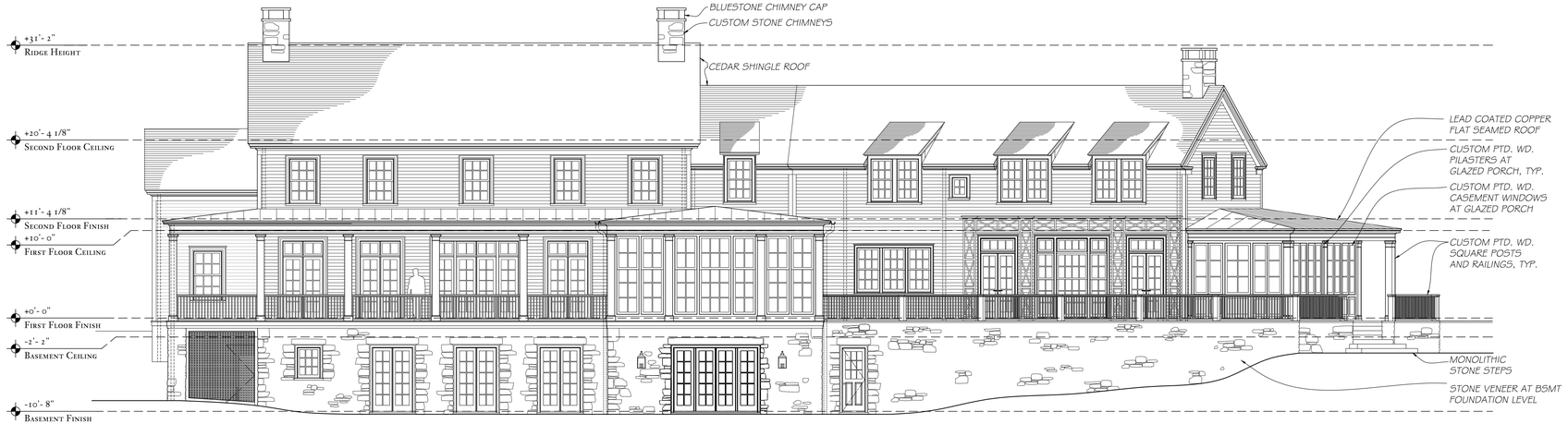

2 / A-2.01 **Overall East Elevation**

Scale: 1/8" = 1'-0"



1 / A-2.01 **Overall West Elevation**

Scale: 1/8" = 1'-0"

FOR PERMIT ONLY:

NOT FOR CONSTRUCTION

ISSUED FOR PERMIT	*6/24/21*

A New Residence & Garage

at

Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Exterior Elevations
Overall

Date :	Sheet Number :
June 24, 2021	MH A-2.01
Scale : *1/8" = 1'-0"*	
Drawn By : *PM / AB*	

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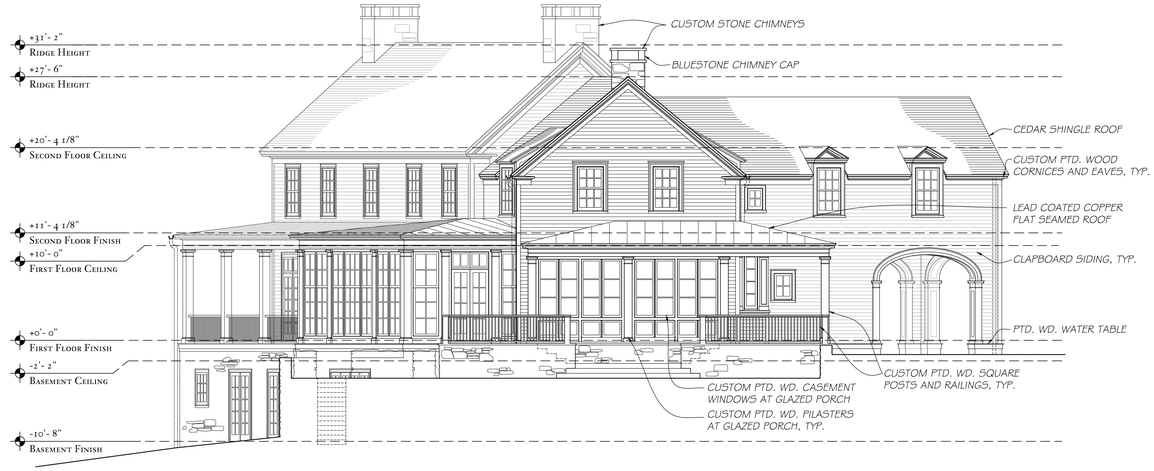

2 A-2.02 **Overall North Elevation**

Scale: 1/8" = 1'-0"



1 A-2.02 **Overall South Elevation**

Scale: 1/8" = 1'-0"

FOR PERMIT ONLY:
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ISSUED FOR PERMIT *6/24/21*

A New Residence & Garage

at

Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Exterior Elevations
Overall

Date :
June 24, 2021

Scale :
1/8" = 1'-0"

Drawn By :
PM / AB

Sheet Number :
MH
A-2.02

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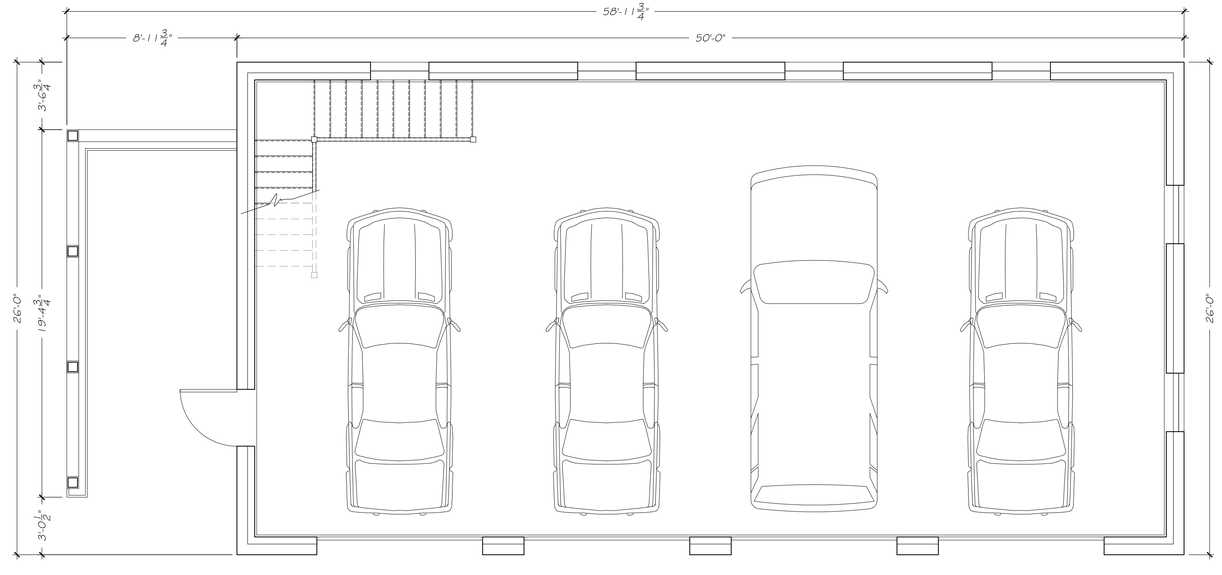

1 / A-1.01 First Floor Plan
Scale: 1/4" = 1'-0"

ISSUED FOR PERMIT — *6/24/21*

A New Residence & Garage
at
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
First Floor Plan

Date : *June 24, 2021*	Sheet Number : GAR A-1.01
Scale : *1/4" = 1'-0"*	
Drawn By : *PM*	

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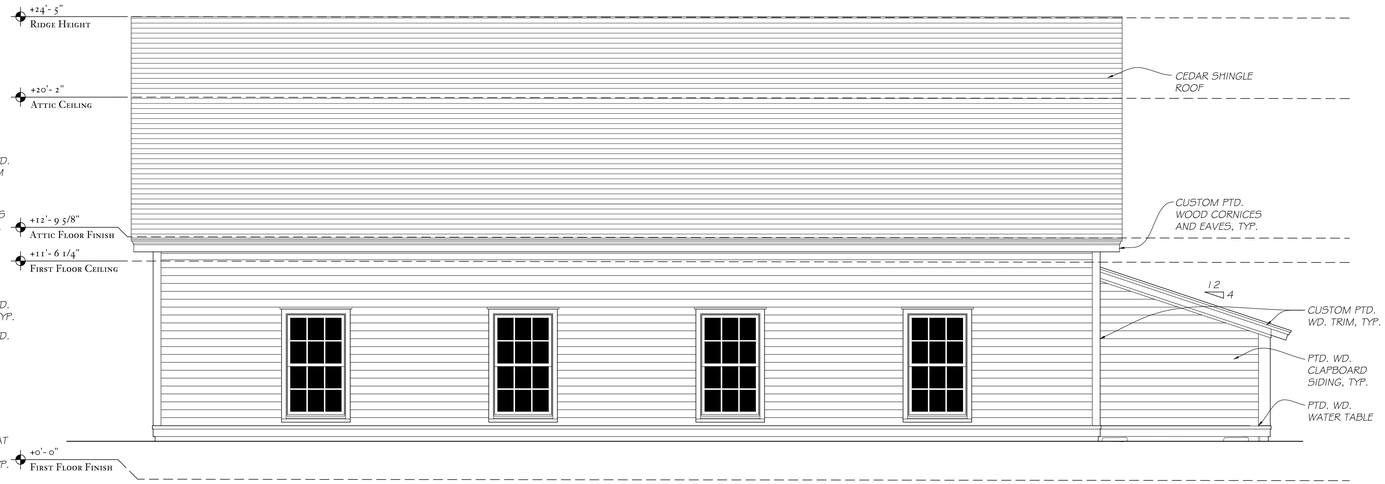
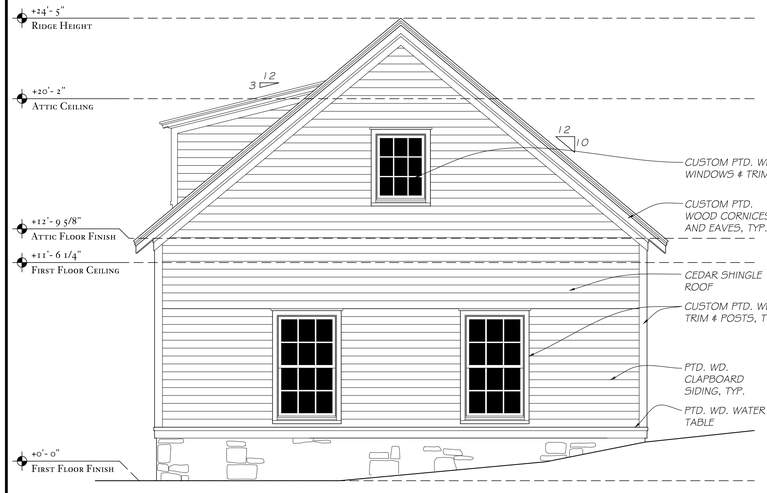
4 East Elevation
A-2.01 Scale: 1/4" = 1'-0"



3 South Elevation
A-2.01 Scale: 1/4" = 1'-0"



2 West Elevation
A-2.01 Scale: 1/4" = 1'-0"



1 North Elevation
A-2.01 Scale: 1/4" = 1'-0"

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ISSUED FOR PERMIT 6/24/21

A New Residence & Garage
at
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
Exterior Elevations

Date : *June 24, 2021*
Scale : *1/4" = 1'-0"*
Drawn By : *PM*
Sheet Number : GAR A-2.01

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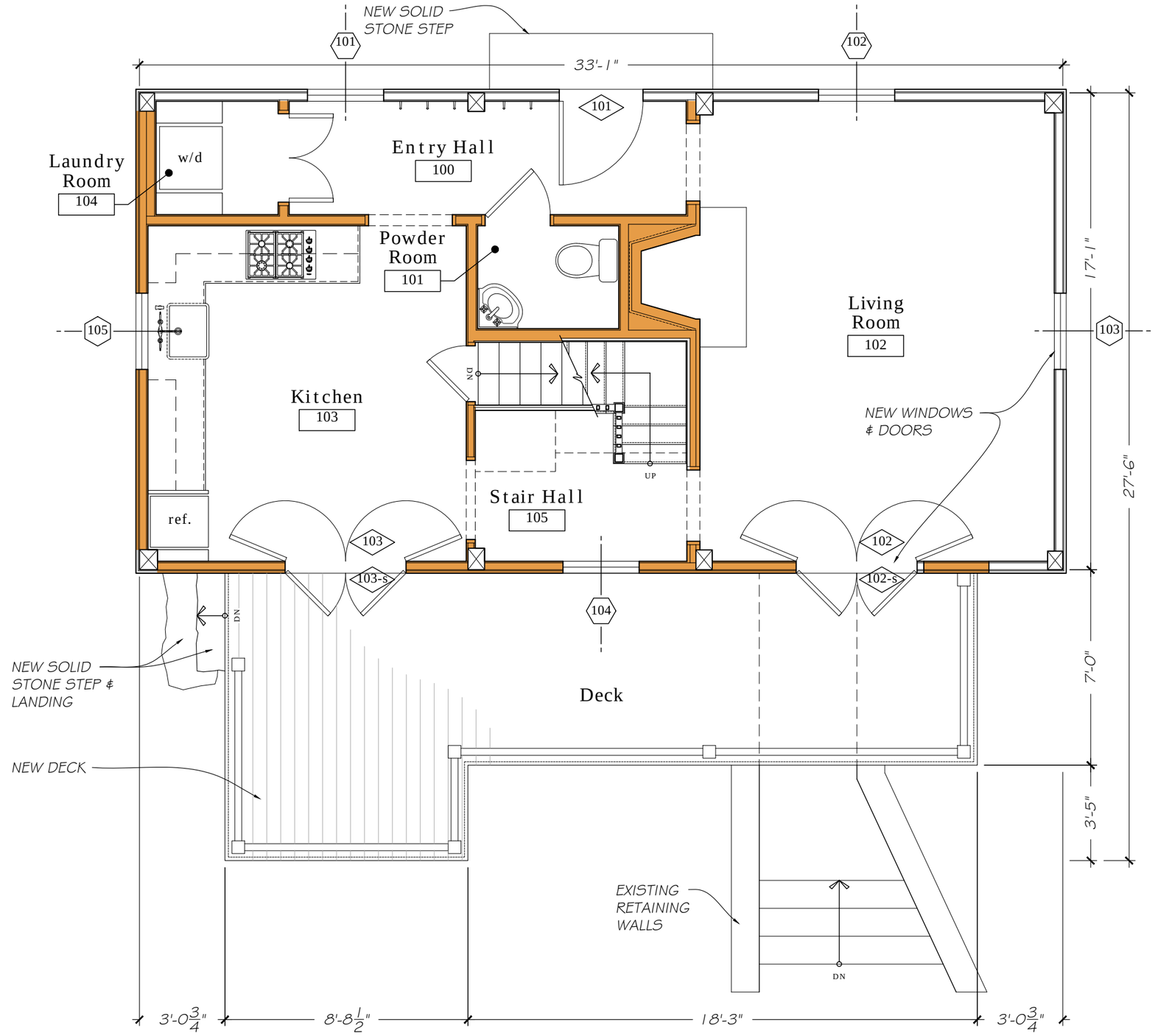

1 A-1.01 First Floor Plan - Proposed

Scale: 1/4" = 1'-0"

PROPOSED PLAN GRAPHIC LEGEND:

NEW CONSTRUCTION

GENERAL NOTE FOR REVISION 1:

WINDOW AND DOOR NUMBER TAGS HAVE BEEN ADDED TO REFERENCE WITH SCHEDULES IN A-6 SERIES AND A-7 SERIES

1

FOR PERMIT ONLY

002	REVISION 1	1	06/12/2020
001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Proposed
First Floor Plan

Date : *June 12, 2020*

Scale : *1/4" = 1'-0"*

Drawn By : *PM*

Sheet Number :

A-1.01

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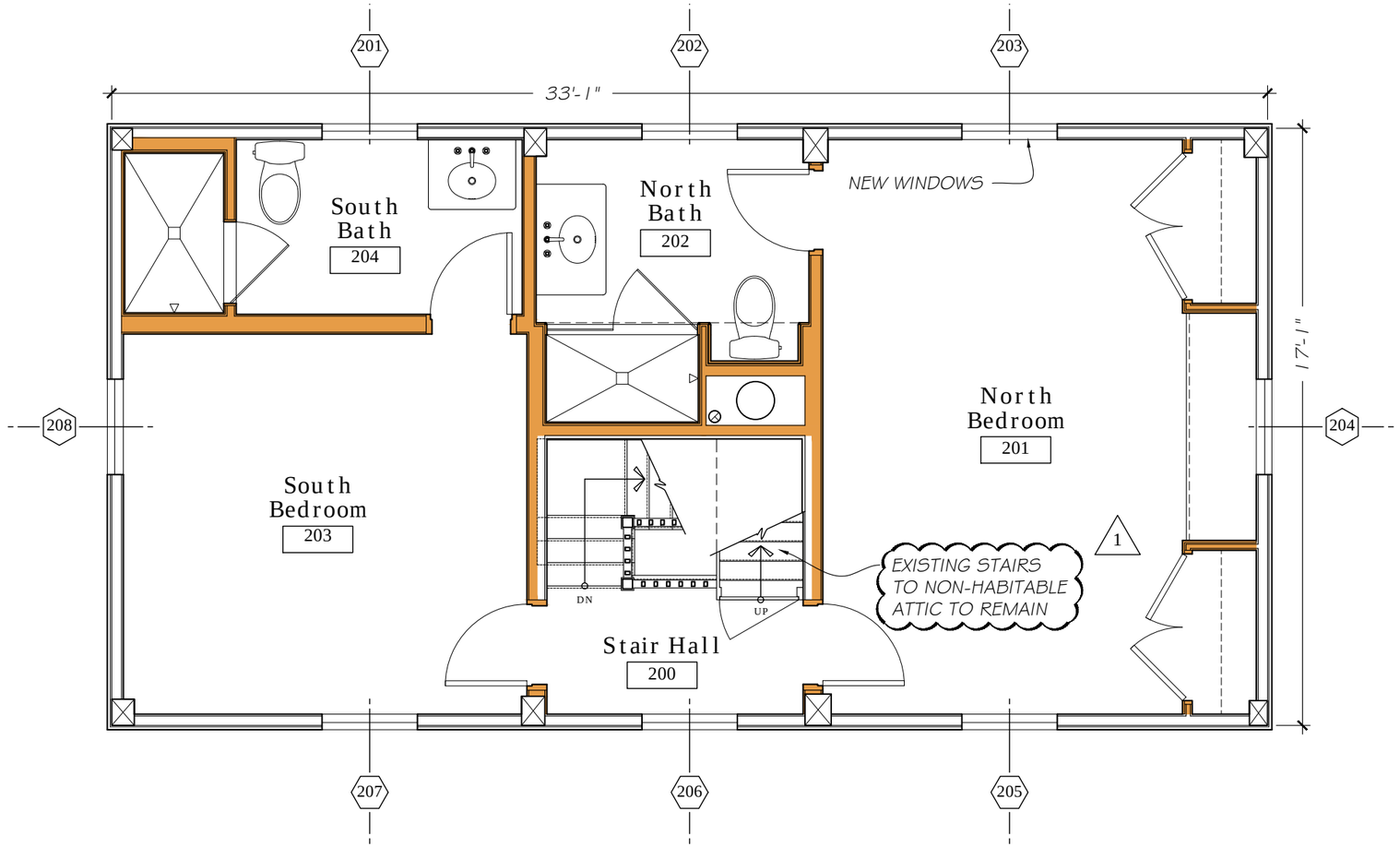

1 A-1.02 Second Floor Plan - Proposed

Scale: 1/4" = 1'-0"

PROPOSED PLAN GRAPHIC LEGEND:

NEW CONSTRUCTION

GENERAL NOTE FOR REVISION 1:

WINDOW AND DOOR NUMBER TAGS HAVE BEEN ADDED TO REFERENCE WITH SCHEDULES IN A-6 SERIES AND A-7 SERIES

1

FOR PERMIT ONLY

002	REVISION 1	1	06/12/2020
001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title:

Proposed
Second Floor Plan

Date: *June 12, 2020*

Scale: *1/4" = 1'-0"*

Drawn By: *PM*

Sheet Number: A-1.02

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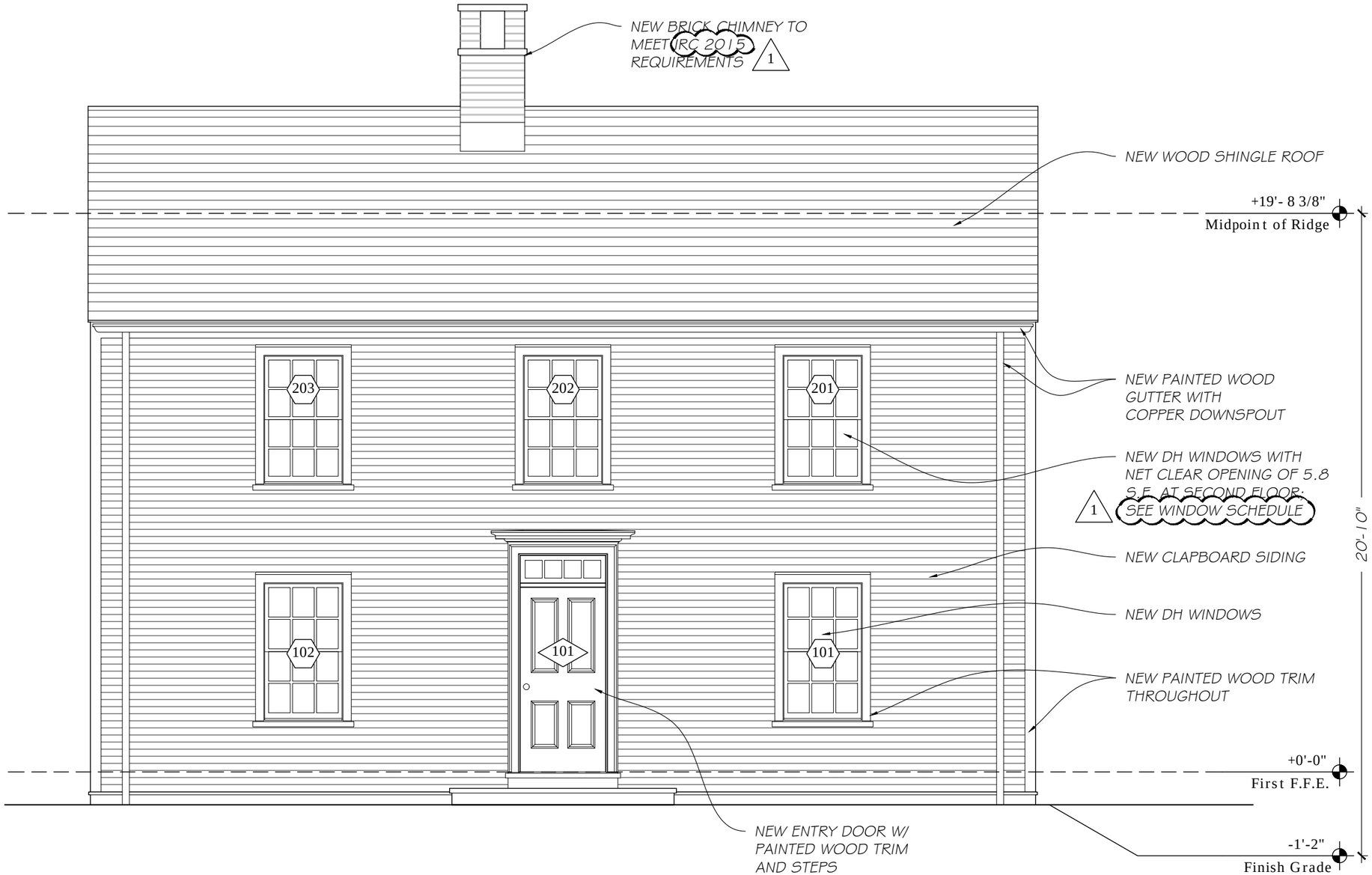

1 / D-2.01 West Elevation (Proposed)

Scale: 1/4" = 1'-0"

GENERAL NOTE FOR REVISION 1:

WINDOW AND DOOR NUMBER TAGS HAVE BEEN ADDED TO REFERENCE WITH SCHEDULES IN A-6 SERIES AND A-7 SERIES

1

FOR PERMIT ONLY

002	REVISION 1	1	06/12/2020
001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title:
Exterior Elevations

Date: June 12, 2020

Scale: 1/4" = 1'-0"

Drawn By: TG

Sheet Number: A-2.01

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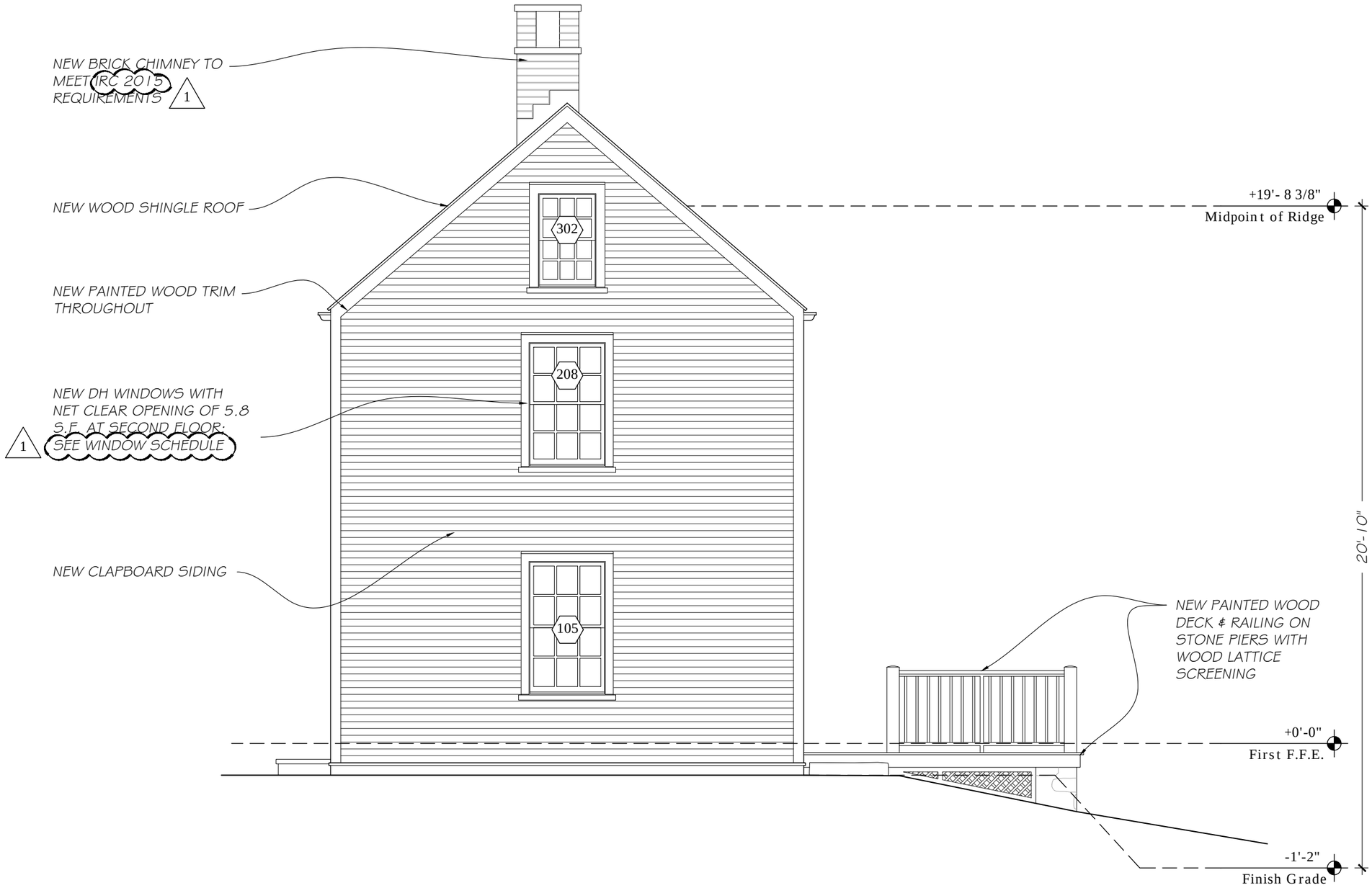

1 / A-2.02 South Elevation (Proposed)

Scale: 1/4" = 1'-0"

GENERAL NOTE FOR REVISION 1:

WINDOW AND DOOR NUMBER TAGS HAVE BEEN ADDED TO REFERENCE WITH SCHEDULES IN A-6 SERIES AND A-7 SERIES

1

FOR PERMIT ONLY

002	REVISION 1	1	06/12/2020
001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title:
Exterior Elevations

Date: June 12, 2020

Scale: 1/4" = 1'-0"

Drawn By: TG

Sheet Number: **A-2.02**

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1 / A-2.03 East Elevation (Proposed)

Scale: 1/4" = 1'-0"

GENERAL NOTE FOR REVISION 1:

WINDOW AND DOOR NUMBER TAGS HAVE BEEN ADDED TO REFERENCE WITH SCHEDULES IN A-6 SERIES AND A-7 SERIES

1

FOR PERMIT ONLY

002	REVISION 1	1	06/12/2020
001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title:
Exterior Elevations

Date: June 12, 2020

Scale: 1/4" = 1'-0"

Drawn By: TG

Sheet Number: A-2.03

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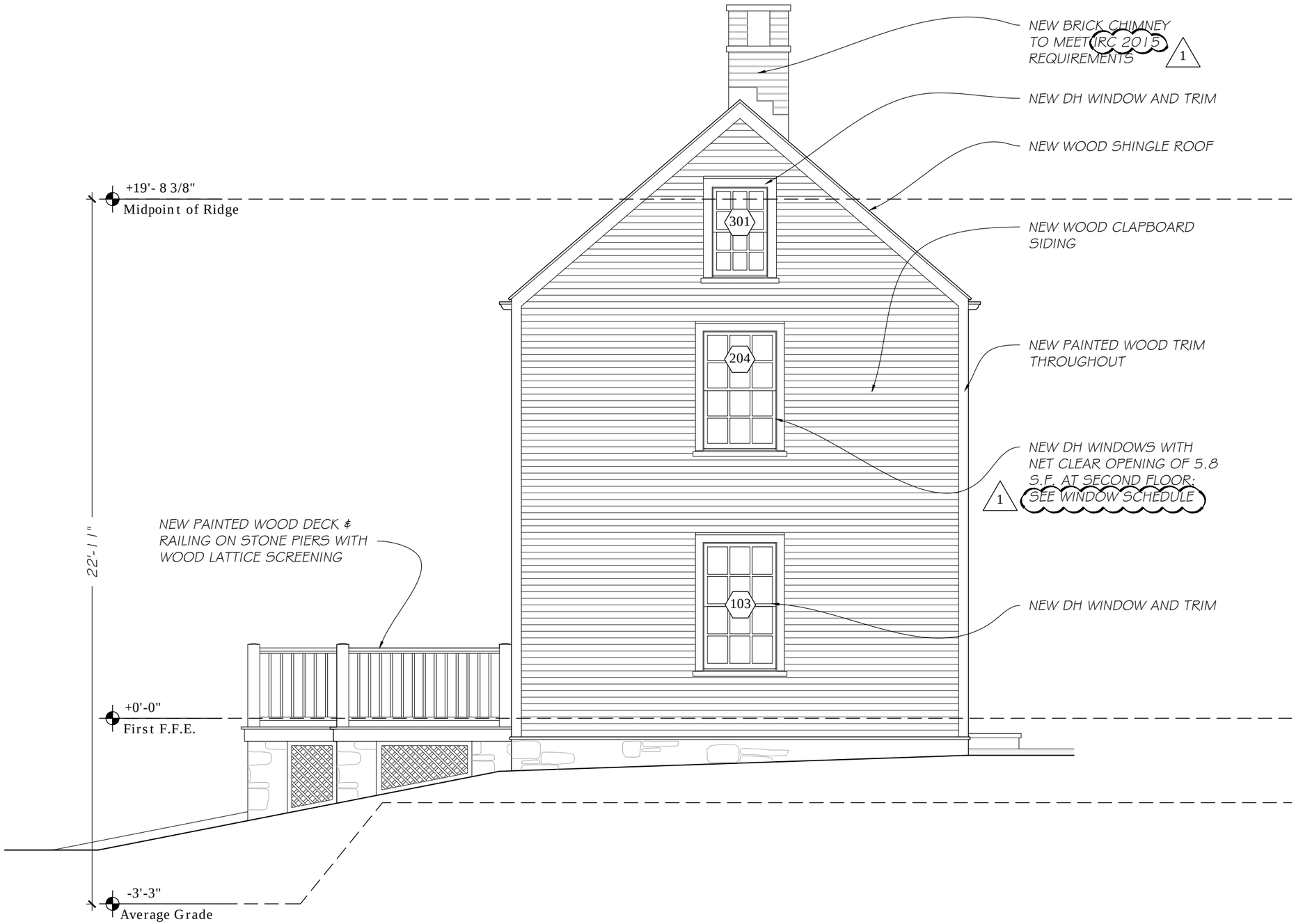

1 A-2.04 North Elevation (Proposed)

Scale: 1/4" = 1'-0"

GENERAL NOTE FOR REVISION 1:

WINDOW AND DOOR NUMBER TAGS HAVE BEEN ADDED TO REFERENCE WITH SCHEDULES IN A-6 SERIES AND A-7 SERIES

1

FOR PERMIT ONLY

002	REVISION 1	1	06/12/2020
001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title:
Exterior Elevations

Date: June 12, 2020

Scale: 1/4" = 1'-0"

Drawn By: TG

Sheet Number: A-2.04

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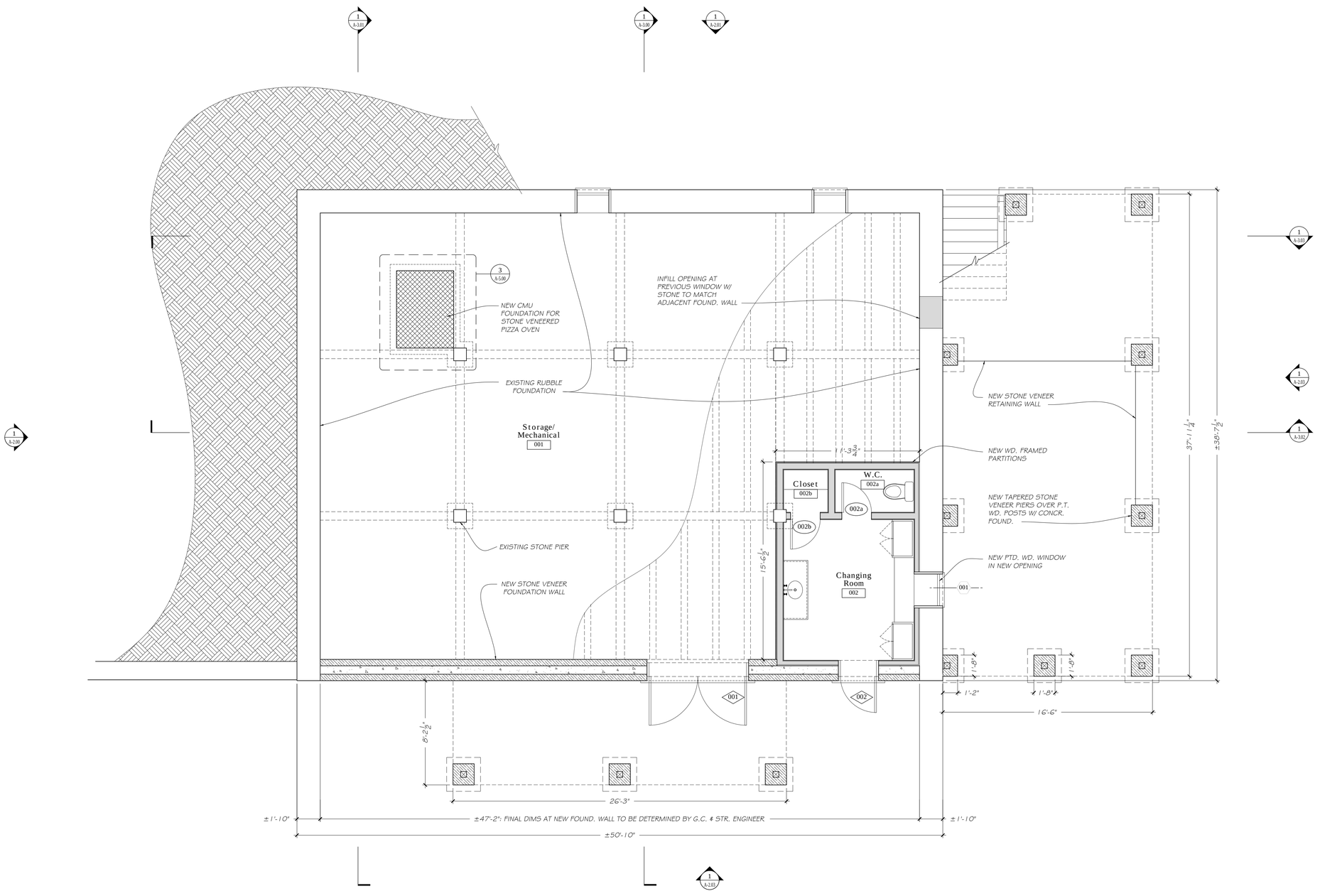

1 / A-1.00 **Basement Plan**

Scale: 1/4" = 1'-0"

LEGEND

- EXISTING FOUNDATION WALL
- NEW CONCR. STEM WALL
- NEW STONE VENEER
- NEW CMU FOUNDATION
- NEW FRAMING
- NEW WOOD POST

COORDINATION ONLY
NOT FOR CONSTRUCTION

-	ISSUED FOR PRICING (NOT FOR CONSTRUCTION)	9/8/20

A Renovated Barn
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
Basement Plan
Barn

Date : *September 8, 2020*

Scale : *1/4" = 1'-0"*

Drawn By : -

Sheet Number : **A-1.00**

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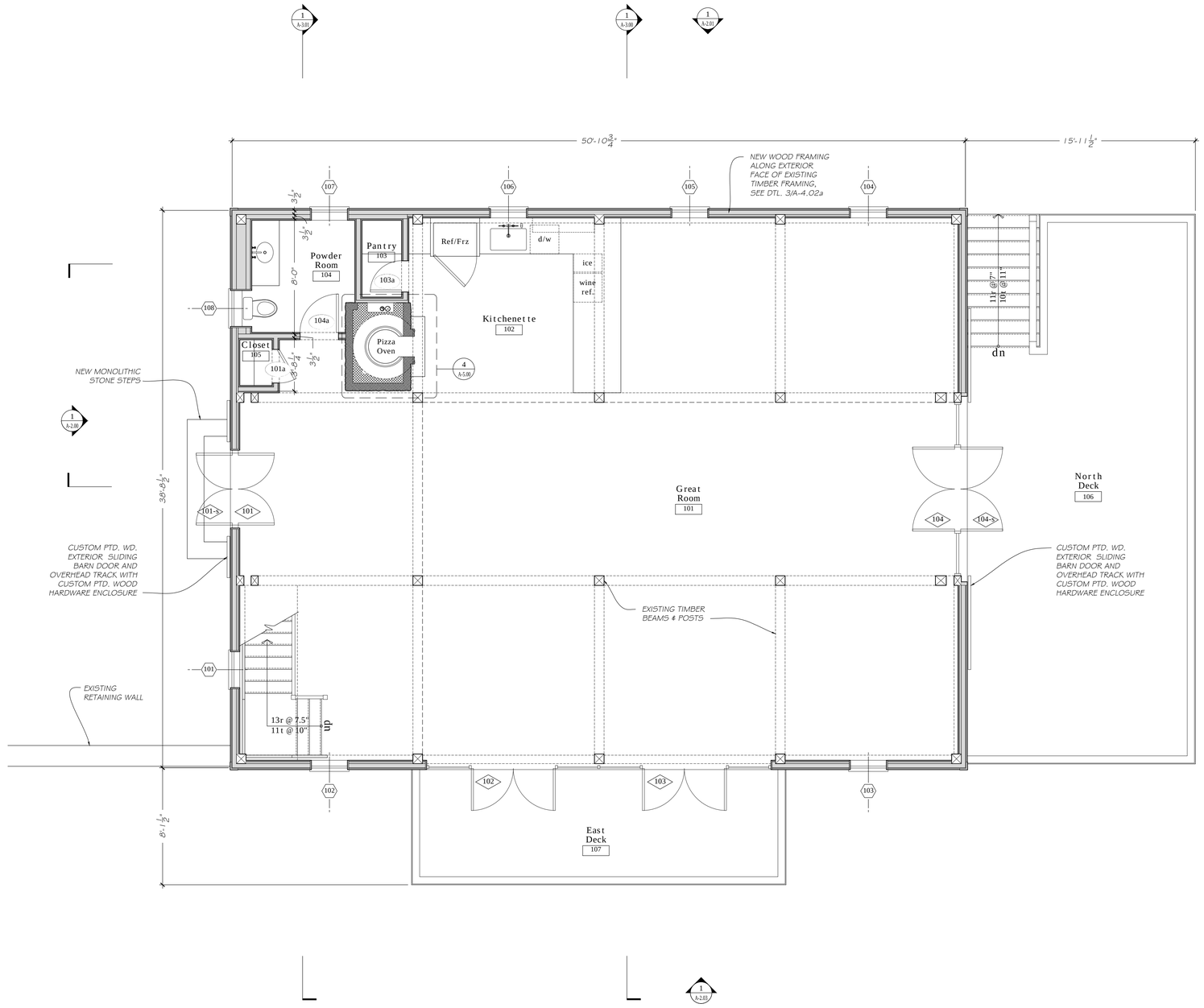
Actual North / Project North



1 A-1.01 First Floor Plan

Scale: 1/4" = 1'-0"

LEGEND

- EXISTING FOUNDATION WALL
- NEW CONCR. STEM WALL
- NEW STONE VENEER
- NEW CMU FOUNDATION
- NEW FRAMING
- EXISTING TIMBER POST

FOR COORDINATION ONLY
NOT FOR CONSTRUCTION

-	ISSUED FOR PRICING (NOT FOR CONSTRUCTION)	9/8/20

A Renovated Barn
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
First Floor Plan
Barn

Date : *September 8, 2020*

Scale : *1/4" = 1'-0"*

Drawn By : -

Sheet Number :
A-1.01

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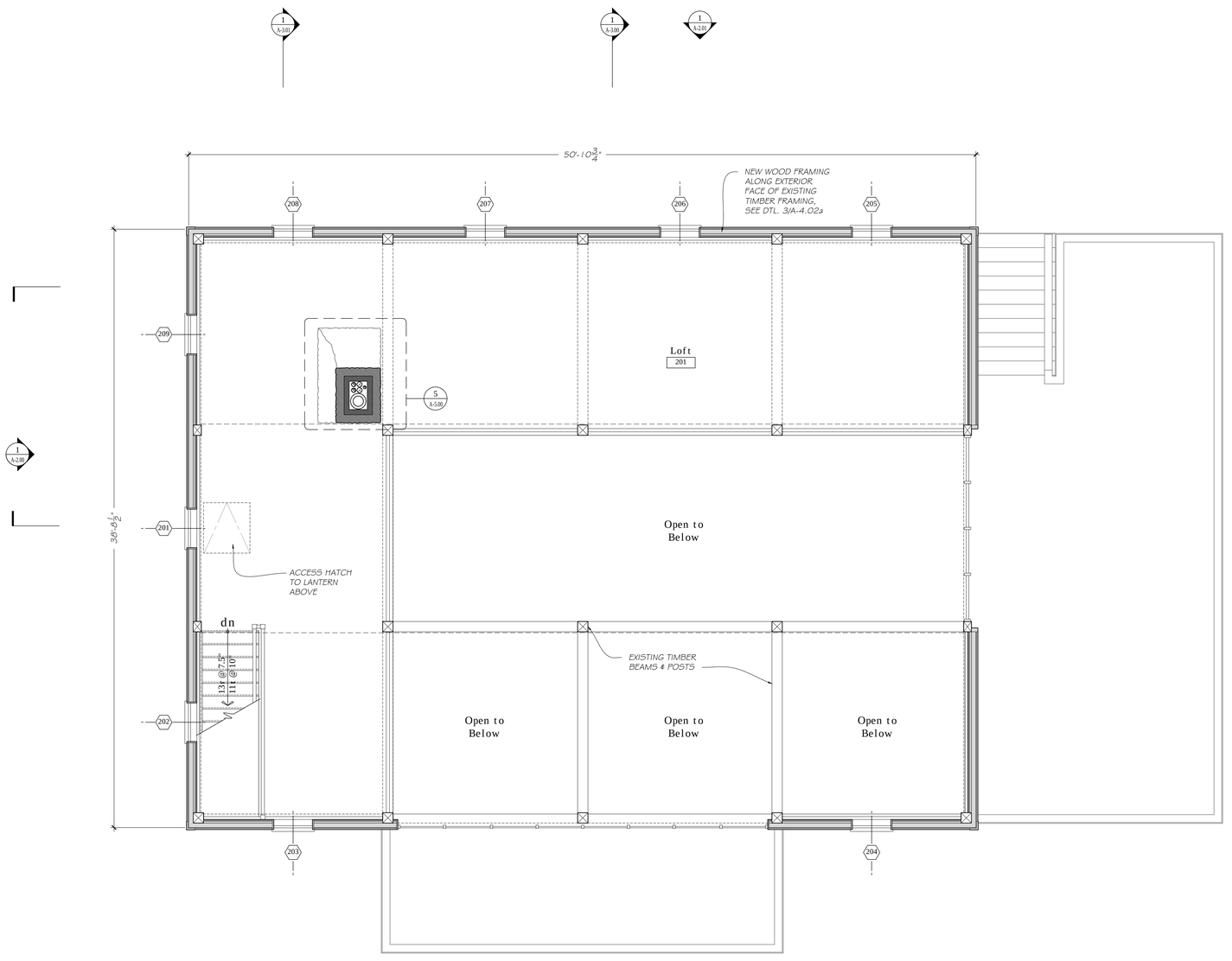
Actual North
Project North



1 / A-1.02 **Second Floor Plan**

Scale: 1/4" = 1'-0"

LEGEND

- EXISTING FOUNDATION WALL
- NEW CONCR. STEM WALL
- NEW STONE VENEER
- NEW CMU FOUNDATION
- NEW FRAMING
- EXISTING TIMBER POST

FOR COORDINATION ONLY
NOT FOR CONSTRUCTION

-	ISSUED FOR PRICING (NOT FOR CONSTRUCTION)	9/8/20

A Renovated Barn
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Second Floor Plan
Barn

Date : *September 8, 2020*

Scale : *1/4" = 1'-0"*

Drawn By : -

Sheet Number :

A-1.02

G. P. Schafer Architect, DPC

19 Union Square West
4th Floor
New York, New York 10003
Telephone: 212-965-1355
Telefax: 212-965-1356

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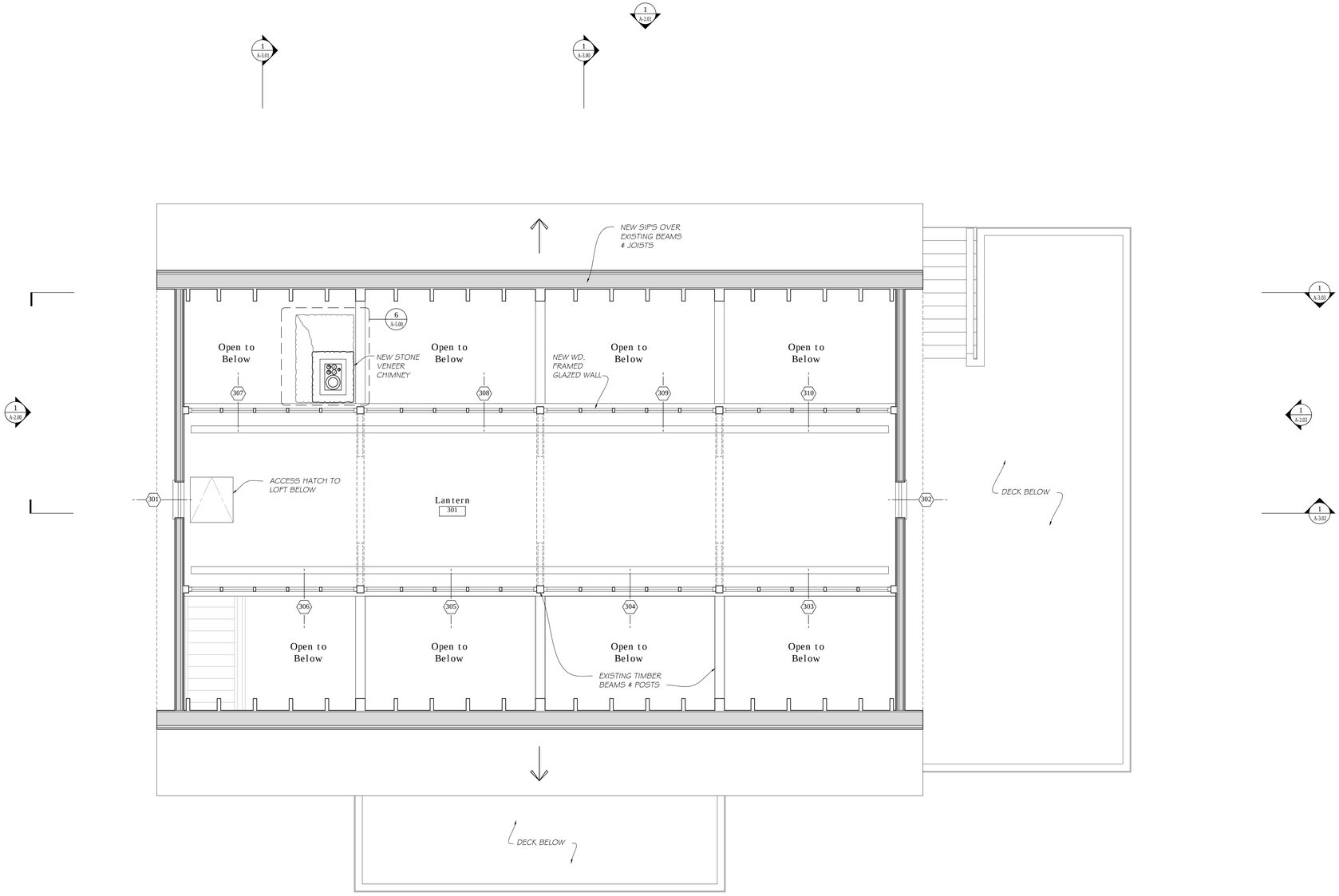
Actual North
Project North



1 A-1.03 Third Floor Plan

Scale: 1/4" = 1'-0"

LEGEND

- EXISTING FOUNDATION WALL
- NEW CONCR. STEM WALL
- NEW STONE VENEER
- NEW CMU FOUNDATION
- NEW FRAMING
- EXISTING TIMBER POST

FOR COORDINATION ONLY
NOT FOR CONSTRUCTION

-	ISSUED FOR PRICING (NOT FOR CONSTRUCTION)	9/8/20

A Renovated Barn
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Third Floor Plan
Barn

Date : *September 8, 2020*

Scale : *1/4" = 1'-0"*

Drawn By : -

Sheet Number :

A-1.03

G. P. Schafer Architect, dpc
19 Union Square West
7th Floor
New York, New York 10003
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Actual North
Project North

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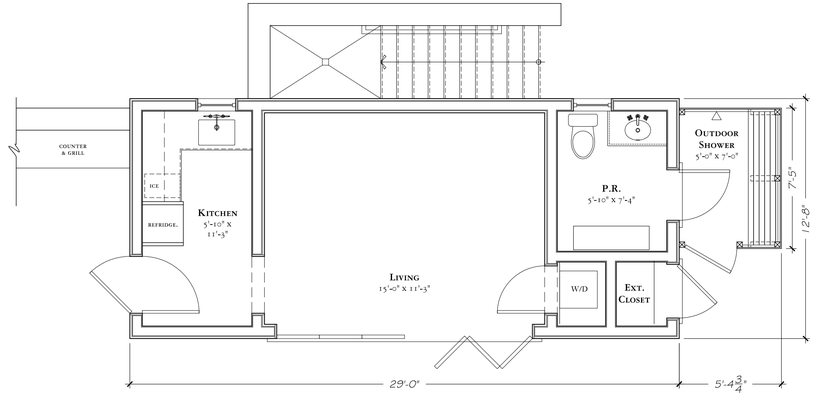

1 / A-1.01 — First Floor Plan
Scale: 1/4" = 1'-0"

A New Residence & Garage
at
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
First Floor Plan

Date : *June 24, 2021*
Scale : *1/4" = 1'-0"*
Drawn By : *PM*
Sheet Number :
PC
A-1.01

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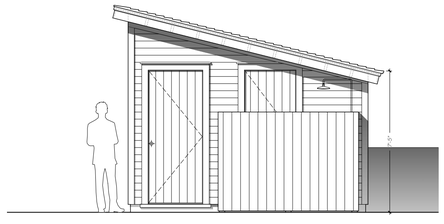
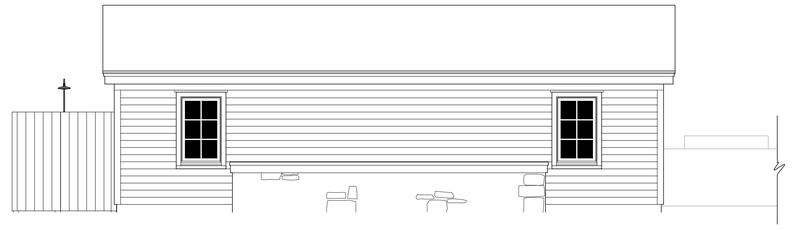
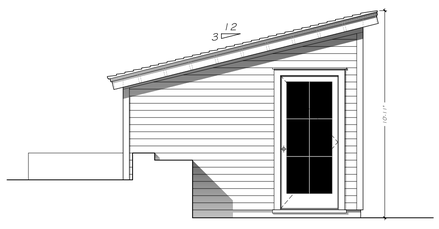


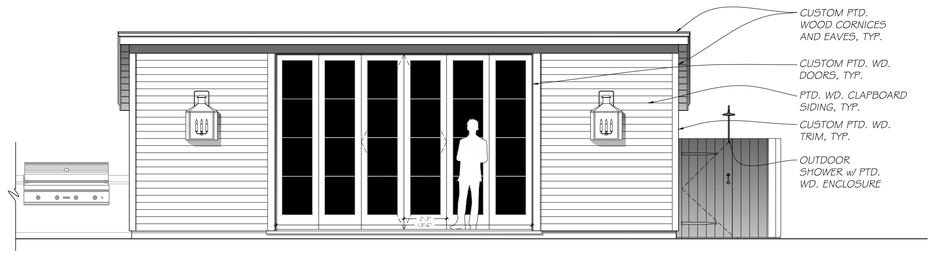
4 A-2.01 **West Elevation**
Scale: 1/4" = 1'-0"



3 A-2.01 **North Elevation**
Scale: 1/4" = 1'-0"



2 A-2.01 **South Elevation**
Scale: 1/4" = 1'-0"



1 A-2.01 **East Elevation**
Scale: 1/4" = 1'-0"

FOR PERMIT ONLY:
NOT FOR CONSTRUCTION

A New Residence & Garage
at
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
Exterior Elevations

Date :
June 24, 2021

Scale :
1/4" = 1'-0"

Drawn By :
PM

Sheet Number :
PC
A-2.01

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Lady Isle

325 Little Harbor Road, Portsmouth NH

General Notes:

1. Existing conditions and topographic data are from a site plan of land dated March 2, 2021; prepared by: Thomas F. Moran Inc., 170 Commerce Way, Suite 102, Portsmouth, NH, 03801 - Tel: (603) 431.2222

2. Existing conditions supplemented from data collected by: Matthew Cunningham Landscape Design LLC, 411 Main Street, Stoneham, MA 02180 - Tel: (617) 905.2246

3. Do not scale drawings

LICENSED LANDSCAPE ARCHITECT
MATTHEW J. CUNNINGHAM
00161
STATE OF NEW HAMPSHIRE

MATTHEW CUNNINGHAM LANDSCAPE DESIGN LLC

matthew-cunningham.com

SCALE: 1" = 50'-0" DATE: 23 FEBRUARY 202

0' 25' 50' 1C

SHEET TITLE:

LANDSCAPE PLAN

SHEET NUMBER:

L1.0

FOR PERMIT SUBMISSION



Lady Isle

325 Little Harbor Road, Portsmouth NH

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00161
STATE OF NEW HAMPSHIRE

MATTHEW CUNNINGHAM LANDSCAPE DESIGN LLC

matthew-cunningham.com

SCALE: 1" = 30'-0" DATE: 23 FEBRUARY 202

0' 15' 30' 6

SHEET TITLE:

LANDSCAPE PLAN

SHEET NUMBER:

L1.1

FOR PERMIT SUBMISSION



TOTAL PROPOSED PLANT BED WITHIN LIMIT OF WORK: ~42,750SF

EXISTING LAWN AREA TO BE CONVERTED TO PLANT BED: ~34,770SF

MATCH LINE B

MATCH LINE A

PROPOSED PLANT PALETTE

Key	Qty.	Latin Name	Common Name	Scheduled Size
TREES				
ARR	6	Acer rubrum 'Red Sunset'	Red Sunset Red Maple	4-4.5" cal. B&B
ASG	5	Acer saccharum 'Green Mountain'	Green Mountain Sugar Maple	4-4.5" B&B
AC	30	Amelanchier canadensis	Shadblow Serviceberry	10-12' B&B
BPW	12	Betula platyphylla 'Whitespire'	Japanese Whitespire Birch	8-10' B&B
CF	2	Cornus florida 'Cherokee Princess'	Cherokee Princess Dogwood	4-4.5" cal. B&B
JV	4	Juniperus virginiana	Eastern Red Cedar	8-10' B&B
LL	5	Larix laricina	Tamarack	10-12' B&B
MJ	1	Magnolia liliiflora 'Jane'	Jane Magnolia	7-8' ht. B&B
MV	5	Magnolia virginiana	Sweetbay Magnolia	8-10' ht. B&B
MG	13	Malus x domestica 'Gala'	Gala Apple	4-4.5" cal. B&B
NS	2	Nyssa sylvatica	Tupelo	4-4.5" cal. B&B
PA	3	Picea abies	Norway Spruce	10-12' ht. B&B
QA	3	Quercus 'Alba'	White Oak	4-4.5" B&B
SA	6	Salix babylonica	Weeping Willow	3-3.5" cal. B&B
SP	1	Stewartia pseudocamellia	Japanese Stewartia	3.5-4" cal. B&B
TP	3	Thuja plicata 'Green Giant'	Green Giant Arborvitae	10-12' ht. B&B

NOTES:

1. PLANT LOCATIONS ON PLAN ARE FOR DIAGRAMMATIC PURPOSES AND DO NOT NECESSARILY REFLECT ACTUAL PROPOSED LOCATIONS OF PLANTING
2. PLANT SIZES OR QUANTITIES SHOWN ARE SUBJECT TO CHANGE BASED ON AVAILABILITY
3. THE USE OF ANY FERTILIZER IS PROHIBITED WITHIN A WETLAND, VEGETATED BUFFER AREA, OR LIMITED CUT AREA
4. THE USE OF FERTILIZERS OTHER THAN LOW PHOSPHATE OR SLOW RELEASE NITROGEN FERTILIZER IS PROHIBITED IN ALL COASTAL RESOURCE AREAS

Latin Name	Common Name
SHRUBS	
Aesculus parviflora	Bottlebrush Buckeye
Aronia arbutifolia	Red Chokeberry
Callicarpa dichotoma	Beautyberry
Cephalanthus occidentalis	Buttonbush
Clethra alnifolia	Summersweet
Comptonia peregrina	Sweetfern
Cornus sericea	Red-Twig Dogwood
Daphne × burkwoodii	Burkwood Daphne
Fothergilla x intermedia	Fothergilla
Hamamelis x intermedia	Witchhazel
Hydrangea arborescens	Smooth Hydrangea
Hydrangea paniculata	Lacecap Hydrangea
Hydrangea quercifolia	Oakleaf Hydrangea
Ilex glabra	Inkberry
Ilex verticillata	Winterberry
Itea virginica	Sweetspire
Myrica gale	Sweetgale
Myrica pensylvanica	Northern Bayberry
Prunus maritima	Beach Plum
Rhododendron 'Cunningham's White'	Cunningham's White Rhododendron
Rhododendron maximum	Rosebay Rhododendron
Rhus aromatica 'Gro-Lo'	Fragrant Sumac
Rhus typhina	Staghorn Sumac
Rosa virginiana	Virginia Rose
Sambucus canadensis	American Elderberry
Syringa meyeri	Dwarf Korean Lilac
Syringa vulgaris	Common Purple Lilac
Vaccinium corymbosum	Highbush Blueberry
Viburnum dentatum	Arrowwood Viburnum
Viburnum plicatum f. tomentosum	Doublefile Viburnum
Viburnum trilobum	American Cranberry Virburnum

Latin Name	Common Name
PERENNIALS	
Actaea racemosa	Snakeroot
Agastache x hybrida	Anise Hyssop
Alchemilla mollis	Lady's Mantle
Allium senescens	Circle Chives
Amsonia hubrichtii	Bluestar
Andropogon gerardii	Big Bluestem
Anemone tomentosa	Grapeleaf Anemone
Anemone x hybrida	Japanese Anemone
Anemonella thalictroides	Rue Anemone
Aruncus dioicus	Goat's Beard
Asclepias incarnata	Swamp Milkweed
Asclepias syriaca	Common Milkweed
Astilbe x hybrida	Astilbe
Astrantia rubra	Red Masterwort
Athyrium niponicum pictum	Japanese Painted Fern
Baptisia australis	False Indigo
Calamagrostis x acutiflora 'Karl Foerster'	Foerster's Feather Reed Grass
Carex pensylvanica	Oak Sedge
Centaurea montana	Cornflower
Clematis x jackmanii	Jackman Clematis
Corydalis lutea	Yellow Corydalis
Dennstaedia punctilobula	Hay-Scented Fern
Deschampsia cespitosa	Tufted Hairgrass
Dicentra spectabilis	Bleeding Heart
Digitalis purpurea	Foxglove
Echinacea purpurea	Purple Coneflower
Epimedium x rubrum	Red Barrenwort
Eragrostis spectabilis	Purple Love Grass
Eupatorium dubium	Dwarf Joe Pye Weed
Eupatorium maculatum	Spotted Joe Pye Weed
Eurybia divaricata	White Wood Aster
Galium odoratum	Sweet Woodruff
Geranium 'Rozanne'	Rozanne Cranesbill
Geranium macrorrhizum	Cranesbill
Gillenia trifoliata	Bowman's Root

Latin Name	Common Name
PERENNIALS (Cont.)	
Hakonechloa macra	Hakone Grass
Helleborus x hybridus	Lenten Rose
Heuchera micrantha	Coral Bells
Hydrangea anomala petiolaris	Climbing Hydrangea
Iris cristata	Crested Iris
Iris sibirica	Siberian Iris
Kirengeshoma palmata	Yellow Waxbells
Lavandula intermedia	Lavender
Leucanthemum superbum	Shasta Daisy
Lupinus polyphyllus	Lupine
Matteuccia struthiopteris	Ostrich Fern
Miscanthus sinensis	Maiden Grass
Nepeta x faassenii	Catmint
Osmunda cinnamomea	Cinnamon Fern
Paeonia lactiflora	Peony
Panicum virgatum	Switchgrass
Pennisetum alopecuroides	Dwarf Fountain Grass
Perovskia atriplicifolia	Russian Sage
Podophyllum peltatum	May Apple
Polygonatum odoratum	Solomon's Seal
Pulmonaria officinalis	Lungwort
Rosa x 'New Dawn'	New Dawn Rose
Rudbeckia fulgida	Black-Eyed-Susan
Salvia x sylvestris	Wood Sage
Salvia nemorosa	Woodland Sage
Schizachyrium scoparium	Little Bluestem
Solidago ssp.	Goldenrod
Sorghastrum nutans	Indian Grass
Sporobolus heterolepsis	Prairie Dropseed
Stachys byzantina	Lamb's Ear
Symphyotrichum novae-angliae	New England Aster
Symphyotrichum novi-belgii	New York Aster
Symphyotrichum oblongifolium	Aromatic Aster
Thalictrum rochebrunianum	Lavender Mist Meadow-rue
Thymus vulgaris	Common Thyme

Lady Isle

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3. Do not scale drawings

MATTHEW J. CUNNINGHAM — LICENSED LANDSCAPE ARCHITECT — 00161 — STATE OF NEW HAMPSHIRE

MATTHEW CUNNINGHAM LANDSCAPE DESIGN LLC

matthew-cunningham.com

SCALE: 1" = 30'-0" DATE: 23 FEBRUARY 202

0' 15' 30' 6

SHEET TITLE:

PLANTING PLAN

SHEET NUMBER:

L1.2

FOR PERMIT SUBMISSION

EXISTING TRAIL
WOODLAND
RESTORED MEADOW
WOODLAND
RESTORED MEADOW
DROUGHT TOLERANT LAWN
APPLE TREES
DROUGHT TOLERANT LAWN
ASG
DROUGHT TOLERANT LAWN
MG, TYP.
ASG
ASG
ARR
LL
TPG
JV
PA
TPG
JV
TPG
MATCH LINE B
MATCH LINE A

Lady Isle

325 Little Harbor Road, Portsmouth NH

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MATTHEW J. CUNNINGHAM
00161
STATE OF NEW HAMPSHIRE

MATTHEW CUNNINGHAM LANDSCAPE DESIGN LLC
matthew-cunningham.com

SCALE: 1" = 30'-0" DATE: 23 FEBRUARY 202

0' 15' 30' 6

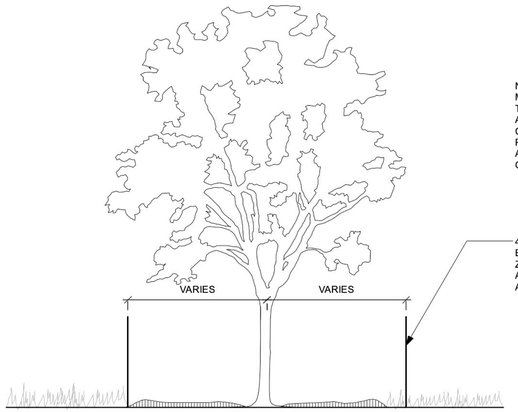
SHEET TITLE:

PLANTING PLAN

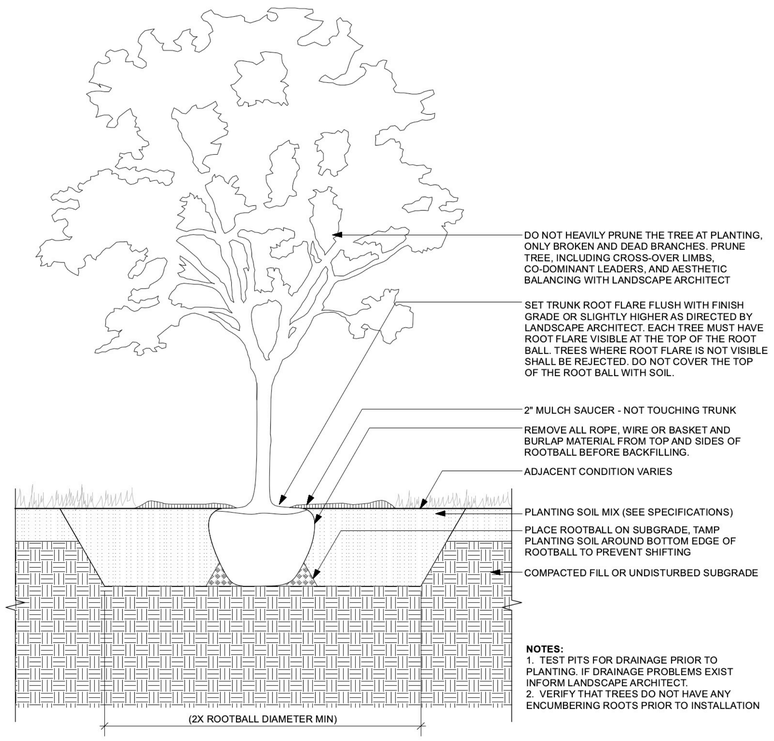
SHEET NUMBER:

L1.3

FOR PERMIT SUBMISSION

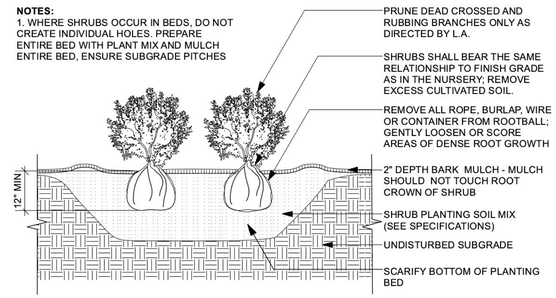


1 TREE PROTECTION FENCING
Scale: 1/2" = 1'-0"

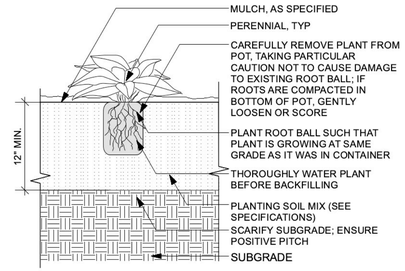


NOTES:
1. TEST PITS FOR DRAINAGE PRIOR TO PLANTING. IF DRAINAGE PROBLEMS EXIST INFORM LANDSCAPE ARCHITECT.
2. VERIFY THAT TREES DO NOT HAVE ANY ENCUMBERING ROOTS PRIOR TO INSTALLATION

2 TREE PLANTING - TYPICAL SECTION
Scale: 1/2" = 1'-0"

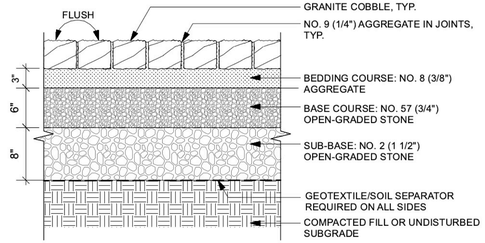


3 SHRUB PLANTING - TYPICAL SECTION
Scale: 1/2" = 1'-0"



NOTE:
TEST PITS FOR DRAINAGE PRIOR TO PLANTING. IF DRAINAGE PROBLEMS EXIST INFORM L.A.

4 PERENNIAL PLANTING - TYPICAL SECTION
Scale: 1/2" = 1'-0"

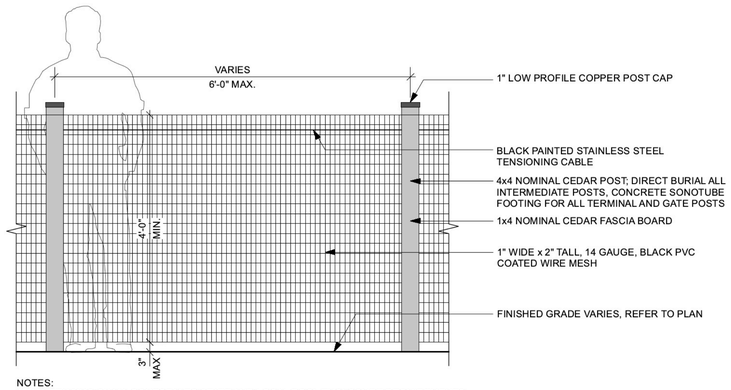


5 STABILIZED SEEDED GRAVEL VEHICULAR PAVING
Scale: 1" = 1'-0"

6 PERMEABLE COBBLE PAVING
Scale: 1" = 1'-0"

7 GRANITE VEHICULAR PAVING
Scale: 1" = 1'-0"

8 PEASTONE VEHICULAR PAVING
Scale: 1" = 1'-0"



NOTES:
1. ALL FENCING SHALL CONFORM TO STATE AND LOCAL POOL ENCLOSURE REQUIREMENTS
2. DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY, FINAL LAYOUT AND DIMENSIONS SHALL BE CONFIRMED PRIOR TO CONSTRUCTION

9 POOL ENCLOSURE MESH FENCE - TYPICAL PANEL ELEVATION
Scale: 3/4" = 1'-0"

10 TENNIS COURT FENCING - TYPICAL PANEL ELEVATION
Scale: 1/2" = 1'-0"

Lady Isle

325 Little Harbor Road, Portsmouth NH

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3. Do not scale drawings

MATTHEW J. CUNNINGHAM 00161 — LICENSED LANDSCAPE ARCHITECT — STATE OF NEW HAMPSHIRE

MATTHEW CUNNINGHAM LANDSCAPE DESIGN LLC
matthew-cunningham.com

SCALE: AS NOTED DATE: 23 FEBRUARY 202

SHEET TITLE:

LANDSCAPE DETAILS

SHEET NUMBER:

L1.4

FOR PERMIT SUBMISSION



PLANNING BOARD | EXISTING AERIAL PHOTO (06/02/21)

Lady Isle | 325 Little Harbor Road, Portsmouth NH
23 February 2022

G. P. SCHAFER ARCHITECT
ARCHITECTURE & DESIGN

TFM Since 1968
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

Youngblood BUILDERS

MATTHEW CUNNINGHAM LANDSCAPE DESIGN LLC
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PLANNING BOARD | EXISTING AERIAL PHOTOS (06/02/21)

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23 February 2022

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PLANNING BOARD | EXISTING AERIAL PHOTOS (06/02/21)

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23 february 2022

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PLANNING BOARD | PROPOSED ILLUSTRATIVE RENDERINGS

Lady Isle | 325 Little Harbor Road, Portsmouth NH
23 February 2022

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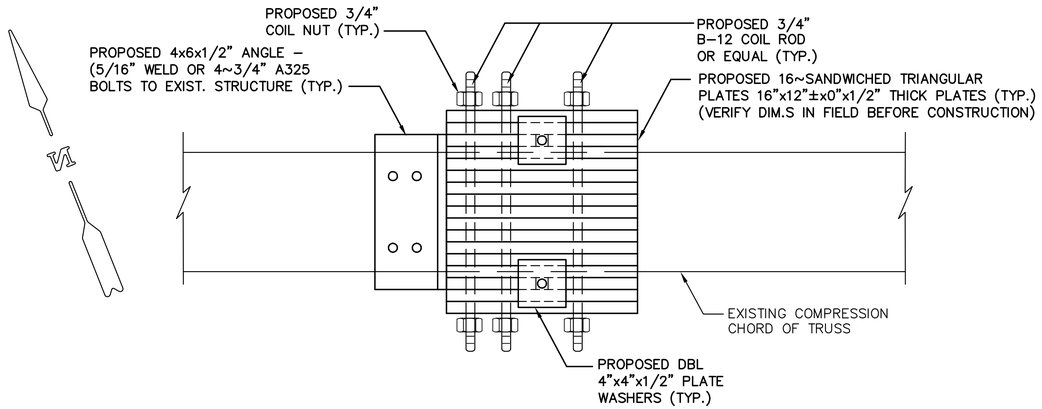
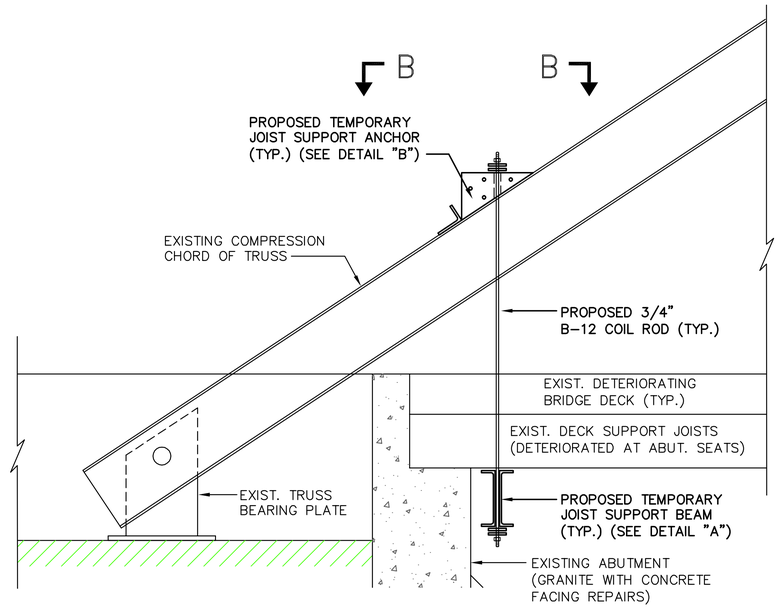


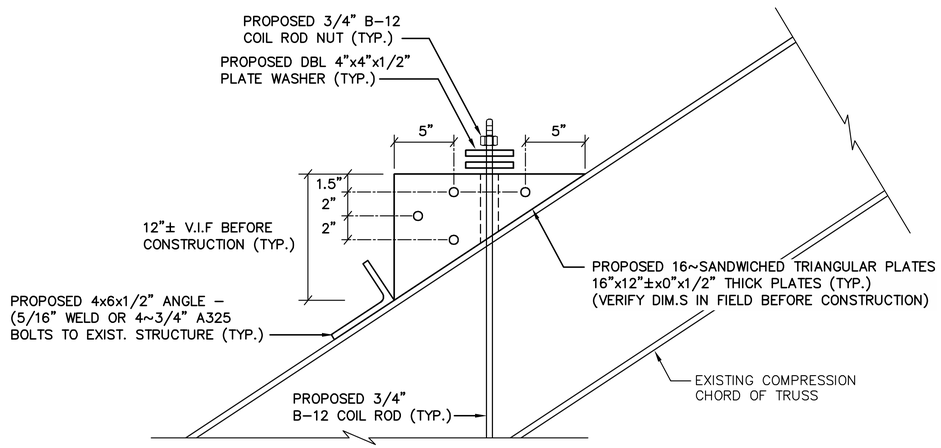
PLAN "B-B" OF TEMPORARY JOIST SUPPORT ANCHOR (SOUTHERN ABUTMENT SHOWN, NORTHERN ABUTMENT SIMILAR)

SCALE: 1'=2'-0"



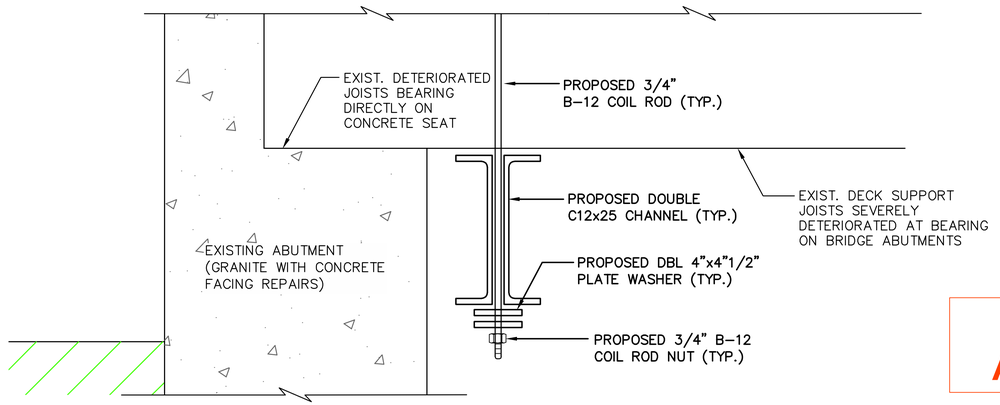
ELEVATION SECTION A-A (TEMPORARY JOIST SUPPORT)

SCALE: 3/4"=1'-0"



DETAIL "B" (TEMP. JOIST SUPPORT ANCHOR)

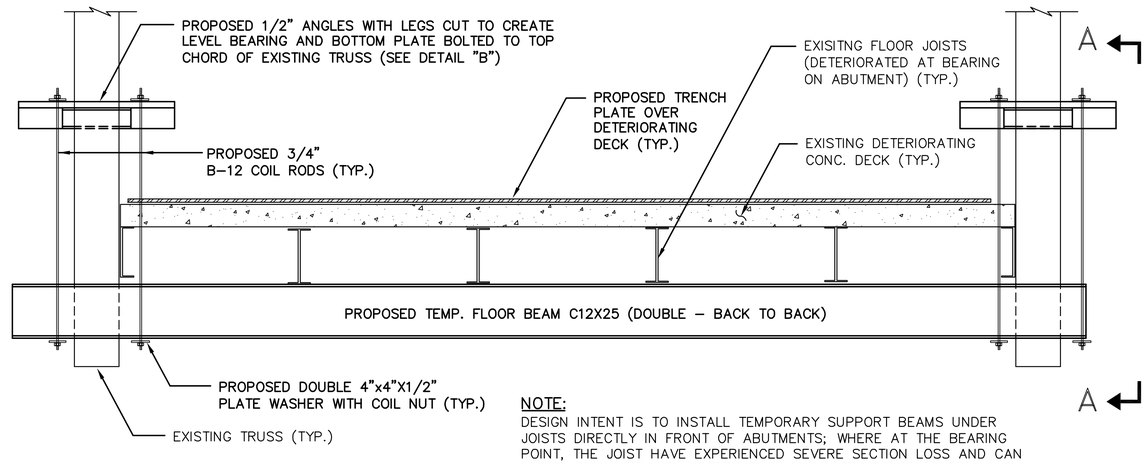
SCALE: 1'=2'-0"



DETAIL "A" (TEMP. JOIST SUPPORT BEAM)

SCALE: 1'=2'-0"

PLAN SIZE:
FULL SIZE PLANS ARE 24x36
11x17 ARE APPROXIMATE HALF SCALES



TRANSVERSE SECTION AT TEMPORARY JOIST SUPPORT

SCALE: 3/4"=1'-0"

NOTE:
DESIGN INTENT IS TO INSTALL TEMPORARY SUPPORT BEAMS UNDER JOISTS DIRECTLY IN FRONT OF ABUTMENTS; WHERE AT THE BEARING POINT, THE JOIST HAVE EXPERIENCED SEVERE SECTION LOSS AND CAN NO LONGER SAFELY SUPPORT HS-20-44 DESIGN VEHICLE LOADS.

PROJECT BACKGROUND:

1.) ECKMAN ENGINEERING, LLC ON FEBRUARY 3, 2022 COMPLETED A VISUAL INSPECTION OF THE EXISTING BELLE ISLE BRIDGE WHICH WAS FOLLOWED BY A SURVEY THAT INCLUDED DETAILED MEASUREMENT OF THE EXISTING SUBSTRUCTURE AND SUPERSTRUCTURE.

2.) THE 94± SINGLE-SPAN TRUSS WAS REHABILITATED AT SOME-TIME IN THE PAST ADDING 2-INTERIOR H-PILE BENTS. THE TRUSS'S ORIGINAL DESIGN LOADING IS NOW GREATLY REDUCED DUE TO THE INTERIOR H-PILE BENTS AND THE DECK SUPERSTRUCTURE NOW ACTS MOST LIKE A THREE-SPAN STRUCTURE.

3.) THE EXISTING BRIDGE STRUCTURE IS SCHEDULED TO BE COMPLETELY REPLACED IN A FEW YEARS HOWEVER THE INTENT IS TO CONTINUE TO UTILIZE THE EXISTING STRUCTURE TEMPORARILY WHILE RE-CONSTRUCTION OF BUILDINGS ON BELLE ISLE BEGIN.

4.) TWO DEFICIENCIES OF CONCERN WERE IDENTIFIED THAT LIMIT CAPCITY OF THE STRUCTURE AND NEED TO BE REPAIRED PRIOR TO USE BY CONSTRUCTION VEHICLES. THE FIST DEFICIENCY IS THAT THE CONCRETE DECK HAS LOCATIONS WITH SPALLING AND SOFT-SPOTS. THE SECOND DEFFICIENCY OF CONCERN IS THAT THE EXISTING DECK SUPPORT JOISTS ARE APPROXIMATELY 60% DETERIORATED IN SECTION WHERE THEY BEAR DIRECTLY ON THE CONCRETE ABUTMENTS AT EACH END OF THE TRUSS.

CONCERN GREATLY LIMITING THE CAPACITY OF MAJOR CONCERN WERE OBSERVED WITH THE SUPERSTRUCTURE. THE FIRST WAS THE SPALLING AND DETERIORATING CONCRETE DECK THAT HAD MANY SOFT-SPOTS. THE SECOND DEFICIENCY WAS THAT THE FLOOR JOISTS WERE APPROXIMATELY 60% OF THE JOIST SECTION HAS DETERIORATED AT THE BEARING LOCATION ON THE CONCRETE ABUTMENT SEATS.

TEMPORARY SUPERSTRUCTURE REPAIR AND DESIGN LOADING:

1.) TO DISTRIBUTE LOADS OVER THE SOFT-SPOTS IN THE CONCRETE DECK AND STRENGTHEN THE EXISTING DECK OVERALL STEEL TRENCH PLATE IS PROPOSED TO BE INSTALLED OVER THE ENTIRE 94± FOOT LENGTH OF THE DECK. A TEMPORARY SUPPORT BEAM SHALL BE INSTALLED UNDER THE DECK SUPPORT JOISTS DIRECTLY IN FRONT OF EACH ABUTMENT FACE AT A LOCATION WHERE THE JOIST HAVE NEARLY THEIR FULL SECTION.

2.) ECKMAN ENGINEERING ANALYZED THE STRUCTURE IN ACCORDANCE WITH AASHTO PROCEDURES USING DESIGN LOADS FOR AN HS20-44 TRUCK (2~32KIP REAR AXLES & AN 8KIP FRONT AXLE) ALONG WITH A TANDEM LOAD (2~25KIP AXLES; 4-FEET APART). THE HS20-40 DESIGN TRUCK CONTROLLED GENERATING A MAXIMUM SHEAR LOAD AT THE ABUTMENT FACE OF 47.4-KIPS. THE PROPOSED TEMPORARY SUPPORT BEAM SUPPORTS THE FULL MAXIMUM SHEAR-LOAD WITH SAFETY FACTOR > 2.

STATE OF NEW HAMPSHIRE
DAVID E. ECKMAN No. 9213
LICENSED PROFESSIONAL ENGINEER
2/21/22

PRELIMINARY PLAN FOR APPROVAL/REVIEW ONLY

PREPARED FOR:
EVROCKS CORPORATION, Inc
23 INDUSTRIAL DRIVE
NORTHFIELD, NH 03276
PHONE: (603) 527-3545

ECKMAN Engineering, LLC
1950 Lafayette Road Unit 301, PO Box 8025
Portsmouth, New Hampshire 03802
Phone: (603) 433-1354
Fax: (603) 433-2367

No.	DESCRIPTION	BY	DATE
	REVISIONS		
P	REV. TEMPORARY SUPPORT ANCHOR PER EVROKS	DEE	3/22

BELLE ISLE ROAD BRIDGE REHABILITATION PROJECT

TOWN PORTSMOUTH, NH 03801 — BRIDGE NO. N/A
FEDERAL PROJECT ---- — NHDOT PROJECT N/A
LOCATION/PROJECT: BELLE ISLE ROAD BRIDGE, PORTSMOUTH, NH
TEMPORARY JOIST SUPPORT BEAMS (EACH ABUTMENT FACE)

PRELIMINARY PLAN, ELEV., SECTION & DETAILS

	BY	DATE		BY	DATE
DESIGNED	SRP	02/22	CHECKED	DEE	03/22
DRAWN	JJM	02/22	CHECKED	DEE	03/22
TRACED			CHECKED		
QUANTITIES			CHECKED		
REVIEWED BY:					

EE PROJ. NO. 22-104
FILE NUMBER 22-104_STR

STATE PROJ. NO.	SHEET NO.	TOTAL SHEET
N/A	1	1

P-0616-005
March 22, 2022

Ms. Beverly M. Zendt, Planning Director
City of Portsmouth Planning Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Site Review Permit Application**
Portsmouth Regional Hospital– Proposed Satellite Parking Lot

Dear Beverly:

On behalf of Portsmouth Regional Hospital, we are pleased to submit the following information to support a request to the Planning Board for a recommendation for approval to Portsmouth Regional Hospital for Site Plan Review for a proposed parking expansion across the street from the existing Hospital located at the east corner of Borthwick Ave and Eileen Dondero Foley Ave:

- One (1) copy of the Site Plan Application Checklist, dated March 22, 2022;
- One (1) copy of the Owner Authorization, dated March 16, 2022;
- One (1) full size & one (1) half size copy of the Site Plan Set, dated March 22, 2022;
- One (1) copy of the Fire Truck Turning Plan, dated March 22, 2022;
- One (1) copy of Light Fixture and Pole Cut Sheets;
- One (1) copy of the Drainage Analysis, dated March 22, 2022;
- One (1) copy of the Operations and Maintenance Plan, dated March 22, 2022;
- One (1) application fee calculation form for the Site Review;
- One (1) Site Review Application Fee check in the amount of $7,000.00;

The proposed project is located at the East corner of Borthwick Avenue and Eileen Dondero Foley Avenue which is identified as Map 234 Lot 7-4A on the City of Portsmouth Tax Maps. The proposed project is to expand Portsmouth Regional Hospital parking to support the existing hospital and its growing services to the New Hampshire Seacoast region.

The existing Hospital building is operating with 783 parking spaces, which is 32% less than the minimum required by the City's Zoning Ordinance. The proposed project includes the construction of a new 520 space satellite parking lot across the street from the existing hospital. This additional parking is necessary to support Portsmouth Regional Hospital's existing facility and to allow for future growth in patient care. The proposed parking lot would be accessed via two new entrances; one on Borthwick Avenue and the other along Eileen Dondero Foley Avenue. The project will consist of associated site improvements such as pedestrian connections, lighting, security cameras, landscaping, and stormwater management.

On February 23, 2022, the Zoning Board of Adjustment granted the following for this project: 1.) A special exception from section 10.1113.112 to allow a parking lot on another lot in the same ownership as the lot in question within 300 feet of the property line of the lot in question 2.) A variance from section 10.113.41 to allow a 35-foot front setback for a parking lot where 50 ft is required.

We respectfully request to be placed on the Technical Advisory Committee (TAC) meeting agenda for April 5, 2022. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,
TIGHE & BOND, INC.





Patrick M. Crimmins, PE
Vice President

Alexander Sellar, PE
Project Engineer

Copy: Portsmouth Regional Hospital

\\tighebond.com\data\Data\Projects\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Report_Evaluation\Applications\20220322_TAC\Individual\P-0616-005 TAC Cover Letter.docx

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: Portsmouth Regional Hospital Date Submitted: 03/22/2022

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

Site Address: Borthwick Ave, Portsmouth NH Map: 234 Lot: 7-4A

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☑	Complete application form submitted via the City's web-based permitting program (2.5.2.1**(2.5.2.3A)**	Completed	N/A
☑	All application documents, plans, supporting documentation and other materials uploaded to the application form in viewpoint in digital Portable Document Format (PDF). One hard copy of all plans and materials shall be submitted to the Planning Department by the published deadline. **(2.5.2.8)**	Completed	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Statement that lists and describes "green" building components and systems. **(2.5.3.1B)**	N/A	
☐	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	N/A
☑	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	Site Plan Sheet C-102	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1E)**	Existing Conditions Plan Sheet C-101	N/A
☑	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. **(2.5.3.1F)**	Existing Conditions Plan Sheet C-101	N/A
☑	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Cover Sheet	N/A
☑	List of reference plans. **(2.5.3.1H)**	Existing Conditions Plan Sheet C-101	N/A
☑	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	Utilities Plan Sheet C-104	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. **(2.5.4.1A)**	Required on all plan sheets	N/A
☑	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. **(2.5.4.1B)**	Required on all plan sheets	N/A
☑	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. **(2.5.4.1C)**	Existing Conditions Plan Sheet C-101	N/A
☑	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. **(2.5.4.1D)**	Required on all plan sheets	N/A
☑	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. **(2.5.4.1E)**	Existing Conditions Plan Sheet C-101	N/A
☑	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	All Plan Sheets	N/A
☑	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	All Plan Sheets	N/A
☑	Individual plan sheet title that clearly describes the information that is displayed. **(2.5.4.2C)**	Required on all plan sheets	N/A
☑	Source and date of data displayed on the plan. **(2.5.4.2D)**	All Plan Sheets	N/A

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	**1. Existing Conditions: (2.5.4.3A)** • Surveyed plan of site showing existing natural and built features; • Existing building footprints and gross floor area; • Existing parking areas and number of parking spaces provided; • Zoning district boundaries; • Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre; • Existing impervious and disturbed areas; • Limits and type of existing vegetation; • Wetland delineation, wetland function and value assessment (including vernal pools); • SFHA, 100-year flood elevation line and BFE data, as required.	Existing Conditions Plan Sheet C-101	
☐	**2. Buildings and Structures: (2.5.4.3B)** • Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation; • Elevations: Height, massing, placement, materials, lighting, façade treatments; • Total Floor Area; • Number of Usable Floors; • Gross floor area by floor and use.	N/A	
☑	**3. Access and Circulation: (2.5.4.3C)** • Location/width of access ways within site; • Location of curbing, right of ways, edge of pavement and sidewalks; • Location, type, size and design of traffic signing (pavement markings); • Names/layout of existing abutting streets; • Driveway curb cuts for abutting prop. and public roads; • If subdivision; Names of all roads, right of way lines and easements noted; • AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	Site Plan Sheet C-102.1	
☑	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	Site Plan Sheet C-102.1	
☑	**5. Water Infrastructure: (2.5.4.3E)** • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii).	Utility Plan Sheet C-104	
☐	**6. Sewer Infrastructure: (2.5.4.3F)** • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period.	N/A	

☑	**7. Utilities: (2.5.4.3G)** • The size, type and location of all above & below ground utilities; • Size type and location of generator pads, transformers and other fixtures.	Utilities Plan Sheet C-104	
☐	**8. Solid Waste Facilities: (2.5.4.3H)**	N/A	
	• The size, type and location of solid waste facilities.	N/A	
☑	**9. Storm water Management: (2.5.4.3I)** • The location, elevation and layout of all storm-water drainage. • The location of onsite snow storage areas and/or proposed off-site snow removal provisions. • Location and containment measures for any salt storage facilities • Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.	Grading, Drainage & Erosion Control Plan Sheet C-103	
☑	**10. Outdoor Lighting: (2.5.4.3J)** • Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.	Lighting Plan Sheet C-106	
☑	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**	Lighting Plan Sheet C-106	
☑	**12. Landscaping: (2.5.4.3K)** • Identify all undisturbed area, existing vegetation and that which is to be retained; • Location of any irrigation system and water source.	Landscaping Plan Sheet C-105	
☑	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	Grading, Drainage & Erosion Control Plan Sheet C-103	
☑	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	Site Plan Sheet C-102.1	
☑	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	Existing Conditions Plan Sheet C-101	
☐	**16. Character/Civic District (All following information shall be included): (2.5.4.3P)** • Applicable Building Height (10.5A21.20 & 10.5A43.30); • Applicable Special Requirements (10.5A21.30); • Proposed building form/type (10.5A43); • Proposed community space (10.5A46).	N/A	
☐	**17. Special Flood Hazard Areas (2.5.4.3Q)** • The proposed development is consistent with the need to minimize flood damage; • All public utilities and facilities are located and construction to minimize or eliminate flood damage; • Adequate drainage is provided so as to reduce exposure to flood hazards.	N/A	

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Traffic Impact Study or Trip Generation Report, as required. **(3.2.1-2)**	N/A	
☑	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	Grading, Drainage & Erosion Control Plan Sheet C-103	
☐	Indicate whether the proposed development is located in a wellhead protection or aquifer protection area. Such determination shall be approved by the Director of the Dept. of Public Works. **(7.3.1)**	N/A	
☑	Stormwater Management and Erosion Control Plan. **(7.4)**	Enclosed	
☑	Inspection and Maintenance Plan **(7.6.5)**	Enclosed	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	All local approvals, permits, easements and licenses required, including but not limited to: • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. **(2.5.3.2A)**	Cover Sheet	
☑	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: • Calculations relating to stormwater runoff; • Information on composition and quantity of water demand and wastewater generated; • Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; • Estimates of traffic generation and counts pre- and post-construction; • Estimates of noise generation; • A Stormwater Management and Erosion Control Plan; • Endangered species and archaeological / historical studies; • Wetland and water body (coastal and inland) delineations; • Environmental impact studies. **(2.5.3.2B)**	Enclosed	
☑	A document from each of the required private utility service providers indicating approval of the proposed site plan and indicating an ability to provide all required private utilities to the site. **(2.5.3.2D)**	Enclosed	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☑	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**	Cover Sheet	
☑	A note shall be provided on the Site Plan stating: "All conditions on this Plan shall remain in effect in perpetuity pursuant to the requirements of the Site Plan Review Regulations." **(2.5.4.2E)**	Site Plan Sheet C-102	N/A
☐	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. **(2.5.4.2F)**	N/A	
☑	Plan sheets submitted for recording shall include the following notes: a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "All improvements shown on this Site Plan shall be constructed and maintained in accordance with the Plan by the property owner and all future property owners. No changes shall be made to this Site Plan without the express approval of the Portsmouth Planning Director." **(2.13.3)**	Site Plan Sheet C-102	N/A

Applicant's Signature: _____ **Date:** 3/22/22

Owner's/Agent Letter of Authorization

This letter is to Authorize Tighe & Bond, Inc. (Civil Engineer), to represent and submit on behalf of Portsmouth Regional Hospital (Applicant), applications and materials in all site design and permitting matters for the proposed project at the east corner between Borthwick Ave and Eileen Dondero Foley Ave. This project includes the construction of a satellite parking lot, and associated site and stormwater improvements. This authorization shall relate to those activities that are required for local, state, and federal permitting for the above project and include and required signatures for those applications.

Signature	DEAN M. CARUCCI Print Name	3.16.22 Date
Witness	MATTHEW P. LARKIN Print Name	3.16.2022 Date

PROPOSED SATELLITE PARKING LOT

PORTSMOUTH, NEW HAMPSHIRE

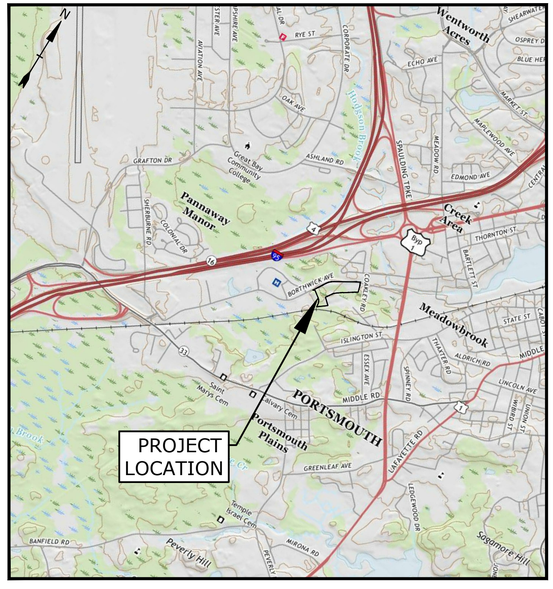
BORTHWICK AVENUE & EILEEN DONDERO FOLEY AVENUE

PERMIT DRAWINGS

MARCH 22, 2022

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	03/22/2022
1 OF 2	EXISTING CONDITIONS PLAN	03/22/2022
2 OF 2	EXISTING CONDITIONS PLAN	03/22/2022
G-101	GENERAL NOTES, ABBREVIATIONS, & LEGEND SHEET	03/22/2022
C-101	DEMOLITION PLAN	03/22/2022
C-102	OVERALL PARKING PLAN	03/22/2022
C-102.1	SITE PLAN	03/22/2022
C-103	GRADING, DRAINAGE, AND EROSION CONTROL PLAN	03/22/2022
C-104	UTILITY PLAN	03/22/2022
C-105	LANDSCAPE PLAN	03/22/2022
C-106	PHOTOMETRICS PLAN	03/22/2022
C-501	EROSION CONTROL NOTES & DETAILS SHEET	03/22/2022
C-502	DETAILS SHEET	03/22/2022
C-503	DETAILS SHEET	03/22/2022
C-504	DETAILS SHEET	03/22/2022
C-505	DETAILS SHEET	03/22/2022
C-506	DETAILS SHEET	03/22/2022
C-507	DETAILS SHEET	03/22/2022
C-508	DETAILS SHEET	03/22/2022

LIST OF PERMITS		
FEDERAL	STATUS	DATE
CONSTRUCTION GENERAL PERMIT (CGP) & NOI		
LOCAL		
SITE PLAN REVIEW PERMIT		
ZONING BOARD OF ADJUSTMENT - SPECIAL EXCEPTION & VARIANCE	APPROVED	2/23/2022
STATE		
NHDES STANDARD DREDGE AND FILL WETLAND IMPACT PERMIT		
NHDES ALTERATION OF TERRAIN		



LOCATION MAP
SCALE: 1" = 2,000'

CONSTRUCTION NOTES:
1. THE CONTRACTOR SHALL NOT RELY ON SCALED DIMENSIONS AND SHALL CONTACT THE ENGINEER FOR CLARIFICATION IF A REQUIRED DIMENSION IS NOT PROVIDED ON THE PLANS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, AND FOR SITE CONDITIONS THROUGHOUT CONSTRUCTION. NEITHER THE PLANS NOR THE SEAL OF THE ENGINEER AFFIXED HEREON EXTEND TO OR INCLUDE SYSTEMS REQUIRED FOR THE SAFETY OF THE CONTRACTOR, THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND IMPLEMENTING SAFETY PROCEDURES AND SYSTEMS AS REQUIRED BY THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND ANY STATE OR LOCAL SAFETY REGULATIONS.
3. TIGHE & BOND. ASSUMES NO RESPONSIBILITY FOR ANY ISSUES LEGAL OR OTHERWISE, RESULTING FROM CHANGES MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION OF TIGHE & BOND.

PREPARED BY:
Tighe&Bond
177 Corporate Drive
Portsmouth, NH 03801
(603) 433-8818

BRADLEE MEZQUITA, PE

PATRICK M. CRIMMINS, PE

APPLICANT:
Portsmouth Regional Hospital
333 Borthwick Avenue
Portsmouth, NH 03801

OWNER:
HCA Realty Inc.
c/o Ducharme Mcmillen & Assoc - HCA NH
PO Box 80610
Indianapolis, IN 46280

SURVEY CONSULTANT:
DOUCET SURVEY LLC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

COMPLETE SET 19 SHEETS

811 DigSafe MA-ME-NH-RI-VT

Last Save Date: March 22, 2022 9:15 AM By: JWINSTON
Plot Date: March 22, 2022 9:17 AM By: JWINSTON
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Drawings, Figures\AutoCAD\Sheet\P0616-005_CS.dwg Layout Tab: CS

NOTES:

1. REFERENCE: TAX MAP 234, LOT 7-4A
BORTHWICK AVENUE EXTENSION
PORTSMOUTH, NEW HAMPSHIRE
D.S. PROJECT NO. 2826

2. TOTAL PARCEL AREA: 395,745 SQ. FT. OR 9.09 AC.

3. OWNER OF RECORD: HCA REALTY INC.
C/O DUCHARME MCMILLEN & ASSOC. – HCA NH
PO BOX 80610
INDIANAPOLIS, IN 46280
R.C.R.D BOOK 4400 PAGE 2048, BOOK 4639 PAGE 2128.

4. TOPOGRAPHY SHOWN HEREON IS BASED ON A COMBINATION OF AERIAL MAPPING BY EASTERN TOPOGRAPHICS IN 5/03 AND CONVENTIONAL SURVEY BY DOUCET SURVEY, SEE NOTE 5. EXCEPT FOR THE NOTED AREA, NO ADDITIONAL UPDATES WERE DONE TO THE AERIAL TOPOGRAPHY FROM 2003.

5. FIELD SURVEY PERFORMED BY DOUCET SURVEY AT VARIOUS TIMES BETWEEN 2003 & 2021.

6. JURISDICTIONAL WETLANDS DELINEATED BY TIGHE & BOND, DURING MONTH YEAR IN ACCORDANCE WITH 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1 AND THE INTERIM REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION (OCTOBER, 2009).

7. FLOOD HAZARD ZONE: "X", PER FIRM MAP #33015C0260F, DATED 1/29/2021.

8. HORIZONTAL DATUM IS BASED ON NH STATE PLANE COORDINATE SYSTEM. AS ESTABLISHED BY JAMES VERRA & ASSOCIATES IN MAY 2003.

9. VERTICAL DATUM IS BASED ON NGVD 29.

10. THE PARCEL IS SUBJECT TO, AND/OR IN BENEFIT OF THE FOLLOWING EASEMENTS, RESTRICTIONS, ETC.
    A. SUBJECT TO AN ELECTRIC EASEMENT GRANTED BY SAN ANTONIO ET AL TO NH ELECTRIC CO, SEE R.C.R.D. BOOK 1230, PAGE 222.
    B. SUBJECT TO A GAS LINE EASEMENT RESERVED BY NORTHERN UTILITIES, INC., SEE R.C.R.D. BK. 4392 PG. 110
    C. SUBJECT TO AN ACCESS AND UTILITY EASEMENT RESERVED BY ISLINGTON WOODS, LLC, SEE R.C.R.D. BOOK 4639 PAGE 2128.
    D. SUBJECT TO THE RIGHTS OF THE CITY OF PORTSMOUTH TO CONSTRUCT & MAINTAIN A SEWER LINE, SEE R.C.R.D. BOOK 4685, PAGE 553.
    E. SUBJECT TO AN "AGREEMENT REGARDING PROHIBITED USES", SEE R.C.R.D. BOK. 4400 PG. 2051.
    F. ALL OTHER RIGHTS OR EASEMENTS OF RECORD OR OTHERWISE. THIS PLAN DOES NOT REPRESENT A TITLE EXAMINATION, AND NONE WAS PROVIDED.

11. PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 2' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY, INC. WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.

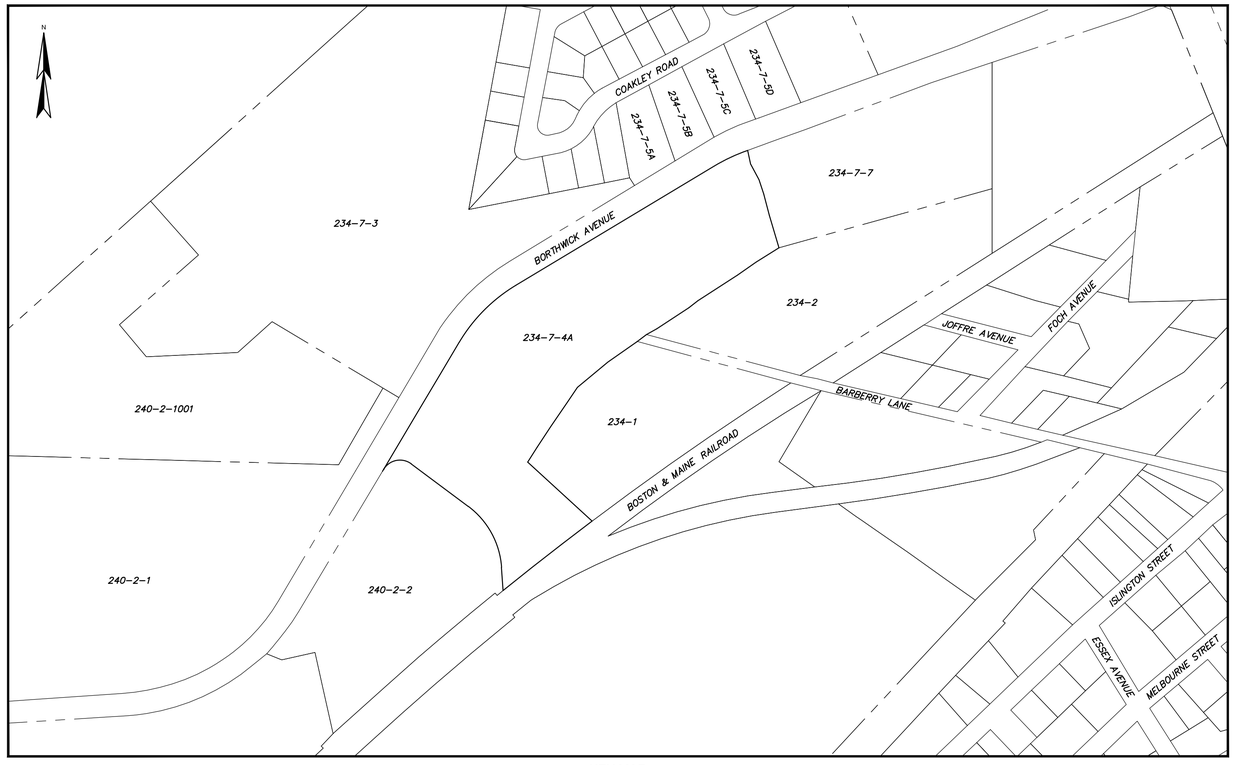
12. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVED PHYSICAL EVIDENCE AND PAINT MARKS FOUND ON-SITE.

13. THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES/TYPES IS SUBJECT TO NUMEROUS FIELD CONDITIONS, INCLUDING; THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS, MANHOLE CONFIGURATION, ETC.

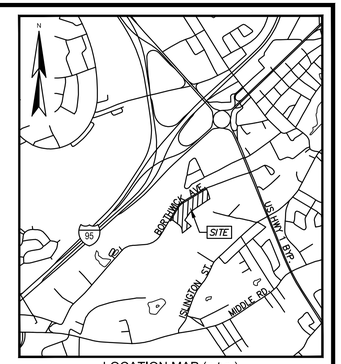
14. ALL UNDERGROUND UTILITIES (ELECTRIC, GAS, TEL. WATER, SEWER DRAIN SERVICES) ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

REFERENCE PLANS:

1. "LOT LINE REVISION PLAN FOR PORTSMOUTH HOSPITAL OFFICE BUILDING ASSOCIATION, ISLINGTON WOODS, LLC AND HCA REALTY, INC. (TAX MAP 234, LOTS 7-4A & 7-4B) (TAX MAP 240, LOT 2-2) BORTHWICK AVENUE EXTENSION PORTSMOUTH, NEW HAMPSHIRE" DATED 1/13/06 BY DOUCET SURVEY, INC., R.C.R.D. PLAN D-33642.
2. "SUBDIVISION & LOT LINE REVISION PLAN BETWEEN NORTHERN UTILITIES, INC. AND ISLINGTON WOODS, LLC," BY DOUCET SURVEY, INC., DATED FEBRUARY 25, 2004, R.C.R.D. PLAN D-31871.
3. "GAS LINE AS-BUILT EASEMENT AND CONSERVATION EASEMENT PLAN," BY KIMBALL CHASE COMPANY, INC. DATED 10/31/85, R.C.R.D. PLAN D-15830.
4. "PLAT OF PROPERTY AND IMPROVEMENTS FOR HCA REALTY, INC.," BY CESP, INC. DATED DECEMBER 12, 1986, R.C.R.D. PLAN D-15831.
5. "EASEMENT PLAN FOR ISLINGTON WOODS, LLC AND BOSTON & MAINE CORPORATION BETWEEN ISLINGTON ST. & BORTHWICK AVE. EXT. (TAX MAP 223 LOT 113 & TAX MAP 234 LOT 7-4B) PORTSMOUTH, NEW HAMPSHIRE" DATED 10/20/2005 BY DOUCET SURVEY, INC., R.C.R.D. PLAN D-33500.
6. "LOT LINE REVISION PLAN LAND OF SEARAY REALTY, LLC TAX AMP 234 LOTS 2, 3, & 7-7 US ROUTE 1 BY-PASS & BARBERRY LANE PORTSMOUTH, NEW HAMPSHIRE. DATED 3/12/2014 BY DOUCET SURVEY, INC., R.C.R.D. PLAN D-38435.
7. "SUBDIVISION & EASEMENT PLAN LAND OF BORTHWICK FOREST, LLC (TAX MAP 241, LOT 25) AND SHOWING LAND OF HCA REALTY, INC. (TAX MAP 234, LOT 7-4A) (TAX MAP 240 LOT 2-2102) BORTHWICK AVE. & ISLINGTON ST. PORTSMOUTH, NH" DATED 11/12/2019 BY DOUCET SURVEY, INC., R.C.R.D. PLAN D-42049



KEY MAP



LOCATION MAP (n.t.s.)

200 0 200 400
SCALE: 1 INCH = 200 FT.

LEGEND: AERIAL DATA

BUILDINGS	UTILITY POLE
STRUCTURE	U.P.? UTILITY POLE OBSCURED
TREELINE	HYDRANT
TRAIL/WALK	MEDIUM LONE TREE
DRIVEWAY	SMALL LONE TREE
DRIVEWAY OBSCURED	SIGN
CURBING	POST
PAVED ROAD	SIGN
PAVED ROAD OBSCURED	
GRAVEL ROAD	
DRAINAGE OBSCURED	
FENCE OBSCURED	
FENCE	
PIPELINE	
PILE LIMIT	
STONE WALL	
DITCH	
TRAIL/WALK OBSCURED	
HEADWALL	
CONCRETE	
RAILROAD	
RAILROAD OBSCURED	

LEGEND

LOT LINE	SIGN
APPROXIMATE ABUTTERS LOT LINE	SIGN (TWO POSTS)
EXISTING EASEMENT LINE	DRILL HOLE FOUND
STONE WALL	IRON PIPE/ROD FOUND
REMNANT STONE WALL	FIRE HYDRANT
OHW OVERHEAD WIRE	WATER GATE VALVE
SS SEWER LINE	IRRIGATION CONTROL VALVE
SD DRAIN LINE	GAS GATE VALVE
CULVERT	CATCH BASIN
G GAS LINE	DRAIN MANHOLE
100 MAJOR CONTOUR LINE (SEE NOTE 5)	F.E.S FLARED END SECTION
98 MINOR CONTOUR LINE (SEE NOTE 5)	SEWER MANHOLE
TREE LINE	HAND HOLE
EDGE OF WETLAND (SEE NOTE 6)	
EDGE OF WETLAND AS PROVIDED BY CLIENT (NOT SURVEY LOCATED)	DECIDUOUS TREE
WETLAND AREA	MAST ARM
CONCRETE	RAIL ROAD SIGNAL
RIP RAP	D.H.F. DRILL HOLE FOUND
LANDSCAPED AREA	EP EDGE OF PAVEMENT
LEDGE OUTCROP	EOG EDGE OF GRAVEL
XW REFERENCED WATER LINE	VGC VERTICAL GRANITE CURB
UTILITY POLE	SWL SINGLE WHITE LINE
UTILITY POLE & GUY WIRE	DYL DOUBLE YELLOW LINE
UTILITY POLE W/LIGHT	EM ELECTRIC METER

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR
No. 916
STEVEN V. MICHAUD
SIGNATURE

EXISTING CONDITIONS PLAN
FOR
TIGHE & BOND
OF
TAX MAP 234 LOT 7-4A
BORTHWICK AVENUE EXTENSION
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY
1	3/22/22	UPDATE WETLANDS PER CLIENT	SVM

DRAWN BY:	W.D.C.	DATE:	OCTOBER 2021
CHECKED BY:	S.V.M.	DRAWING NO.	2826B
JOB NO.	2826	SHEET	1 OF 2

DOUCET SURVEY LLC
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2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
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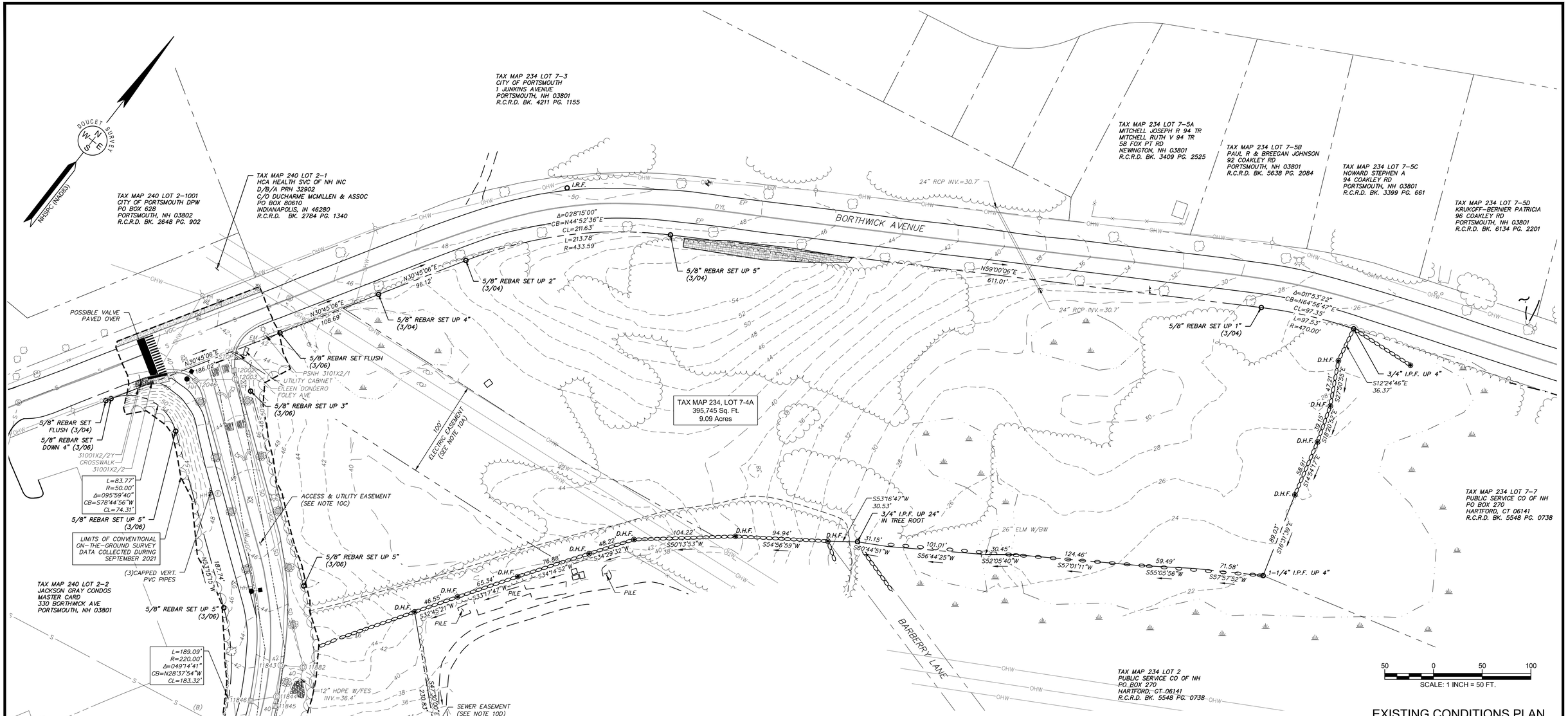
FILE NAME: I:\PROJECTS\2826 DA\DWG\2826B Tech 2021.dwg LAYOUT NAME: TOPO PLAN (1) PLOTTED: Tuesday, March 22, 2022 - 10:32am



DRAINAGE STRUCTURES		SEWER STRUCTURES
DMH 11843	DMH 11882	SMH 11847
RIM ELEV.=41.6'	RIM ELEV.=43.8'	RIM ELEV.=39.1'
(11844) 12" HDPE INV.=36.6'	(12003) 12" HDPE INV.=36.5'	(11848) 8" PVC DROP CATCH INV.=27.3'
(11882) 12" HDPE INV.=36.4'	(11843) 12" HDPE INV.=36.4'	(A) 18" PVC INV.=15.3'
	(OUTFALL) 12" HDPE INV.=36.5'	(B) 18" PVC INV.=15.2'
DMH 11844		
RIM ELEV.=40.4'	CB 12002	SMH 11848
(11846)12" HDPE INV.=36.9	RIM ELEV.=42.6'	RIM ELEV.=36.4'
(11845) 12" HDPE INV.=36.7'	(12003, CAPPED UNABLE TO MEASURE)	(A) 8" PVC INV.=27.8'
(11843) 12" HDPE INV.=36.8'	WATER ELEV.=37.7'	(11847) 8" PVC INV.=27.7'
	SUMP ELEV.=34.2'	
CB 11845		
RIM ELEV.=40.1'	DMH 12003	
(11844, CAPPED UNABLE TO MEASURE)	RIM ELEV.=42.8'	
WATER ELEV.=37.1'	(12046) 12" HDPE INV.=37.9'	
SUMP ELEV.=32.9'	(12002) 12" HDPE INV.=37.9'	
	(11882) 12" HDPE INV.=37.9'	
CB 11846		
RIM ELEV.=40'	CB 12046	
(11844, CAPPED UNABLE TO MEASURE)	RIM ELEV.=41.6'	
WATER ELEV.=37.2'	(12003, CAPPED UNABLE TO MEASURE)	
SUMP ELEV.=33'	WATER ELEV.=38.2'	
	SUMP ELEV.=34'	

EXISTING CONDITIONS PLAN
FOR
TIGHE & BOND
OF
TAX MAP 234 LOT 7-4A
BORTHWICK AVENUE EXTENSION
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY
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DRAWN BY:	W.D.C.	DATE:	OCTOBER 2021
CHECKED BY:	S.V.M.	DRAWING NO.	2826B
JOB NO.	2826	SHEET	2 OF 2

STATE OF NEW HAMPSHIRE
No. 916
STEVEN V. MICHAUD
LICENSED LAND SURVEYOR
SIGNATURE

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FILE NAME: I:\PROJECTS\2826 CAD\DWG\2826B Topo 2021.dwg LAYOUT NAME: TOPO PLAN (2) PLOTTED: Tuesday, March 22, 2022 - 10:22am

GENERAL NOTES:

1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
2. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
3. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
4. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES AND COMPLY WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
6. THE CONTRACTOR SHALL OBTAIN AND PAY FOR AND COMPLY WITH ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
7. THE CONTRACTOR SHALL PHASE DEMOLITION AND CONSTRUCTION AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO EXISTING BUSINESSES AND HOMES THROUGHOUT THE CONSTRUCTION PERIOD. EXISTING BUSINESS AND HOME SERVICES INCLUDE, BUT ARE NOT LIMITED TO ELECTRICAL, COMMUNICATION, FIRE PROTECTION, DOMESTIC WATER AND SEWER SERVICES. TEMPORARY SERVICES, IF REQUIRED, SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. CONTRACTOR SHALL PROVIDE DETAILED CONSTRUCTION SCHEDULE TO OWNER PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITIES AND SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
9. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
10. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
11. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
12. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.

DEMOLITION NOTES:

1. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
2. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
3. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
4. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
5. SAW CUT AND REMOVE PAVEMENT ONE (1) FOOT OFF PROPOSED EDGE OF PAVEMENT OR EXISTING CURB LINE IN ALL AREAS WHERE PAVEMENT TO BE REMOVED ABUTS EXISTING PAVEMENT OR CONCRETE TO REMAIN.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
7. UTILITIES SHALL BE TERMINATED AT THE MAIN LINE PER THE UTILITY COMPANY AND CITY OF PORTSMOUTH STANDARDS. THE CONTRACTOR SHALL REMOVE ALL ABANDONED UTILITIES LOCATED WITHIN THE LIMITS OF WORK UNLESS OTHERWISE NOTED.
8. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
9. PAVEMENT REMOVAL LIMITS ARE SHOWN FOR CONTRACTOR'S CONVENIENCE. ADDITIONAL PAVEMENT REMOVAL MAY BE REQUIRED DEPENDING ON THE CONTRACTOR'S OPERATION. CONTRACTOR TO VERIFY FULL LIMITS OF PAVEMENT REMOVAL PRIOR TO BID.
10. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT, CURBS, LIGHTING, MANHOLES, CATCH BASINS, UNDER GROUND PIPING, POLES, STAIRS, SIGNS, FENCES, RAMPS, WALLS, BOLLARDS, BUILDING SLABS, FOUNDATION, TREES AND LANDSCAPING.
11. REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
12. CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
13. PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
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.

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. COORDINATE ALL OFF-SITE SITE WORK WITH THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.
9. 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.
10. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
11. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
12. 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.
13. ALL TREES PLANTED ARE TO BE INSTALLED UNDER THE SUPERVISION OF THE CITY OF PORTSMOUTH DPW USING STANDARD INSTALLATION METHODS.
14. THE APPLICANT SHALL PREPARE A CONSTRUCTION MITIGATION AND MANAGEMENT PLAN (CMMP) FOR REVIEW AND APPROVAL BY THE CITY'S LEGAL AND PLANNING DEPARTMENTS.

SITE RECORDING NOTES:

1. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
2. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESSED APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
3. THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH.

GRADING AND DRAINAGE NOTES:

1. COMPACTION REQUIREMENTS:

BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%

* ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.

2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL) OR RCP CLASS IV, UNLESS OTHERWISE SPECIFIED.
3. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
4. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
5. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
6. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS AND NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
7. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS AND 4' SUMPS.

EROSION CONTROL NOTES:

1. SEE SHEET C-501 FOR GENERAL EROSION CONTROL NOTES AND DETAILS.

UTILITY NOTES:

1. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
   - NATURAL GAS - UNITIL
   - WATER - CITY OF PORTSMOUTH
   - SEWER - CITY OF PORTSMOUTH
   - ELECTRIC - EVERSOURCE
   - COMMUNICATIONS - FAIRPOINT AND COMCAST
2. 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.
3. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
4. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE APPLICABLE UTILITY COMPANIES.
5. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
6. 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.
7. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
8. 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.
9. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER.

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL FURNISH AND PLANT ALL PLANTS IN QUANTITIES AS SHOWN ON THIS PLAN. NO SUBSTITUTIONS WILL BE PERMITTED UNLESS APPROVED BY OWNER. ALL PLANTS SHALL BE NURSERY GROWN.
2. ALL PLANTS SHALL BE NURSERY GROWN AND PLANTS AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS, INCLUDING BUT NOT LIMITED TO SIZE, HEALTH, SHAPE, ETC., AND SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO ARRIVAL ON-SITE AND AFTER PLANTING.
3. PLANT STOCK SHALL BE GROWN WITHIN THE HARDINESS ZONES 4 THRU 7 ESTABLISHED BY THE PLANT HARDINESS ZONE MAP, MISCELLANEOUS PUBLICATIONS NO. 814, AGRICULTURAL RESEARCH SERVICE, UNITED STATES DEPARTMENT AGRICULTURE, LATEST REVISION.
4. PLANT MATERIAL SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE PRIOR TO DIGGING.
5. THE NUMBER OF EACH INDIVIDUAL PLANT TYPE AND SIZE PROVIDED IN THE PLANT LIST OR ON THE PLAN IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. IF A DISCREPANCY EXISTS BETWEEN THE NUMBER OF PLANTS ON THE LABEL AND THE NUMBER OF SYMBOLS SHOWN ON THE DRAWINGS, THE GREATER NUMBER SHALL APPLY.
6. NO SUBSTITUTION OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
7. THE CONTRACTOR SHALL LOCATE, VERIFY AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTING AND UTILITIES SHALL IMMEDIATELY BE REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED, SHALL RECEIVE 6" OF LOAM AND SEED. NO FILL SHALL BE PLACED IN ANY WETLAND AREA.
9. THREE INCHES (3") OF BARK MULCH IS TO BE USED AROUND THE TREE AND SHRUB PLANTING AS SPECIFIED IN THE DETAILS. WHERE BARK MULCH IS TO BE USED IN A CURBED ISLAND THE BARK MULCH SHALL MEET THE TOP INSIDE EDGE OF THE CURB. ALL OTHER AREAS SHALL RECEIVE 6" INCHES OF LOAM AND SEED.
10. LANDSCAPING SHALL BE LOCATED WITHIN 150 FT OF EXTERIOR HOSE ATTACHMENT OR SHALL BE PROVIDED WITH AN IRRIGATION SYSTEM.
11. SEE PLANTING DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
12. TREE STAKES SHALL REMAIN IN PLACE FOR NO LESS THAN 6 MONTHS AND NO MORE THAN 1 YEAR.
13. PLANTING SHALL BE COMPLETED FROM APRIL 15TH THROUGH OCTOBER 1ST. NO PLANTING DURING JULY AND AUGUST UNLESS SPECIAL PROVISIONS ARE MADE FOR DROUGHT.
14. PARKING AREA PLANTED ISLANDS TO HAVE MINIMUM OF 1'-0" TOPSOIL PLACED TO WITHIN 3 INCHES OF THE TOP OF CURB ELEVATION. REMOVE ALL CONSTRUCTION DEBRIS BEFORE PLACING TOPSOIL.
15. TREES SHALL BE PRUNED IN ACCORDANCE WITH THE LATEST EDITION OF ANSI A300 'TREES, SHRUBS AND OTHER WOOD PLANT MAINTENANCE STANDARD PRACTICES.
16. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN, IF NECESSARY DURING THE FIRST GROWING SEASON. LANDSCAPE CONTRACTOR SHALL COORDINATE WATERING SCHEDULE WITH OWNER DURING THE ONE (1) YEAR GUARANTEE PERIOD.
17. EXISTING TREES AND SHRUBS SHOWN ON THE PLAN ARE TO REMAIN UNDISTURBED. ALL EXISTING TREES AND SHRUBS SHOWN TO REMAIN ARE TO BE PROTECTED WITH A 4-FOOT SNOW FENCE PLACED AT THE DRIP LINE OF THE BRANCHES OR AT 8 FEET MINIMUM FROM THE TREE TRUNK. ANY EXISTING TREE OR SHRUB SHOWN TO REMAIN, WHICH IS REMOVED DURING CONSTRUCTION, SHALL BE REPLACED BY A TREE OF COMPARABLE SIZE AND SPECIES TREE OR SHRUB.
18. THE CONTRACTOR SHALL GUARANTEE ALL PLANTINGS TO BE IN GOOD HEALTHY, FLOURISHING AND ACCEPTABLE CONDITION FOR A PERIOD OF ONE (1) YEAR BEGINNING AT THE DATE OF ACCEPTANCE OF SUBSTANTIAL COMPLETION. ALL GRASSES, TREES AND SHRUBS THAT, IN THE OPINION OF THE LANDSCAPE ARCHITECT, SHOW LESS THAN 80% HEALTHY GROWTH AT THE END OF ONE YEAR PERIOD SHALL BE REPLACED BY THE CONTRACTOR.
19. UPON EXPIRATION OF THE CONTRACTOR'S ONE YEAR GUARANTEE PERIOD, THE OWNER SHALL BE RESPONSIBLE FOR LANDSCAPE MAINTENANCE INCLUDING WATERING DURING PERIODS OF DROUGHT
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL THE FORMAL ACCEPTANCE OF ALL THE PLANTINGS.
21. PRE-PURCHASE PLANT MATERIAL AND ARRANGE FOR DELIVERY TO MEET PROJECT SCHEDULE AS REQUIRED IT MAY BE NECESSARY TO PRE-DIG CERTAIN SPECIES WELL IN ADVANCE OF ACTUAL PLANTING DATES.

EXISTING CONDITIONS PLAN NOTES:

1. EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY DOUCET SURVEY, DATED OCTOBER 2021.
2. WETLAND DELINEATION BY TIGHE & BOND, ON SEPTEMBER 17, 2021, AND FIELD LOCATED BY DOUCET SURVEY.

REFERENCE PLANS:

1. SEE EXISTING CONDITIONS PLAN, BY DOUCET SURVEY.

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
AC	ACRES
ADA	AMERICANS WITH DISABILITIES ACT
AGGR	AGGREGATE
AOT	ALTERATION OF TERRIAN
BLDG	BUILDING
BMP(S)	BEST MANAGEMENT PRACTICE(S)
BOC	BOTTOM OF CURB
BOW	BOTTOM OF WALL
CB	CATCH BASIN
CCB	CAPE COD BERM
CMP	CORRUGATED METAL PIPE
CONST	CONSTRUCT
COORD	COORDINATE
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DMH	DRAINAGE MANHOLE
DH	DOGHOUSE
DWG	DRAWING
ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EXIST	EXISTING
FES	FLARED END SECTION
FF	FINISHED FLOOR
HDPE	HIGH DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
HMP	HOT MIX PAVEMENT
HW	HEADWALL
HYD	HYDRANT
ID	INSIDE DIAMETER
INV	INVERT
L	LENGTH
LF	LINEAR FEET
MAX	MAXIMUM
MIN	MINIMUM
NCSS	NATIONAL COOPERATIVE SURVEY
NHDES	NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES
NRCC	NORTHEAST REGIONAL CLIMATE CENTER
NRCS	NATURAL RESOURCES CONSERVATION SERVICE
OC	ON CENTER
OD	OUTSIDE DIAMETER
PAD	PROPOSED AREA DRAIN
PC	POINT OF CURVATURE
PCB	PROPOSED CATCH BASIN
PDMH	PROPOSED DRAINAGE MANHOLE
PI	POINT OF INTERSECTION
POS	PROPOSED OUTLET STRUCTURE
PROP	PROPOSED
PSMH	PROPOSED SEWER MANHOLE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PYD	PROPOSED YARD DRAIN
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RL	ROOF LEADER
ROW	RIGHT OF WAY
SF	SQUARE FEET
SSSNNE	SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND
STD	STANDARD
TBR	TO BE REMOVED
TOC	TOP OF CURB
TOW	TOP OF WALL
TYP	TYPICAL
UD	UNDERDRAIN
USCS	UNIFIED SOIL CLASSIFICATION SYSTEM
USDA	UNITED STATES DEPARTMENT OF AGRICULTURE
W	WIDTH
W/	WITH
YD	YARD DARIN

LEGEND

EXISTING LOT LINE
PROPOSED LEASE LINE
EXISTING RIGHT-OF-WAY LINE
EXISTING CHAIN LINK FENCE
PROPOSED FENCE
EXISTING OVERHEAD WIRE
EXISTING SEWER LINE
PROPOSED SEWER LINE
EXISTING DRAIN LINE
PROPOSED DRAIN LINE
PROPOSED DRAIN LINE
EXISTING GAS LINE
PROPOSED GAS LINE
EXISTING TELEPHONE LINE
PROPOSED COMMUNICATIONS LINE
PROPOSED ELECTRIC LINE
PROPOSED ELECTRIC & COMMUNICATIONS LINE
EXISTING WATER LINE
PROPOSED WATER LINE
EXISTING MAJOR CONTOUR LINE
EXISTING MINOR CONTOUR LINE
PROPOSED CONTOUR LINE
EXISTING TREE LINE
PROPOSED TREE LINE
EXISTING SHRUB LINE
PROPOSED SHRUB LINE
EXISTING EDGE OF WETLAND
EXISTING WETLAND AREA
WETLAND BUFFER
EXISTING CONCRETE
PROPOSED CONCRETE
EXISTING CRUSHED STONE
EXISTING PAVEMENT/CONCRETE TO BE REMOVED
PROPOSED STANDARD DUTY PAVEMENT SECTION
PROPOSED BITUMINOUS SIDEWALK
PROPOSED SNOW STORAGE AREA
APPROXIMATE LIMIT OF WORK
APPROXIMATE LIMIT OF SAWCUT
PROPOSED SILT SOCK
EXISTING UTILITY POLE
EXISTING UTILITY POLE & GUY WIRE
EXISTING UTILITY POLE W/LIGHT
EXISTING UTILITY POLE STUMP
PROPOSED LIGHT POLE BASE
EXISTING SIGN
EXISTING PROPOSED SIGN
EXISTING IRON PIPE/ROD FOUND
EXISTING POST
EXISTING BOLLARD
PROPOSED BOLLARD
EXISTING FIRE HYDRANT
WATER GATE VALVE
PROPOSED WATER GATE VALVE
EXISTING GAS GATE VALVE
EXISTING GAS REGULATOR
EXISTING VENT PIPE
EXISTING TELEPHONE BOX
EXISTING UTILITY BOX
EXISTING CATCH BASIN
PROPOSED CATCH BASIN
EXISTING DRAIN MANHOLE
PROPOSED DRAIN MANHOLE
EXISTING ELECTRIC MANHOLE
PROPOSED ELECTRIC MANHOLE
EXISTING SEWER MANHOLE
PROPOSED SEWER MANHOLE
EXISTING DECIDUOUS TREE
PROPOSED LANDSCAPING
EXISTING TREE STUMP
BORING LOCATION
TEST PIT LOCATION
EXISTING SURVEYED SPOT GRADE
APPROX EXISTING SPOT GRADE
PROPOSED SPOT GRADE
CONCRETE
THRESHOLD ELEVATION
VERTICAL GRANITE CURB
SLOPED BITUMINOUS BERM
SINGLE WHITE LINE
DOUBLE YELLOW LINE

Tighe&Bond

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS – No. 12378 – LICENSED PROFESSIONAL ENGINEER
03/22/22

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA – No. 08830 – LICENSED PROFESSIONAL ENGINEER
3-22-22

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	03/22/2022	TAC SUBMISSION

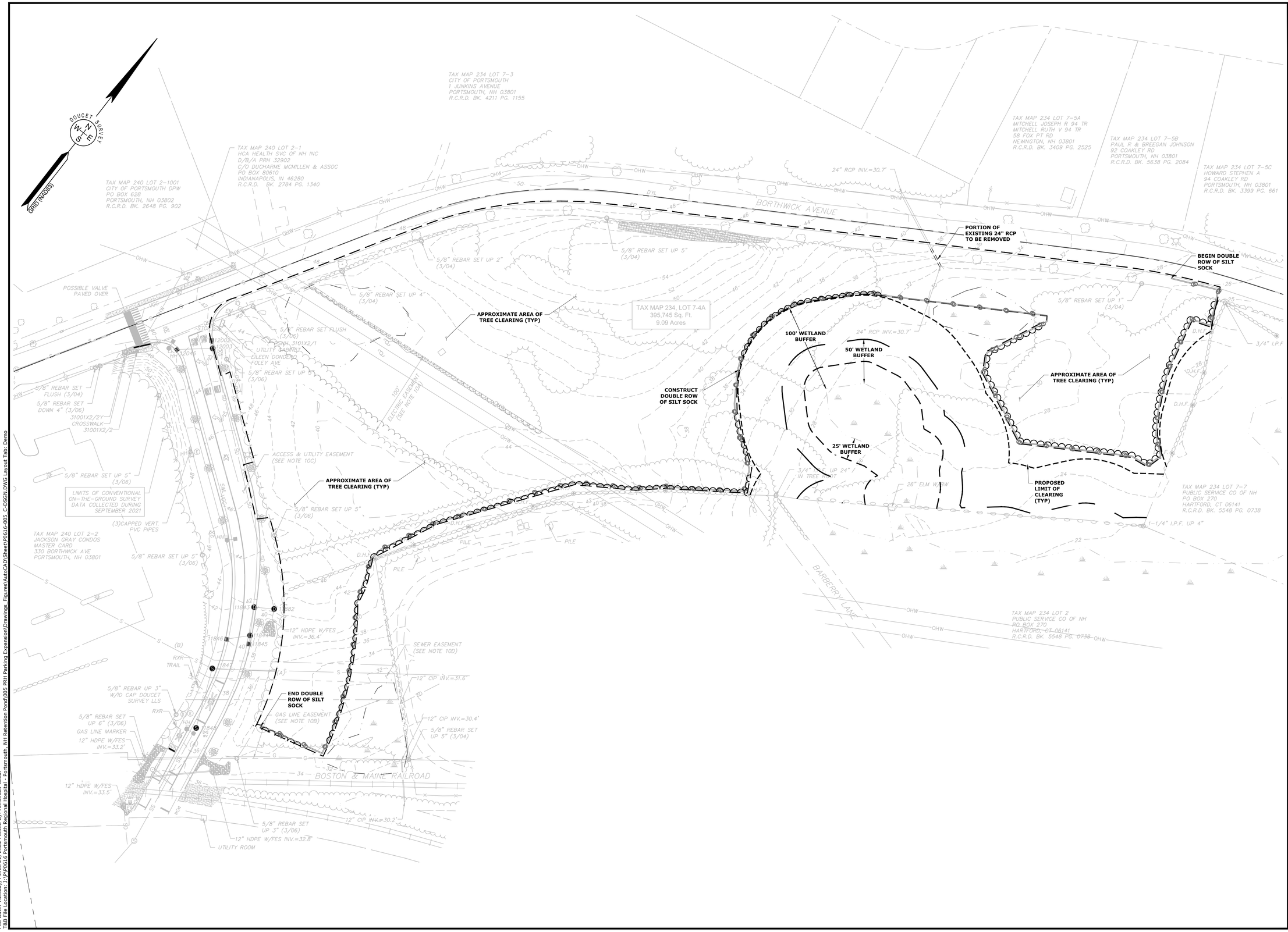
PROJECT NO:	P0616-001
DATE:	3/22/22
FILE:	P0616-005_C-DSGN.DWG
DRAWN BY:	CML
CHECKED:	PMC
APPROVED:	BLM

GENERAL NOTES

SCALE: AS SHOWN

G-101

Last Save Date: March 22, 2022 11:47 AM By: JSELLAR
Plot Date: March 22, 2022 11:48 AM By: Jonathan Winston
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 RRH Parking Expansion\Drawings, Figures\AutoCAD\Sheet\P0616-005_C-DSGN.DWG Layout Tab: G-101



Tighe&Bond

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED PROFESSIONAL ENGINEER
03/22/22

STATE OF NEW HAMPSHIRE
BRADLEE MEZQUITA
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3-22-22

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

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A	03/22/2022	TAC SUBMISSION

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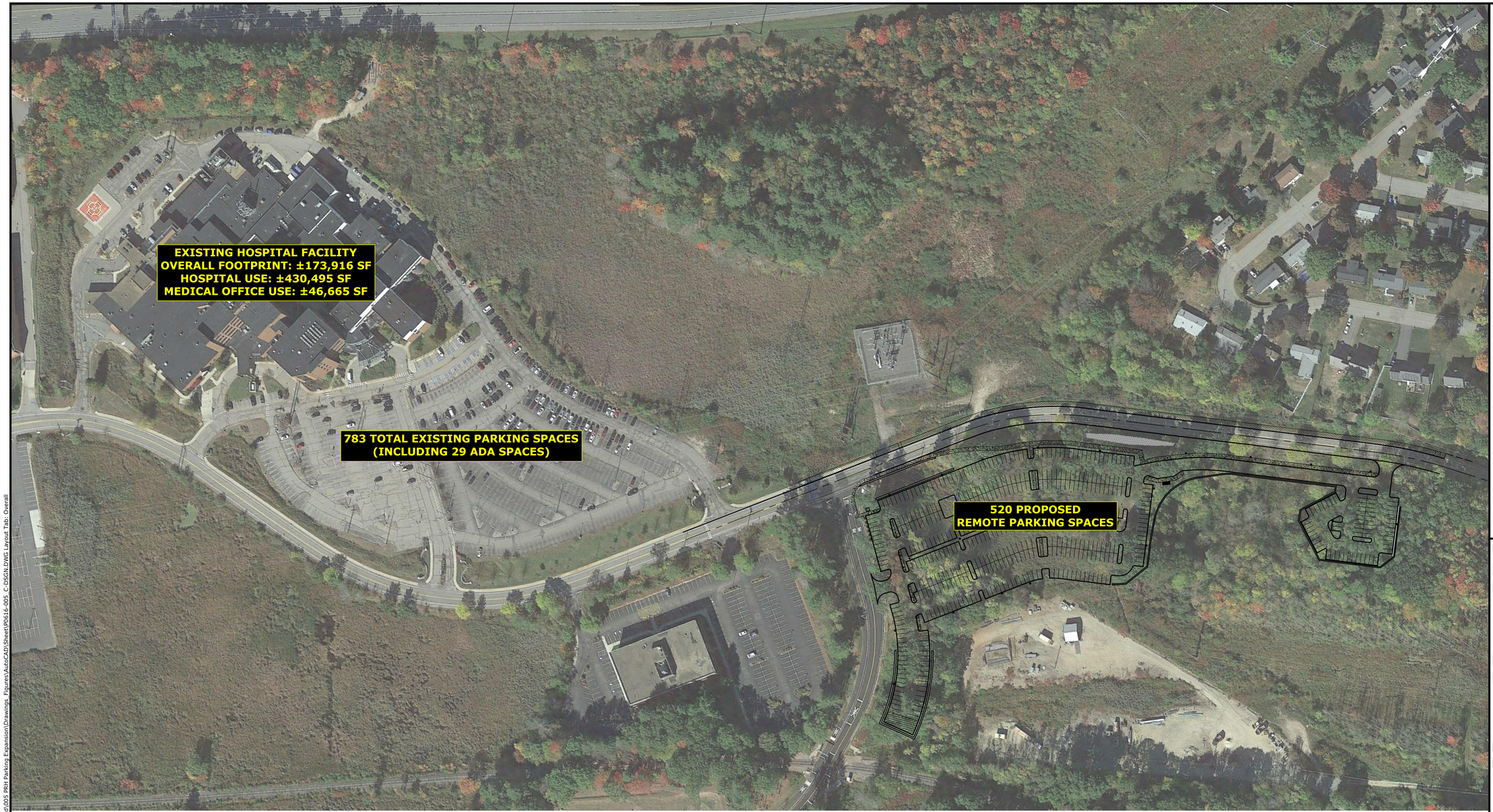
APPROVED:	BLM

DEMOLITION PLAN

SCALE: AS SHOWN

C-101

Last Save Date: March 22, 2022 1:07 PM By: ASELLAR
Plot Date: Tuesday, March 22, 2022 Plotted By: Alexander Sellar
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Drawings_Figures\AutoCAD\Sheet\P0616-005_C-DSGN.DWG Layout Tab: Demo



PARKING REQUIREMENTS:	REQUIRED	PROPOSED
PARKING STALL LAYOUT:		
• STANDARD 90°	8.5' X 19'	8.5' X 19'
DRIVE AISLE WIDTH:		
• 90° (2-WAY TRAFFIC)	24 FT	24 FT
MINIMUM SETBACKS:		
• FRONT:	50 FT	35.4 FT (1)
PARKING SPACE REQUIREMENTS:		
MEDICAL OFFICE:		
1 SPACE / 250 GFA		
= ±46,665 SF / 250 SF/SPACE =	187 SPACES	
HOSPITAL:		
PER PARKING DEMAND ANALYSIS(2)	965 SPACES	
MINIMUM PARKING:	1,152 SPACES	
		783 EXISTING SPACES
		520 PROPOSED SPACES
MAXIMUM PARKING(3):	1,382 SPACES	1,299 TOTAL SPACES (4)

(1) - A VARIANCE WAS GRANTED BY THE ZONING BOARD OF ADJUSTMENT ON FEBRUARY 23, 2022 FROM SECTION 10.113.41 TO ALLOW A 35 FOOT FRONT SETBACK FOR A PARKING LOT WHERE 50 FEET IS REQUIRED
(2) - PARKING DEMAND BASED ON GFA OF THE EXISTING HOSPITAL (±430,495 SF)
(3) - MAXIMUM PARKING EQUALS 120% OF MINIMUM
(4) - INCLUDING 29 ADA SPACES IN THE EXISTING PARKING LOT

Tighe&Bond

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED PROFESSIONAL ENGINEER
03/22/22

STATE OF NEW HAMPSHIRE
BRADLEE MEZQUITA
No. 08830
LICENSED PROFESSIONAL ENGINEER
3-22-22

SCALE IN FEET
0 100' 200'
GRAPHIC SCALE

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	03/22/2022	TAC SUBMISSION

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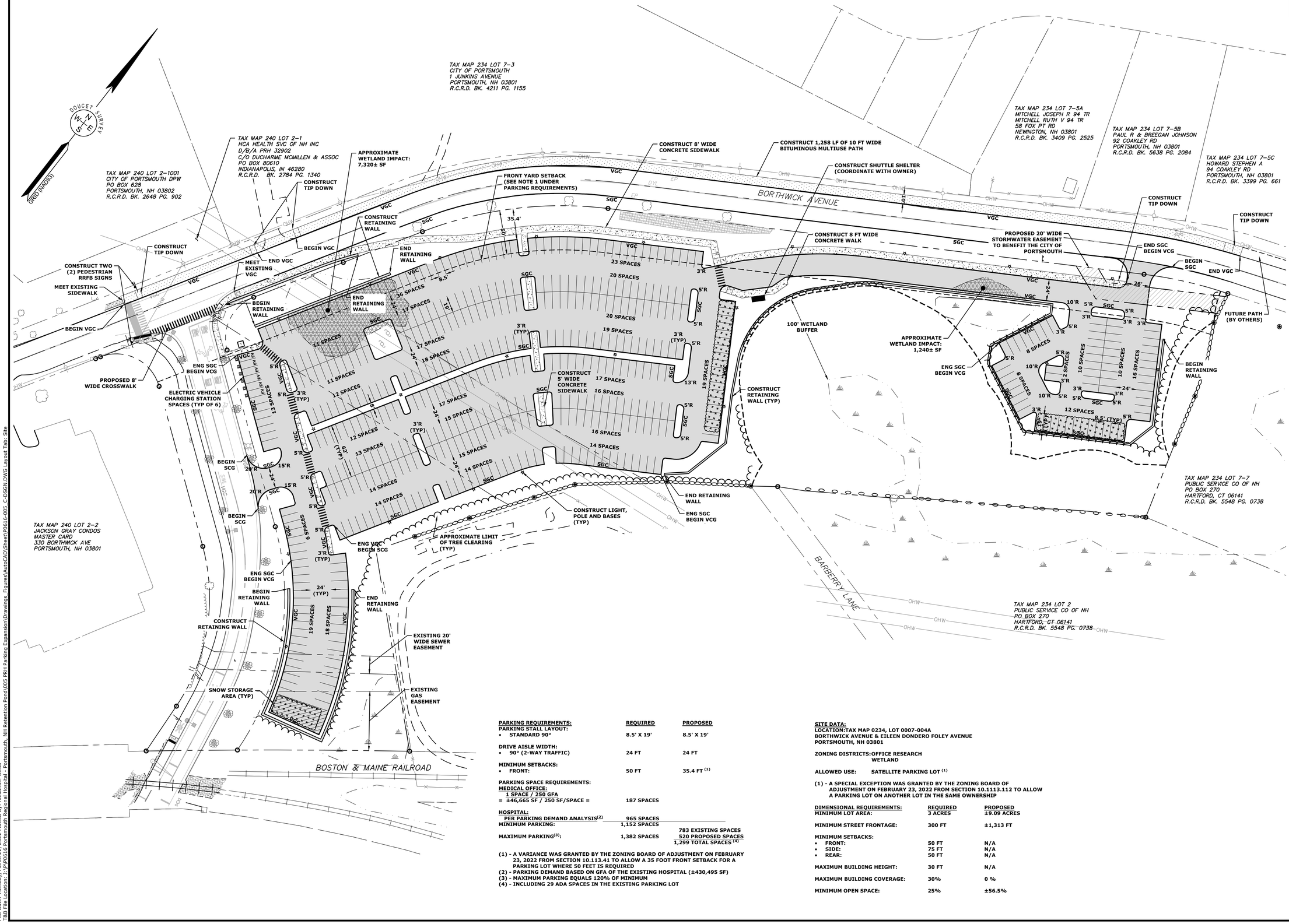
OVERALL PARKING PLAN

SCALE: AS SHOWN

C-102

Last Save Date: March 22, 2022 1:07 PM By: ASELLAR
Plot Date: Tuesday, March 22, 2022 1:07 PM By: Alexander Sellar
T&B File Location: I:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Drawings_Figures\AutoCAD\Sheet\P0616-005_C-DSGN.DWG Layout Tab: Overall



PARKING REQUIREMENTS:

	REQUIRED	PROPOSED
PARKING STALL LAYOUT:		
• STANDARD 90°	8.5' X 19'	8.5' X 19'
DRIVE AISLE WIDTH:		
• 90° (2-WAY TRAFFIC)	24 FT	24 FT
MINIMUM SETBACKS:		
• FRONT:	50 FT	35.4 FT (1)

PARKING SPACE REQUIREMENTS:

MEDICAL OFFICE:		
1 SPACE / 250 GFA		
= ±46,665 SF / 250 SF/SPACE =	187 SPACES	
HOSPITAL:		
PER PARKING DEMAND ANALYSIS(2)	965 SPACES	
MINIMUM PARKING:	1,152 SPACES	
MAXIMUM PARKING(3):	1,382 SPACES	783 EXISTING SPACES 520 PROPOSED SPACES 1,299 TOTAL SPACES (4)

(1) - A VARIANCE WAS GRANTED BY THE ZONING BOARD OF ADJUSTMENT ON FEBRUARY 23, 2022 FROM SECTION 10.113.41 TO ALLOW A 35 FOOT FRONT SETBACK FOR A PARKING LOT WHERE 50 FEET IS REQUIRED
(2) - PARKING DEMAND BASED ON GFA OF THE EXISTING HOSPITAL (±430,495 SF)
(3) - MAXIMUM PARKING EQUALS 120% OF MINIMUM
(4) - INCLUDING 29 ADA SPACES IN THE EXISTING PARKING LOT

SITE DATA:
LOCATION:TAX MAP 0234, LOT 0007-004A
BORTHWICK AVENUE & EILEEN DONDERO FOLEY AVENUE
PORTSMOUTH, NH 03801

ZONING DISTRICTS:OFFICE RESEARCH
WETLAND

ALLOWED USE: SATELLITE PARKING LOT (1)

(1) - A SPECIAL EXCEPTION WAS GRANTED BY THE ZONING BOARD OF ADJUSTMENT ON FEBRUARY 23, 2022 FROM SECTION 10.1113.112 TO ALLOW A PARKING LOT ON ANOTHER LOT IN THE SAME OWNERSHIP

DIMENSIONAL REQUIREMENTS:	REQUIRED	PROPOSED
MINIMUM LOT AREA:	3 ACRES	±9.09 ACRES
MINIMUM STREET FRONTAGE:	300 FT	±1,313 FT
MINIMUM SETBACKS:		
• FRONT:	50 FT	N/A
• SIDE:	75 FT	N/A
• REAR:	50 FT	N/A
MAXIMUM BUILDING HEIGHT:	30 FT	N/A
MAXIMUM BUILDING COVERAGE:	30%	0 %
MINIMUM OPEN SPACE:	25%	±56.5%

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STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 03/22/22

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – 3-22-22

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
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SITE PLAN

SCALE: AS SHOWN

C-102.1

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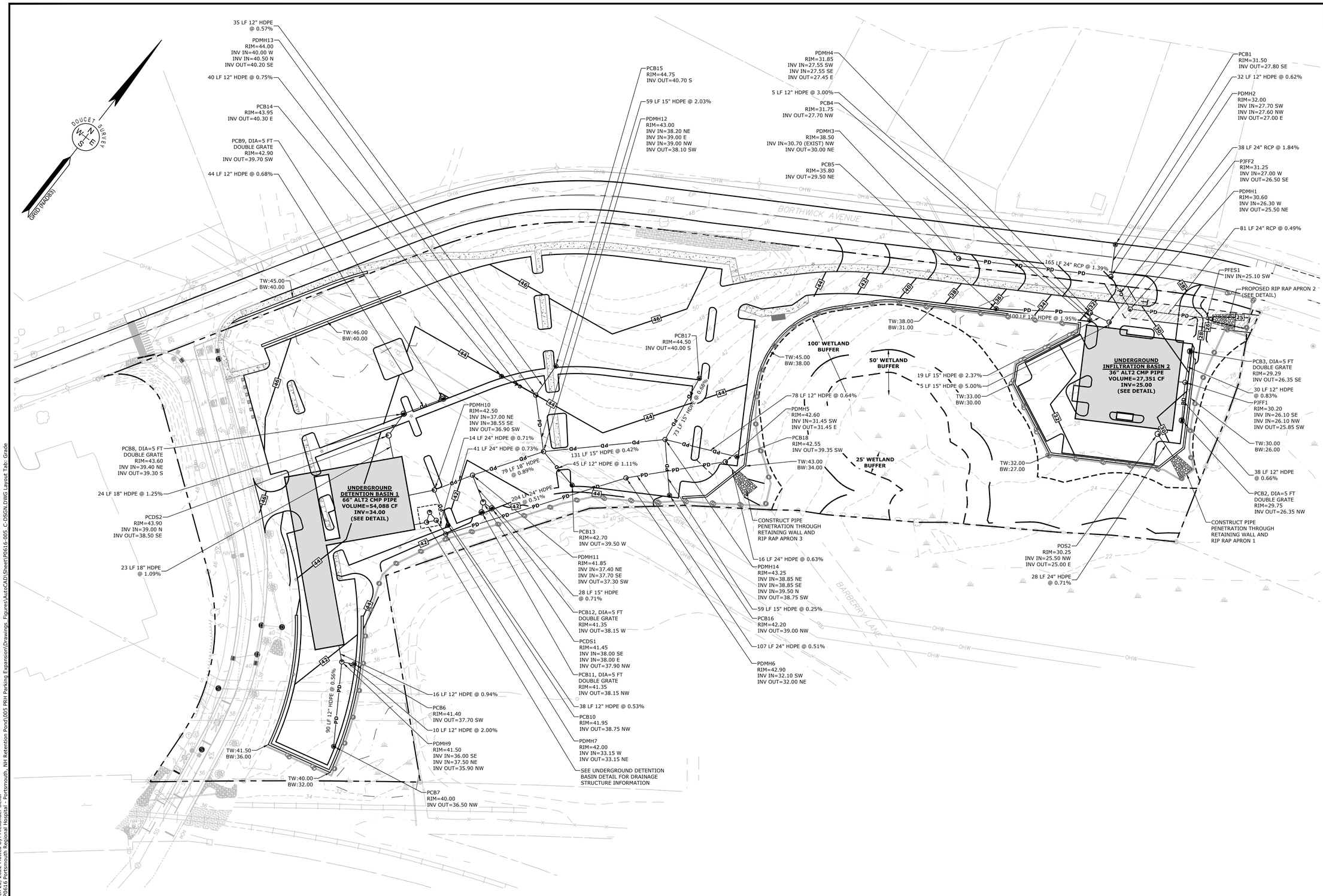
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Drawings, Figures\AutoCAD\Sheet\P0616-005_C-DSGN.DWG Layout Tab: Site



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STATE OF NEW HAMPSHIRE
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BRADLEE MEZQUITA
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3-22-22

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth,
New Hampshire

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GRADING, DRAINAGE, & EROSION CONTROL PLAN

SCALE: AS SHOWN

C-103

Last Save Date: March 22, 2022, 1:07 PM By: ASELLAR
Plot Date: Tuesday, March 22, 2022 1:07 PM By: Alexander Sellar
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DOUCET SURVEY
GRID (NAD83)

BORTHWICK AVENUE

PROPOSED UNDERGROUND ELECTRIC CONNECTION TO UTILITY POLE

PROPOSED UNDERGROUND ELECTRIC CONNECTION TO UTILITY POLE (COORDINATE WITH EVERSOURCE)

PROPOSED TRANSFORMER (COORDINATE WITH EVERSOURCE)

PROPOSED UNDERGROUND ELECTRIC CONNECTION TO EV CHARGING STATIONS

100' WETLAND BUFFER

50' WETLAND BUFFER

25' WETLAND BUFFER

BARBERRY LANE

Tighe&Bond

STATE OF NEW HAMPSHIRE
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03/22/22

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BRADLEE MEZQUITA
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3-22-22

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

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APPROVED:	BLM

UTILITY PLAN

SCALE: AS SHOWN

C-104

Last Save Date: March 22, 2022 1:07 PM By: ASELLAR
Plot Date: Tuesday, March 22, 2022 1:08 PM By: Alexander Sellar
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PLANT SCHEDULE:

TREES:

CODE	BOTANICAL NAME	COMMON NAME	SIZE
AF	ACER X 'FREEMANII'	AUTUMN BLAZE MAPLE	3-3½" CALIPER
CC	CRATAEGUS CRUS GALLI 'INERMIS'	THORNLESS COCKSPUR HAWTHORN	2-2½" CALIPER
FA	FRANKLINIA ALATAMAHA	FRANKLIN TREE	7'-8' HT
GS	GLEDITSIA 'SHADEMASTER'	SHADEMASTER LOCUST	2½-3" CALIPER
QR	QUERCUS RUBRUM	RED OAK	2½-3" CALIPER
TC	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LINDEN	2½-3" CALIPER
ZS	ZELKOVA SERRATA 'GREEN VASE'	GREEN VASE ZELKOVA	2½-3" CALIPER

SHRUBS:

CODE	BOTANICAL NAME	COMMON NAME	SIZE
AH	CORYLUS AMERICANA	AMERICAN HAZELNUT	5 GAL
AM	ARONIA MELANOCARPA	BLACK CHOKEBERRY	5 GAL
CA	CLETHRA ALNIFOLIA	SUMMER SWEET	5 GAL
CO	CEPHALANTHUS OCCIDENTALIS	BUTTON BUSH	5 GAL
CR	CORNUS RACEMOSA	GRAY DOGWOOD	5 GAL
FN	FORSYTHIA 'NORTHERN SUN'	NORTHERN SUN FORSYTHIA	5 GAL
PO	PHYSOCARPUS OPULIFOLIUS 'BIABOLO'	DIABOLO NINEBARK	5 GAL
SV	SYRINGA VULGARIS	COMMON LILAC	5 GAL
VD	VIBURNUM DENTATUM	ARROWWOOD	5 GAL

Tighe&Bond

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 03/22/22

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – 3-22-22

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
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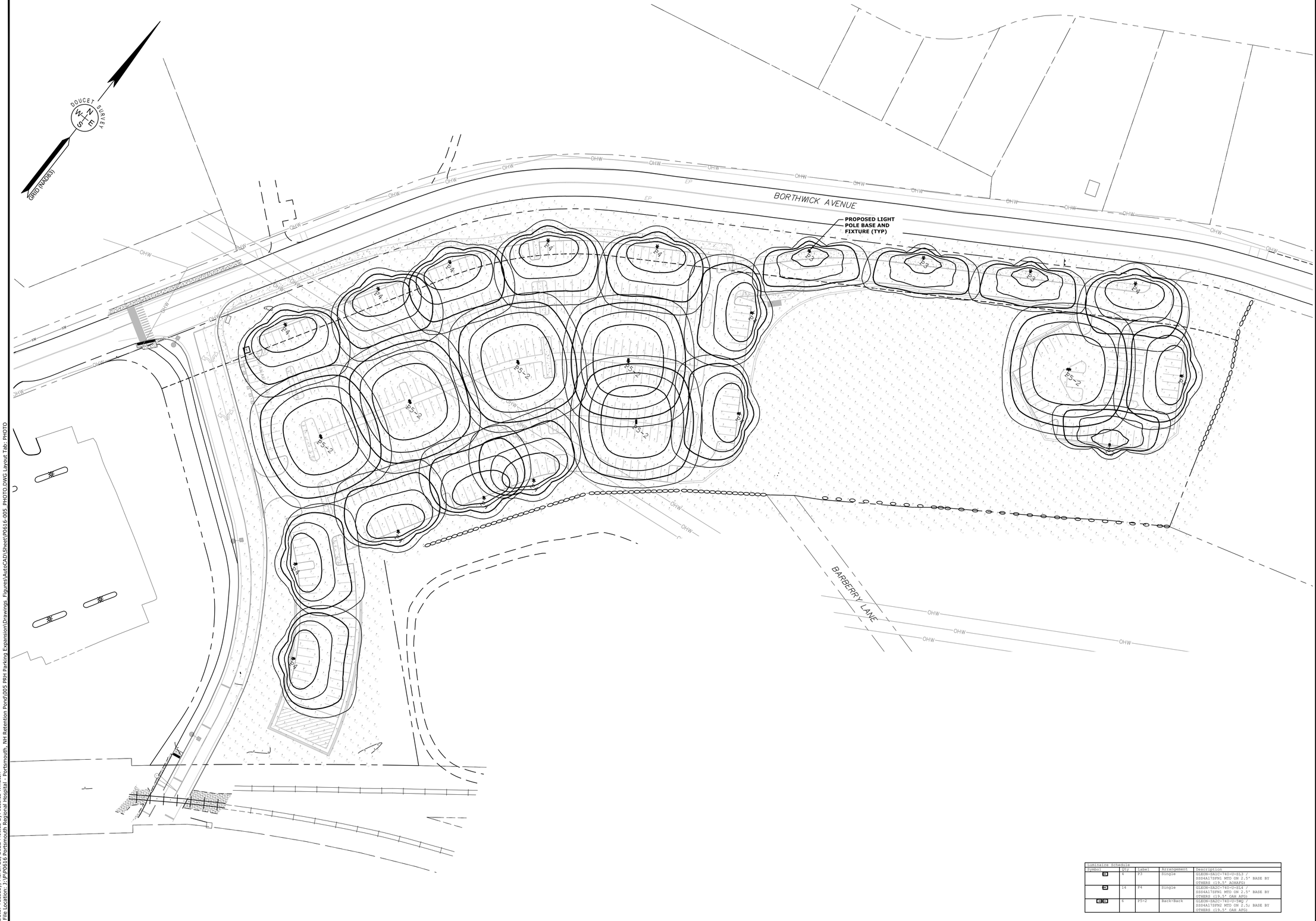
CHECKED:	PMC
APPROVED:	BLM

LANDSCAPE PLAN

SCALE: AS SHOWN

C-105

Last Save Date: March 22, 2022, 1:07 PM By: ASELLAR
Plot Date: Tuesday, March 22, 2022 1:07 PM By: Alexander Sellar
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Drawings, Figures\AutoCAD\Sheet\P0616-005_C-DSGN.DWG Layout Tab: Landscape



Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
	4	P3	Single	GLEON-SA2C-740-U-SL3 / SSS4A178FN1 MTD ON 2.5' BASE BY OTHERS (19.5' AOHAFG)
	14	P4	Single	GLEON-SA2C-740-U-SL4 / SSS4A178FN1 MTD ON 2.5' BASE BY OTHERS (19.5' OAH AFG)
	6	P5-2	Back-Back	GLEON-SA2C-740-U-SWQ / SSS4A178FN2 MTD ON 2.5' BASE BY OTHERS (19.5' OAH AFG)

Tighe&Bond

PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
STATE OF NEW HAMPSHIRE
03/22/22

BRADLEE MEZQUITA
No. 08830
LICENSED
PROFESSIONAL ENGINEER
STATE OF NEW HAMPSHIRE
3-22-22

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth,
New Hampshire

MARK	DATE	DESCRIPTION
A	03/22/2022	TAC SUBMISSION

PROJECT NO:	P0616-001
DATE:	3/22/22
FILE:	P0616-005_PHOTO.DWG
DRAWN BY:	MKF
CHECKED:	PMC
APPROVED:	BLM

PHOTOMETRICS PLAN

SCALE: AS SHOWN

C-106

Last Save Date: March 22, 2022 11:54 AM By: JWINSTON
Plotted Date: Tuesday, March 22, 2022 Plotted By: Jessica Winston
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Drawings_Figures\AutoCAD\Sheet\P0616-005_PHOTO.DWG Layout Tab: PHOTO

GENERAL PROJECT INFORMATION

PROJECT OWNER: PORTSMOUTH REGIONAL HOSPITAL
333 BORTHWICK AVENUE
PORTSMOUTH, NH
PROJECT NAME: PROPOSED SATELLITE PARKING LOT
PROJECT ADDRESS BORTHWICK AVENUE
PORTSMOUTH, NH
PROJECT MAP / LOT: MAP 234 / LOT 7-4A
PROJECT LATITUDE: 43°-03'-56.5"N
PROJECT LONGITUDE: 70°-47'-07.21"W

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE CONSTRUCTION OF A 520 SPOT SATELLITE PARKING LOT TO SERVICE THE EXISTING PORTSMOUTH REGIONAL HOSPITAL. THE WORK IS ANTICIPATED TO START IN FALL 2022, AND BE COMPLETED BY FALL 2023.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 6.24 ACRES.

SOIL CHARACTERISTICS

USCS SITE SPECIFIC SOIL SURVEY CONDUCTED BY TIGHE & BOND INC., ON NOVEMBER 18 & 19, 2021 THE SOILS ON SITE CONSIST OF WOODBRIDGE, BOXFROD,SCITICO, PAXTON, HOLLIS, CHATFIELD AND SCIO SOILS WHICH RANGE FROM WELL DRAINED TO POORLY DRAINED SOILS WITH HYDROLOGIC SOIL GROUP RATING(S) OF B & C.

NAME OF RECEIVING WATERS

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA OVERLAND FLOW TO AN UNNAMED WETLAND AND ULTIMATELY FLOWS 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. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
   - NEW CONSTRUCTION
   - DEVELOPMENT OF BORROW PIT AREAS
   - DISPOSAL OF SEDIMENT SPOIL, STUMP AND OTHER SOLID WASTE
   - FLOOD PLAIN EXCAVATION WORK
   - STREAM CHANNEL MODIFICATIONS
   - CONTROL OF DUST
   - CONSTRUCTION OF ACCESS AND HAUL ROAD
   - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
   - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
4. CLEAR AND DISPOSE OF DEBRIS.
5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
6. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
7. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
8. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
9. SEDIMENT TRAPS AND/OR BASINS SHALL BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.
10. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
11. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
12. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
13. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:

1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

EROSION CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
2. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
3. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALES, SILT FENCES, MULCH BERMS, SILT SACKS AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
4. SILT SACK INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
5. PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
6. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
7. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
8. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
9. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

STABILIZATION:

1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.;
   E. IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.
2. WINTER STABILIZATION PRACTICES:
   A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
   B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
   C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
   A. TEMPORARY SEEDING;
   B. MULCHING.
4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
5. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
6. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

DUST CONTROL:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS INCLUDING BUT NOT LIMITED TO BORTHWICK AVENUE AND ELLEN DONDERO FOLEY AVENUE.

STOCKPILES:

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:

1. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

VEGETATION:

1. TEMPORARY GRASS COVER:
   A. SEEDBED PREPARATION:
      a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
   B. SEEDING:
      a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
      b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
      c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
   C. MAINTENANCE:
      a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
2. PERMANENT MEASURES AND PLANTINGS:
   A. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5;
   B. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20 FERTILIZER;
   C. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH;
   D. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH;
   E. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE;
   F. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED;
   G. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
   H. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE APPLIED AT THE INDICATED RATE:

SEED MIX	APPLICATION RATE
CREEPING RED FESCUE	20 LBS/ACRE
TALL FESCUE	20 LBS/ACRE
REDTOP	2 LBS/ACRE

   IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.
3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
   A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

CONCRETE WASHOUT AREA:

1. THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
   A. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FACILITY;
   B. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
   C. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
   D. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES:

1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:

1. WASTE MATERIAL:
   A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE:
   A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE:
   A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION:

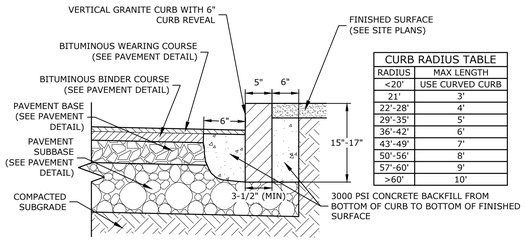
1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
   A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
      a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
      b. ALL REGULATED MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE, ON AN IMPERVIOUS SURFACE;
      c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
      d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
      e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
      f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
      g. THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
   B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
      a. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
      b. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
      c. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
   C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
      a. PETROLEUM PRODUCTS:
      i. ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
      ii. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
      iii. SECURE FUEL STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
      iv. INSPECT FUEL STORAGE AREAS WEEKLY;
      v. WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS;
      vi. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
      vii. SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
      viii. THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
         (1) EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;
         (2) PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS;
         (3) HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
         (4) USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES;
         (5) PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
      ix. FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT SHALL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT, OR ITS SUCCESSOR DOCUMENT.
      HTTPS://WWW.DES.NH.GOV/ORGANIZATION/COMMISSIONER/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF
      b. FERTILIZERS:
      i. FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
      ii. ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
      iii. STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
      c. PAINTS:
      i. ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
      ii. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
      iii. EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
   D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
      a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
      b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
      c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
      d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
      e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
      f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
   E. VEHICLE FUELING AND MAINTENANCE PRACTICE:
      a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPMENT/VEHICLE FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
      b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
      c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
      d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
      e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
      f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

1. THIS PROJECT EXCEEDS ONE (1) ACRE OF DISTURBANCE AND THUS REQUIRES A SWPPP. THE SWPPP SHALL BE PREPARED BY THE ENGINEER. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SWPPP AND KEEP AN UPDATED COPY OF THE SWPPP ONSITE AT ALL TIMES.
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 ENGINEER 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;
   C. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
   D. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.

BLASTING NOTES:

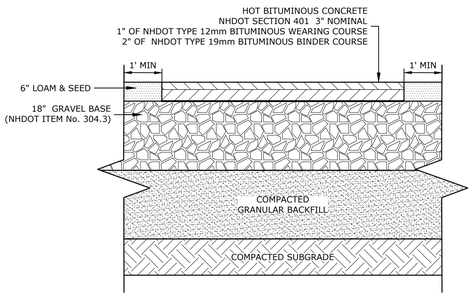
1. CONTRACTOR SHALL CONTACT THE NHDES PRIOR TO COMMENCING ANY BLASTING ACTIVITIES
2. FOR ANY PROJECT FOR WHICH BLASTING OF BEDROCK IS ANTICIPATED, THE APPLICANT SHALL SUBMIT:
   A. A BLASTING PLAN THAT IDENTIFIES:
      a. WHERE THE BLASTING ACTIVITIES ARE ANTICIPATED TO OCCUR;
      b. THE ESTIMATED QUANTITY OF BLAST ROCK IN CUBIC YARDS; AND
      c. SITE-SPECIFIC BLASTING BEST MANAGEMENT PRACTICES.
3. IF MORE THAN 5000 CUBIC YARDS OF BLAST ROCK WILL BE GENERATED AND THERE ARE ONE OR MORE PUBLIC DRINKING WATER WELLS WITHIN 2000 FEET OF THE BLASTING ACTIVITIES, A PLAN TO MONITOR GROUNDWATER TO DETECT ANY CONTAMINATION IN SUFFICIENT TIME TO PROTECT THE WATER SUPPLY WELLS SHALL BE PROVIDED TO THE NHDES. THE GROUNDWATER MONITORING PLAN SHALL INCLUDE:
   A. MONITORING FOR NITRATE AND NITRITE EITHER IN THE DRINKING WATER SUPPLY WELLS OR IN OTHER WELLS THAT ARE REPRESENTATIVE OF THE DRINKING WATER SUPPLY WELLS IN THE AREA:
      a. THE GROUNDWATER SAMPLING PROGRAM MUST BE IMPLEMENTED ONCE APPROVED BY THE NHDES.
   B. THE FOLLOWING BEST MANAGEMENT PROCEDURES FOR BLASTING SHALL BE COMPLIED WITH:
      a. LOADING PRACTICES - THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
      i. DRILLING LOGS SHALL BE MAINTAINED BY THE DRILLER AND COMMUNICATED DIRECTLY TO THE BLASTER. THE LOGS SHALL INDICATE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED AS WELL AS GROUNDWATER CONDITIONS;
      ii. EXPLOSIVE PRODUCTS SHALL BE MANAGED ON-SITE SO THAT THEY ARE EITHER USED IN THE BOREHOLE, RETURNED TO THE DELIVERY VEHICLE, OR PLACED IN SECURE CONTAINERS FOR OFF-SITE DISPOSAL;
      iii. SPILLAGE AROUND THE BOREHOLE SHALL EITHER BE PLACED IN THE BOREHOLE OR CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT IN SECURED CONTAINERS FOR OFF-SITE DISPOSAL;
      iv. LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND SHALL NOT BE LEFT IN THE BLASTHOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED;
      v. LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF CONTAMINANTS TO THE ENVIRONMENT;
      vi. EXPLOSIVES SHALL BE LOADED TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD TO PROMOTE COMPLETE DETONATION. INDUSTRY ACCEPTED LOADING PRACTICES FOR PRIMING, STEMMING, DECKING AND COLUMN RISE NEED TO BE ATTENDED TO.
      b. EXPLOSIVE SELECTION - THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:
      i.



CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<20'	USE CURVED CURB
21'-28'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

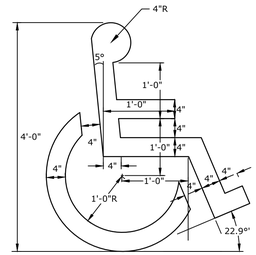
NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

VERTICAL GRANITE CURB
NO SCALE



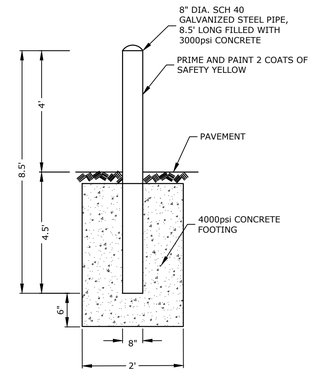
NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.

STANDARD DUTY PARKING LOT PAVEMENT SECTION
NO SCALE

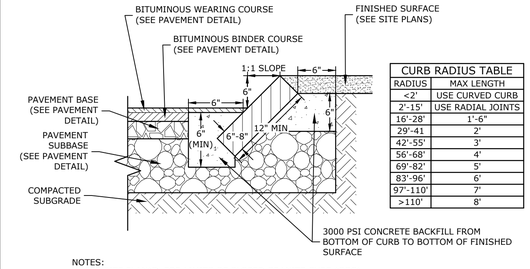


NOTES:
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

ACCESSIBLE SYMBOL
NO SCALE



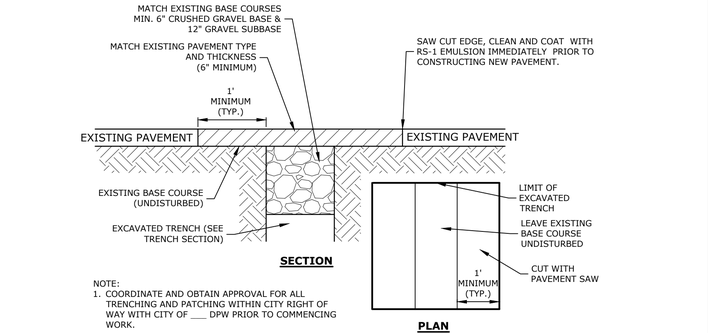
TYPICAL BOLLARD
NO SCALE



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:
1. SEE SITE PLAN(S) FOR LIMITS OF SLOPED GRANITE CURB (SGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

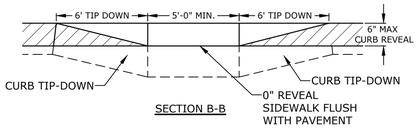
SLOPED GRANITE CURB
NO SCALE



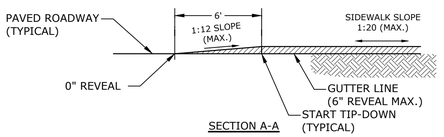
NOTE:
1. COORDINATE AND OBTAIN APPROVAL FOR ALL TRENCHING AND PATCHING WITHIN CITY RIGHT OF WAY WITH CITY OF ___ DPW PRIOR TO COMMENCING WORK.

ROADWAY TRENCH PATCH
NO SCALE

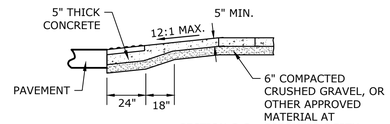
NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12



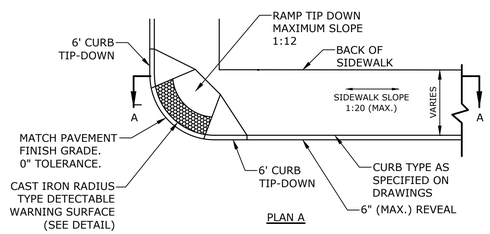
SECTION B-B



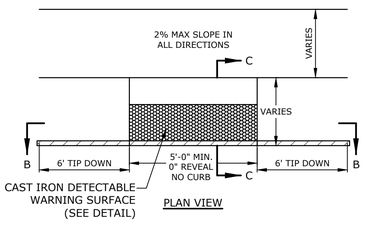
SECTION A-A



SECTION C-C



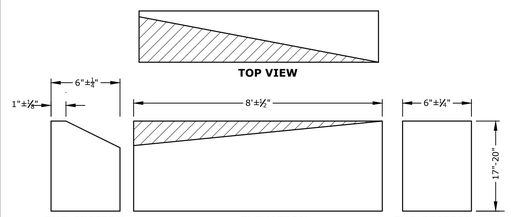
PLAN A



PLAN VIEW

NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. A 6" COMPACTED CRUSHED GRAVEL BASE (NHDOT ITEM No. 304.3) SHALL BE PROVIDED BENEATH RAMPS.
3. DETECTABLE WARNING PANEL SHALL BE CAST IRON SET IN CONCRETE (SEE DETAIL.)
4. PROVIDE DETECTABLE WARNING SURFACES ANYTIME THAT A CURB RAMP, BLENDED TRANSITION, OR LANDING CONNECTS TO A STREET.
5. LOCATE THE DETECTABLE WARNING SURFACES AT THE BACK OF THE CURB ALONG THE EDGE OF THE LANDING.
6. 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.
7. 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.
8. THE BOTTOM OF THE SIDEWALK CURB RAMP OR LANDING, EXCLUSIVE OF THE FLARED SIDES, SHALL BE WHOLLY CONTAINED WITHIN THE CROSSWALK MARKINGS.
9. 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.
10. THE TEXTURE OF THE DETECTABLE WARNING FEATURE MUST CONTRAST VISUALLY WITH THE SURROUNDING SURFACES (EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT).

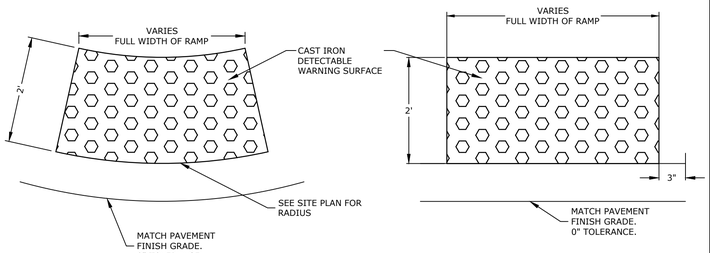
TIP DOWN RAMP
NO SCALE



TRANSITION SECTION
GRANITE SLOPE CURB TO VERTICAL GRANITE CURB

NOTES:
1. THE INTENT OF THIS ITEM IS TO PROVIDE A SMOOTH TRANSITION BETWEEN STRAIGHT GRANITE CURB AND SLOPE CURB WITHOUT REQUIRING FIELD CHIPPING DURING INSTALLATION. THE SLOPE CURB MAY REQUIRE ADJUSTMENTS TO MEET THE TRANSITION PIECE HEIGHT. TRANSITION SLOPE CURB TO STANDARD REVEAL AS QUICKLY AS POSSIBLE TO PROVIDE FOR THIS SMOOTH TRANSITION.

CURB TRANSITION
NO SCALE



NOTES:
1. DETECTABLE WARNING SURFACE SHALL BE 2' X 3' CAST IRON PANEL SET IN CONCRETE.
2. DETECTABLE WARNING SURFACE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

CAST IRON DETECTABLE WARNING SURFACE
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE — PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER — 03/22/22

STATE OF NEW HAMPSHIRE — BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER — 3-22-22

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	03/22/2022	TAC SUBMISSION

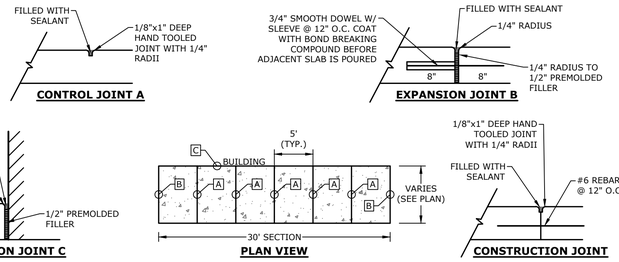
PROJECT NO:	P0616-001
DATE:	3/22/22
FILE:	P0616-005_C-DETAILS.DWG
DRAWN BY:	MKF
CHECKED:	PMC
APPROVED:	BLM

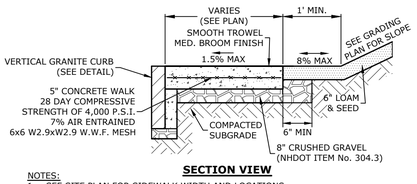
DETAILS SHEET

SCALE: AS SHOWN

C-502

Last Save Date: March 22, 2022 12:08 PM By: CKRZCUIK
Plot Date: March 22, 2022 12:08 PM By: CKRZCUIK
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Drawings, Figures\AutoCAD\Sheet\P0616-005_C-Details.DWG Layout Tab: C-502



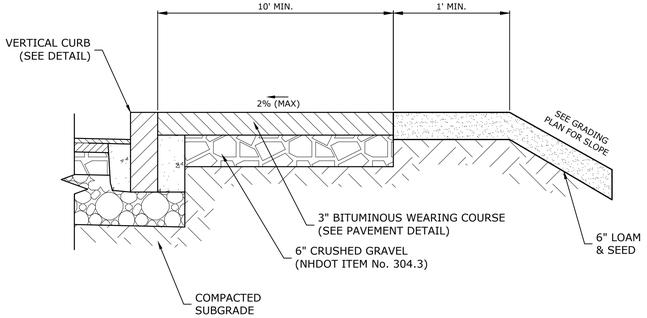


SECTION VIEW

NOTES:
1. SEE SITE PLAN FOR SIDEWALK WIDTH AND LOCATIONS.
2. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR WALK AND SIDE SLOPE GRADES.
3. ISOLATION JOINTS ADJACENT TO BUILDING SHALL BE COORDINATED WITH BUILDING DRAWINGS.

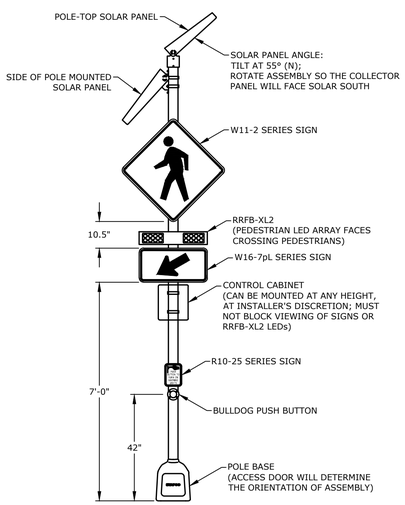
CONCRETE SIDEWALK WITH GRANITE CURB

NO SCALE



MULTI-USE PATH

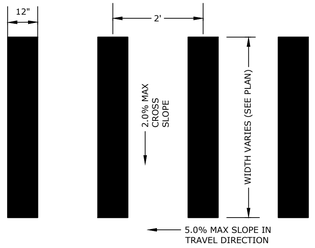
NO SCALE



NOTES:
1. THE POLE AND HOUSING EQUIPMENT SHALL BE THE COLOR BLACK
2. THE POLE DIAMETER SHALL BE 3.5 INCHES

RECTANGULAR RAPID FLASHING BEACON (RRFB)

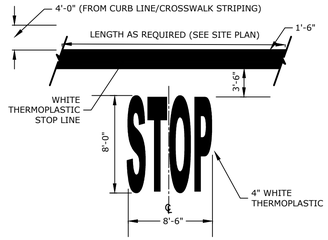
NO SCALE



NOTE:
STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

CROSS WALK STRIPING

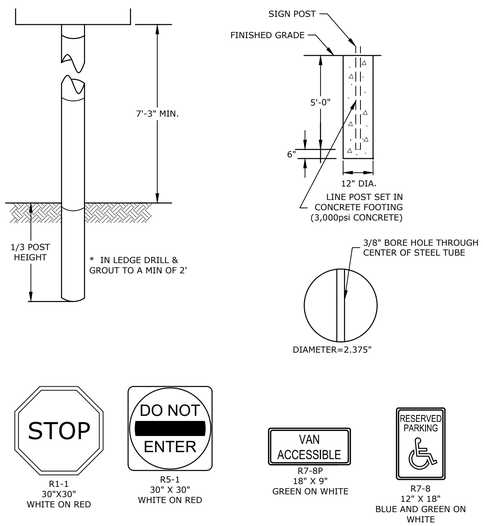
NO SCALE



NOTE:
1. PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.
2. STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

STOP BAR & LEGEND

NO SCALE

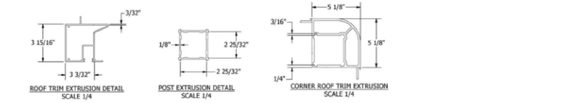


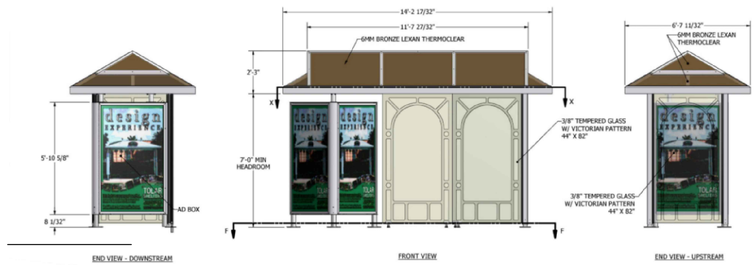
NOTES:
ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
POST: SCHEDULE 40 GALVANIZED STEEL PIPE (OUTSIDE DIA. = 2.375").
FINISH: POST TO BE POWDER COATED GLOSS BLACK
LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER (AS REQUIRED)
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070-1080)

SIGN LEGEND & POST

NO SCALE

GENERAL NOTES:
1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A-36, MINIMUM YIELD STRENGTH 36,000 PSI.
2. ALL TUBE STEEL, UNLESS OTHERWISE NOTED, SHALL BE ASTM A500 GRADE B OR BETTER.
3. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL BE OF ALLOY 6063-T5.
4. ALL HOLES SHALL BE DRILLED OR PUNCHED.
5. STEEL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1.1-96.
6. ALUMINUM SHALL BE ALLOY 6061-T6 AS 1.
7. ALUMINUM WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STANDARD D1. 2-97.
8. ELECTRODES SHALL CONFORM TO ANSI/SFA 5.10.
9. ALL WELDING TO BE DONE AT TOUR MANUFACTURING CO. INC. FACILITY.

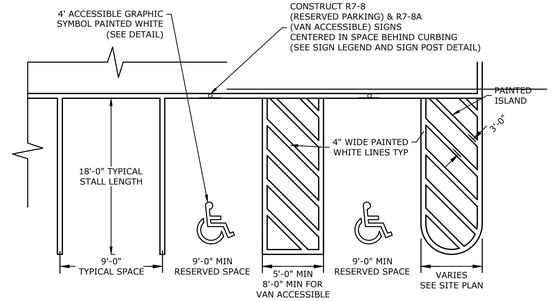




NOTE:
1. DETAIL SHOWN HEREIN IS ATYPICAL FOR PERMITTING PURPOSED.
2. FINAL BUSH SHELTER TO BE SELECTED BY OWNER PRIOR TO CONSTRUCTION.

TYPICAL BUS SHELTER

NO SCALE



NOTE:
1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
3. FINISH PAVEMENT GRADES AT ALL HANDICAP ACCESSIBLE STALLS AND PAINTED ACCESS AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.

PARKING SPACE STRIPING

NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – PROFESSIONAL ENGINEER – PATRICK CRIMMINS No. 12378 LICENSED
03/22/22

STATE OF NEW HAMPSHIRE – PROFESSIONAL ENGINEER – BRADLEE MEZQUITA No. 08830 LICENSED
3-22-22

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	03/22/2022	TAC SUBMISSION

PROJECT NO:	P0616-001
DATE:	3/22/22
FILE:	P0616-005_C-DETAILS.DWG
DRAWN BY:	MKF
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-503

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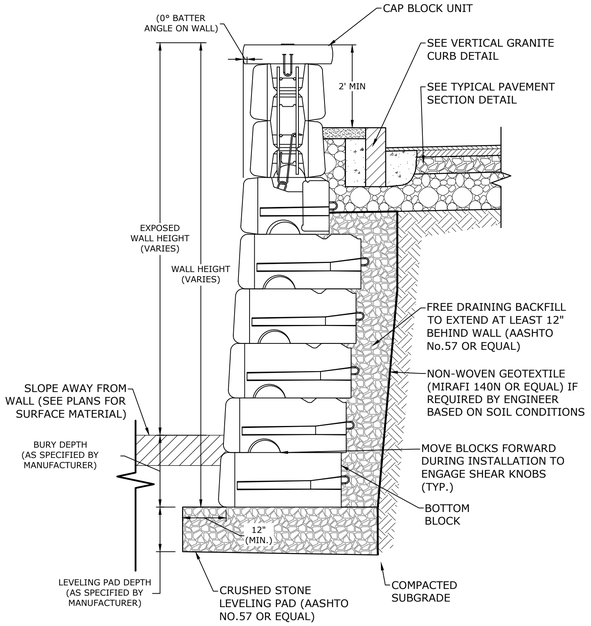
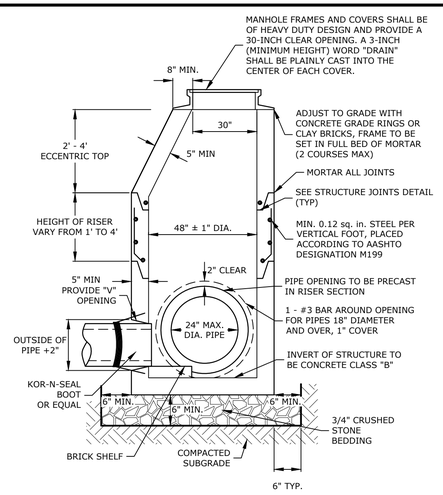


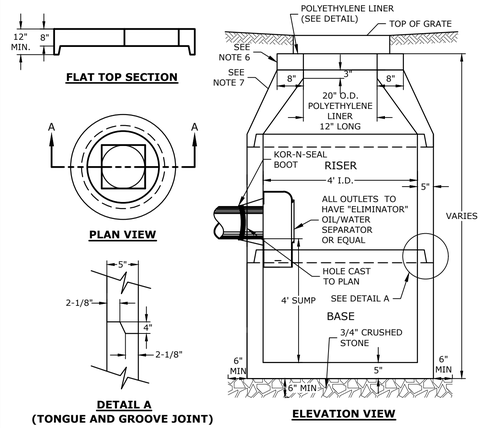
NOTES:
1. RETAINING WALL SHALL BE BY REDI ROCK LEDGESTONE OR APPROVED EQUAL.
2. THE CONTRACTOR SHALL SUBMIT DESIGN AND CALCULATIONS FOR THE RETAINING WALL THAT SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE. CALCULATIONS SHALL INCLUDE A GLOBAL STABILITY ANALYSIS.
3. MINIMUM DESIGN PARARMETERS:
   - GLOBAL STABILITY FACTOR OF SAFETY = 1.3
   - OVERTURNING FACTOR OF SAFETY = 2.0
   - SLIDING FACTOR OF SAFETY = 1.5
   - GEOGRID PULLOUT FACTOR OF SAFETY = 1.5
   - SEISMIC FACTOR OF SAFETY = 1.1
4. WALL DESIGNS SHALL CONSIDER EFFECTS OF SLOPE, TRAFFIC LOADS, BUILDING LOADS, GUARDRAIL AND/OR FENCING AS REQUIRED.
5. WALL DESIGN ENGINEER SHALL CONSIDER HEIGHT AND SPECIFY GUARDRAIL WHERE REQUIRED
6. ALL INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION MANUAL AND THE WALL DESIGN ENGINEER'S DESIGN PLANS AND SPECIFICATIONS.
7. THE WALL DESIGN ENGINEER SHALL COMPLETE SUFFICIENT INSPECTIONS DURING CONSTRUCTION TO CERTIFY WORK IS COMPLETED IN ACCORDANCE WITH DESIGN.
8. CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS OF WALL WITH WALL DESIGNER'S CERTIFICATION TO OWNER.
9. CONTRACTOR SHALL DIRECT SURFACE RUNOFF AWAY FROM THE WALL DURING CONSTRUCTION.
10. 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.
11. CONTRACTOR SHALL SUPPLY SAMPLE TO THE OWNER FOR APPROVAL PRIOR TO WALL CONSTRUCTION.

TYPICAL EXTENDED BLOCK RETAINING WALL SECTION
NO SCALE



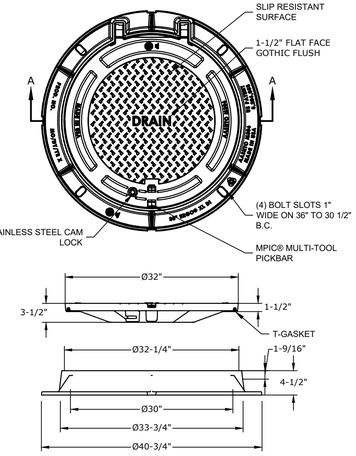
NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZNTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

4' DIAMETER DRAIN MANHOLE
NO SCALE



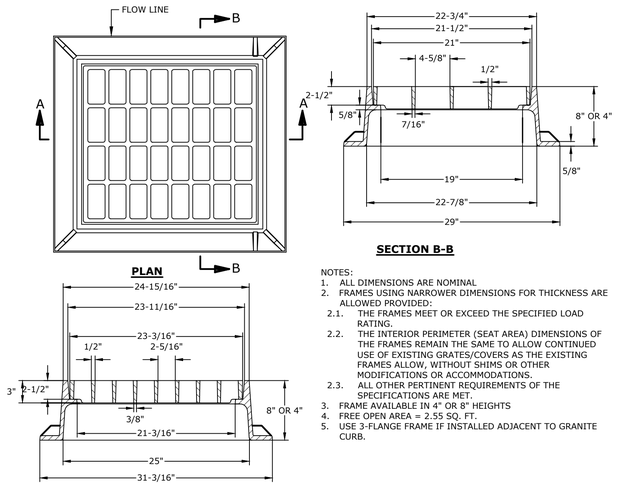
NOTES:
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
7. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
8. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
9. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
11. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
12. "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASIN.

4' DIAMETER CATCH BASIN
NO SCALE



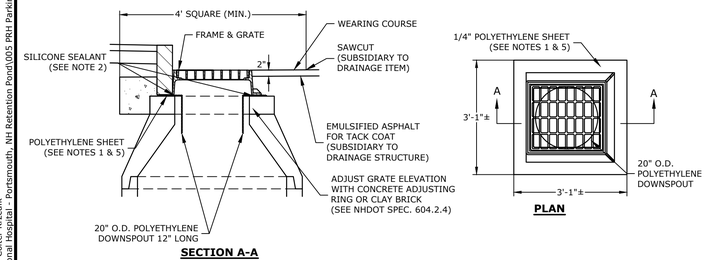
NOTES:
1. MANHOLE FRAME AND COVER SHALL BE 32" HINGED ERGO XL BY EJ CO.
2. ALL DIMENSIONS ARE NOMINAL.
3. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
4. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN HE CENTER OF THE COVER.

DRAIN MANHOLE FRAME & COVER
NO SCALE



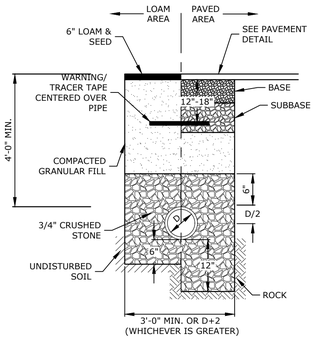
NOTES:
1. ALL DIMENSIONS ARE NOMINAL
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   2.1. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   2.2. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   2.3. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
3. FRAME AVAILABLE IN 4" OR 8" HEIGHTS
4. FREE OPEN AREA = 2.55 SQ. FT.
5. USE 3-FLANGE FRAME IF INSTALLED ADJACENT TO GRANITE CURB.

CATCH BASIN FRAME & GRATE
NO SCALE



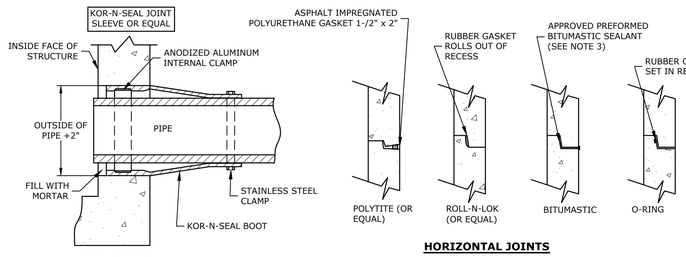
NOTES:
1. POLYETHYLENE LINER (ITEM 604.0007) SHALL BE FABRICATED AT THE SHOP. DOWNSPOUT SHALL BE EXTRUSION FILLET WELDED TO THE POLYETHYLENE SHEET.
2. PLACE A CONTINUOUS BEAD OF AN APPROVED SILICONE SEALANT (SUBSIDIARY TO ITEM 604.0007) BETWEEN FRAME AND POLYETHYLENE SHEET.
3. PLACE CLASS AA CONCRETE TO 2" BELOW THE TOP OF THE GRATE ELEVATION (SUBSIDIARY TO DRAINAGE STRUCTURE).
4. USE ON DRAINAGE STRUCTURES 4' MIN. DIAMETER ONLY.
5. 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).
6. THE CENTER OF THE GRATE & FRAME MAY BE SHIFTED A MAXIMUM OF 6" FROM THE CENTER OF THE DOWNSPOUT IN ANY DIRECTION.
7. PLACED ONLY IN DRAINAGE STRUCTURES IN PAVEMENT.
8. SEE NHDOT DR-04, "DI-DB, UNDERDRAIN FLUSHING BASIN AND POLYETHYLENE LINER DETAILS", FOR ADDITIONAL INFORMATION.
9. CATCHBASINS WITHIN CITY RIGHT OF WAY SHALL HAVE A POLYETHYLENE LINER

POLYETHYLENE LINER
NO SCALE



NOTE:
1. CRUSHED STONE BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 6" ABOVE TOP OF PIPE.
2. ALL UTILITIES SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE CITY OF PORTSMOUTH.

STORM DRAIN TRENCH
NO SCALE



NOTES:
1. HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER CITY OF PORTSMOUTH DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.
3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY.
4. ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

STRUCTURE JOINTS
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE — PATRICK CRIMMINS — No. 12378 — LICENSED PROFESSIONAL ENGINEER — 03/22/22

STATE OF NEW HAMPSHIRE — BRADLEE MEZQUITA — No. 08830 — LICENSED PROFESSIONAL ENGINEER — 3-22-22

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	03/22/2022	TAC SUBMISSION

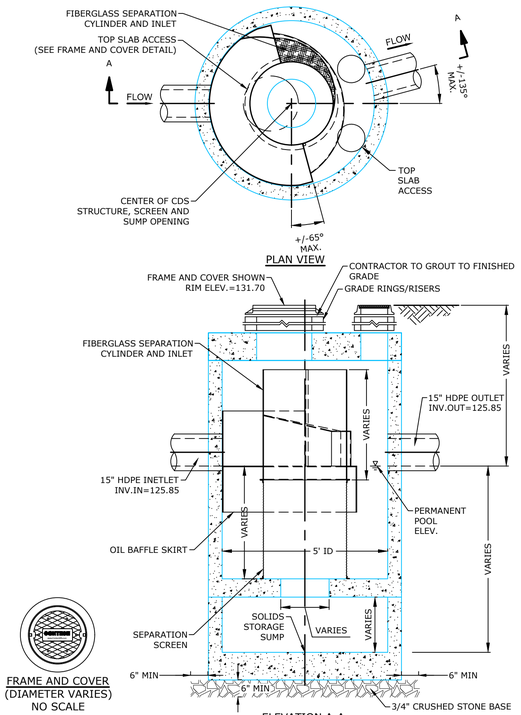
PROJECT NO:	P0616-001
DATE:	3/22/22
FILE:	P0616-005_C-DETAILS.DWG
DRAWN BY:	MKF
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-504

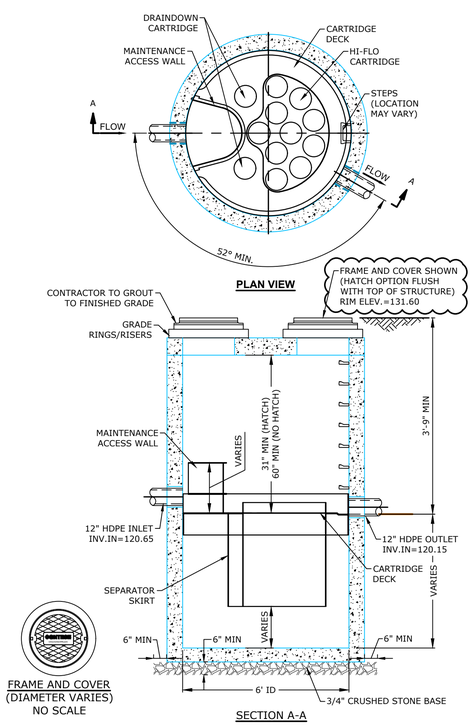
Last Save Date: March 22, 2022 12:08 PM By: CKRZCUIK
Plot Date: March 22, 2022 12:08 PM By: CKRZCUIK
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 RRH Parking Expansion\Drawings, Figures\AutoCAD\Sheet\P0616-005_C-Details.DWG Layout Tab: C-504



GENERAL NOTES:
1. PRE-TREATMENT UNIT SHALL BE CONTECH CONTINUOUS DEFLECTIVE SEPARATION (CDS) UNIT, MODEL #CDS5-2020, OR APPROVED EQUAL.
2. CONTECH TO PROVIDE FINAL DIMENSIONS BASED ON APPROVED FLOWS AND ALL MATERIALS UNLESS NOTED OTHERWISE.
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING.
5. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES:
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE CONSIDERED BY THE CONTRACTOR PRIOR TO INSTALLATION.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN ON GRADING PLAN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

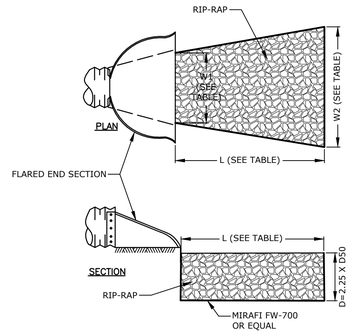
PROPOSED CONTINUOUS DEFLECTIVE SEPARATION (CDS) UNIT
NO SCALE



GENERAL NOTES:
1. TREATMENT UNIT SHALL BE CONTECH JELLYFISH FILTER UNIT, MODEL #JF6-3-1, OR APPROVED EQUAL.
2. CONTECH TO PROVIDE FINAL DIMENSIONS BASED ON APPROVED FLOWS AND ALL MATERIALS UNLESS NOTED OTHERWISE.
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 LOADING REQUIREMENTS. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. CONTRACTOR SHALL PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
B. CONTRACTOR SHALL INSTALL AND LEVEL THE STRUCTURE. SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
C. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (866) 740-3318.

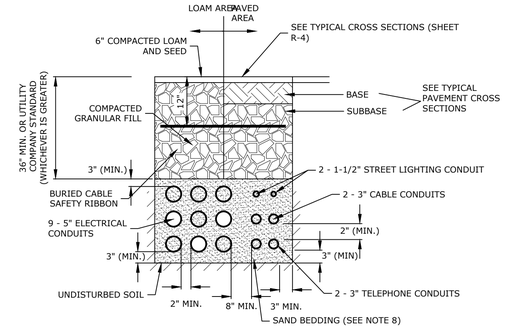
PROPOSED CIRCULAR JELLYFISH FILTER (JFF) UNIT
NO SCALE



FIELD ELEVATIONS					
	WIDTH OF APRON (W_1, FT)	WIDTH OF APRON (W_1, FT)	LENGTH OF APRON (L, FT)	MEDIAN DIAMETER (FT)	MINIMUM DEPTH (FT)
RRA 1	6	20	14	0.50	1.13
RRA 2	6	30	25	0.50	1.13
RRA 3	6	22	16	0.50	1.13

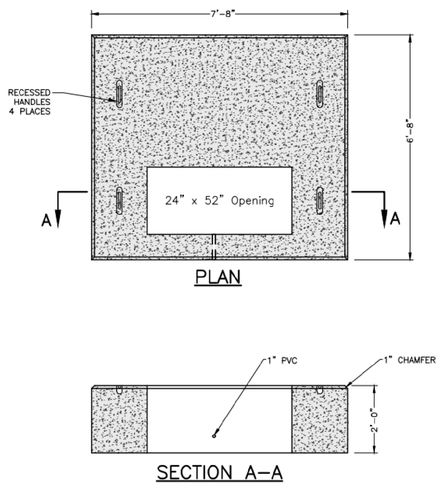
NOTES:
1. STONE SIZE AND MAT DIMENSIONS DETAILED ON PLANS.
2. STONE SHALL CONSIST OF SUB-ANGULAR FIELD STONE OR ROUGH UNHEWN QUARRY STONE OF APPROXIMATELY RECTANGULAR SHAPE. FLAT OR ROUND ROCKS ARE NOT ACCEPTABLE. THE STONE SHALL BE HARD AND OF SUCH QUALITY THAT IT WILL NOT DISINTEGRATE ON EXPOSURE TO 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.
3. 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



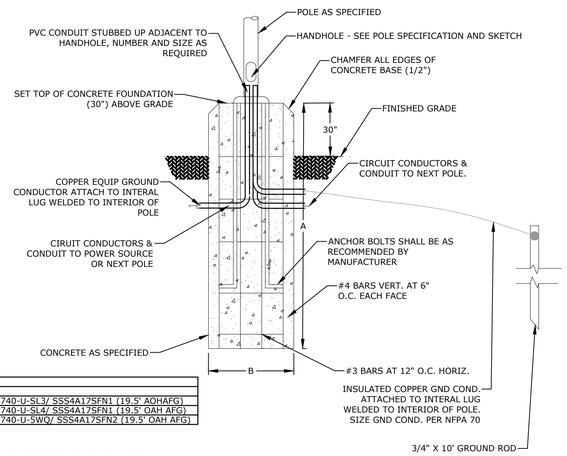
NOTES:
1. NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED BY LOCAL UTILITY OR AS SHOWN ON ELECTRICAL DRAWINGS. CONTRACTOR TO PROVIDE ONE SPARE CONDUIT FOR EACH UTILITY TO BUILDING.
2. DIMENSIONS SHOWN REPRESENT OWNERS MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY 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 90º 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.

TYPICAL ELECTRICAL AND COMMUNICATION CONDUIT
NO SCALE



NOTES:
1. DIMENSIONS SHOWN REPRESENT TYPICAL REQUIREMENTS. MANHOLE LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED WITH EVERSOURCE PRIOR TO CONSTRUCTION
2. CONCRETE MINIMUM STRENGTH - 4,000 PSI @ 28 DAYS
3. STEEL REINFORCEMENT - ASTM A615, GRADE 60
4. PAD MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS

3-PHASE TRANSFORMER PAD
NO SCALE



NOTES:
1. ALL LIGHT POLES, LUMINAIRES, AND WIRE TO BE FURNISHED AND INSTALLED BY THE POWER COMPANY. UNLESS OTHERWISE DIRECTED.
2. ANCHOR BOLTS, GROUND ROD & GROUND WIRE TO BE FURNISHED BY THE POWER COMPANY AND INSTALLED BY THE CONTRACTOR, UNLESS OTHERWISE DIRECTED.
3. BOLT CIRCLE DIAMETER SHALL BE VERIFIED WITH THE POWER COMPANY.
4. ALL BASES SHALL BE LOCATED 10'-0" (TO CENTER) FROM FACE OF CURB OR EDGE OF PAVED SHOULDER, UNLESS OTHERWISE NOTED.
5. REINFORCEMENT SHALL CONFORM TO SECTION 544 OF THE STANDARD SPECIFICATIONS.
6. ANY ANCHOR BOLTS DAMAGED DURING INSTALLATION SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER.
7. UPON INSTALLATION, ANCHOR BOLT THREADS SHALL BE CLEANED WITH A WIRE BRUSH.
8. TERRAIN SURROUNDING BASE MUST BE GRADED AS SHOWN IN DETAIL "A" TO PREVENT IMPACTING VEHICLES FORM SNAGGING ON BASE.

LUMINAIRE SCHEDULE				
SYMBOL	QTY	LABEL	ARRANGEMENT	DESCRIPTION
	3	P3	SINGLE	GLEON-SA1C-740-U-SL3/ SSS4A17SFN1 (19.5' AOHAFG)
	15	P4	SINGLE	GLEON-SA2C-740-U-SL4/ SSS4A17SFN1 (19.5' OAH AFG)
	5	P5-2	BACK-BACK	GLEON-SA2C-740-U-SWQ/ SSS4A17SFN2 (19.5' OAH AFG)

LIGHT POLE BASE
NO SCALE

Tighe&Bond





Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	03/22/2022	TAC SUBMISSION

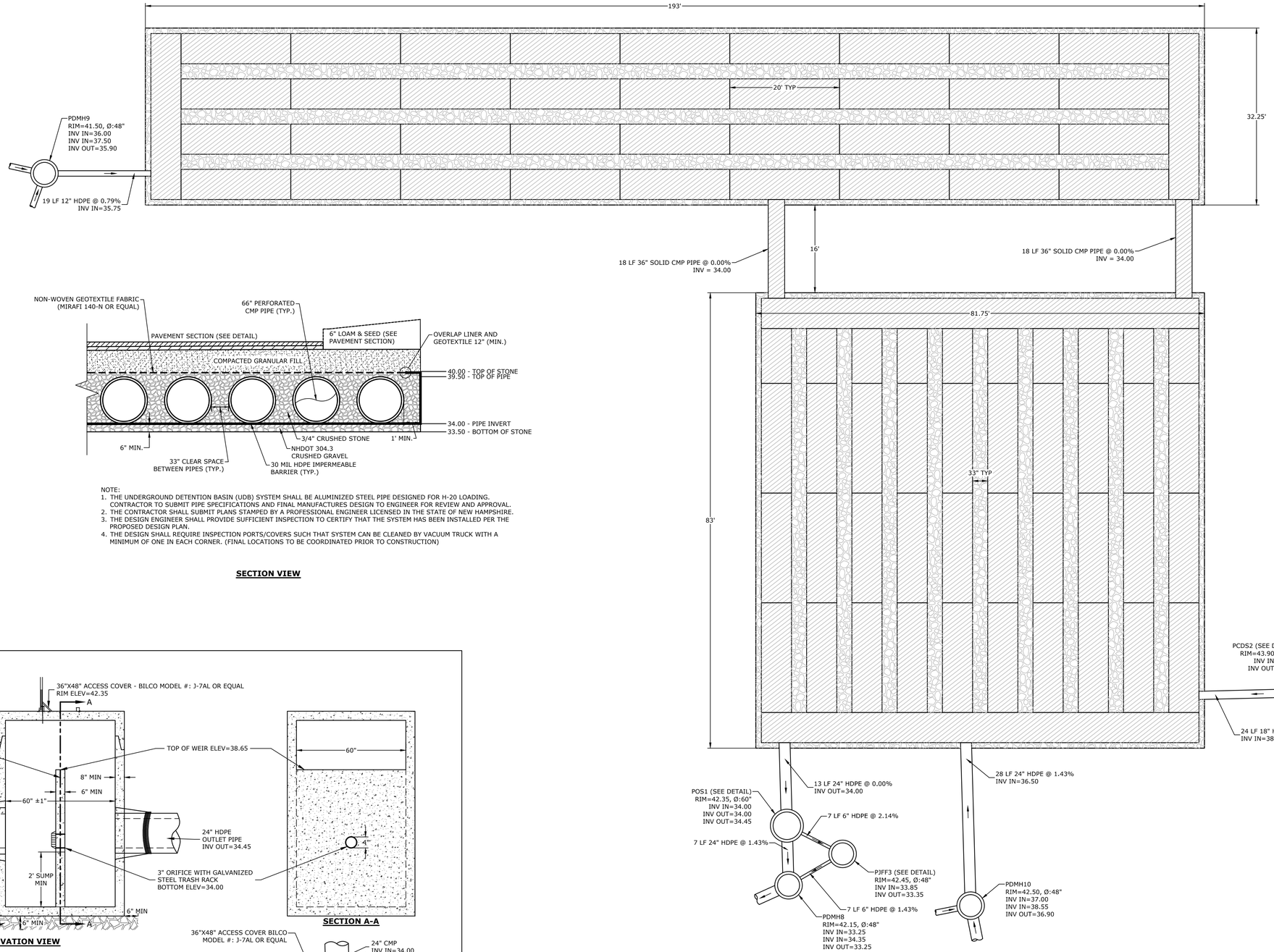
PROJECT NO:	P0616-001
DATE:	3/22/22
FILE:	P0616-005_C-DETAILS.DWG
DRAWN BY:	MKF
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-505

Last Save Date: March 22, 2022 12:08 PM By: CKRZCUK
Plot Date: March 22, 2022 12:08 PM By: CKRZCUK
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 RRH Parking Expansion\Drawings, Figures\AutoCAD\Sheet\P0616-005_C-Details.DWG Layout Tab: C-505

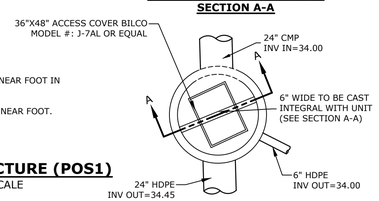


NOTE:
1. THE UNDERGROUND DETENTION BASIN (UDB) SYSTEM SHALL BE ALUMINIZED STEEL PIPE DESIGNED FOR H-20 LOADING. CONTRACTOR TO SUBMIT PIPE SPECIFICATIONS AND FINAL MANUFACTURES DESIGN TO ENGINEER FOR REVIEW AND APPROVAL.
2. THE CONTRACTOR SHALL SUBMIT PLANS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE.
3. THE DESIGN ENGINEER SHALL PROVIDE SUFFICIENT INSPECTION TO CERTIFY THAT THE SYSTEM HAS BEEN INSTALLED PER THE PROPOSED DESIGN PLAN.
4. THE DESIGN SHALL REQUIRE INSPECTION PORTS/COVERS SUCH THAT SYSTEM CAN BE CLEANED BY VACUUM TRUCK WITH A MINIMUM OF ONE IN EACH CORNER. (FINAL LOCATIONS TO BE COORDINATED PRIOR TO CONSTRUCTION)

SECTION VIEW

ELEVATION VIEW

SECTION A-A



PLAN VIEW

NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE (TYPE II CEMENT).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. ALL JOINTS ON THE STRUCTURE AND PIPING SHALL BE WATERTIGHT.

OUTLET STRUCTURE (POS1)
NO SCALE

66" CORRUGATED METAL PIPE UNDERGROUND DETENTION BASIN (UDB-1) DETAIL
NO SCALE

Tighe&Bond

PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
03/22/22

BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
3-22-22

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth,
New Hampshire

MARK	DATE	DESCRIPTION
A	03/22/2022	TAC SUBMISSION

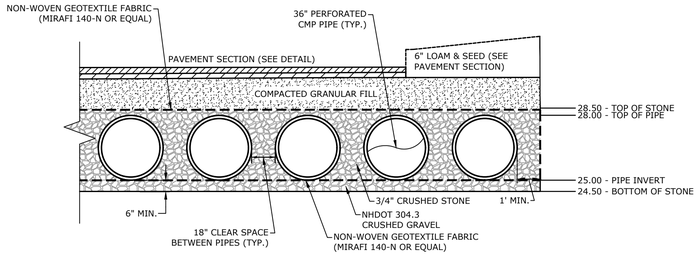
PROJECT NO:	P0616-001
DATE:	3/22/22
FILE:	P0616-005_C-DETAILS.DWG
DRAWN BY:	MKF
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

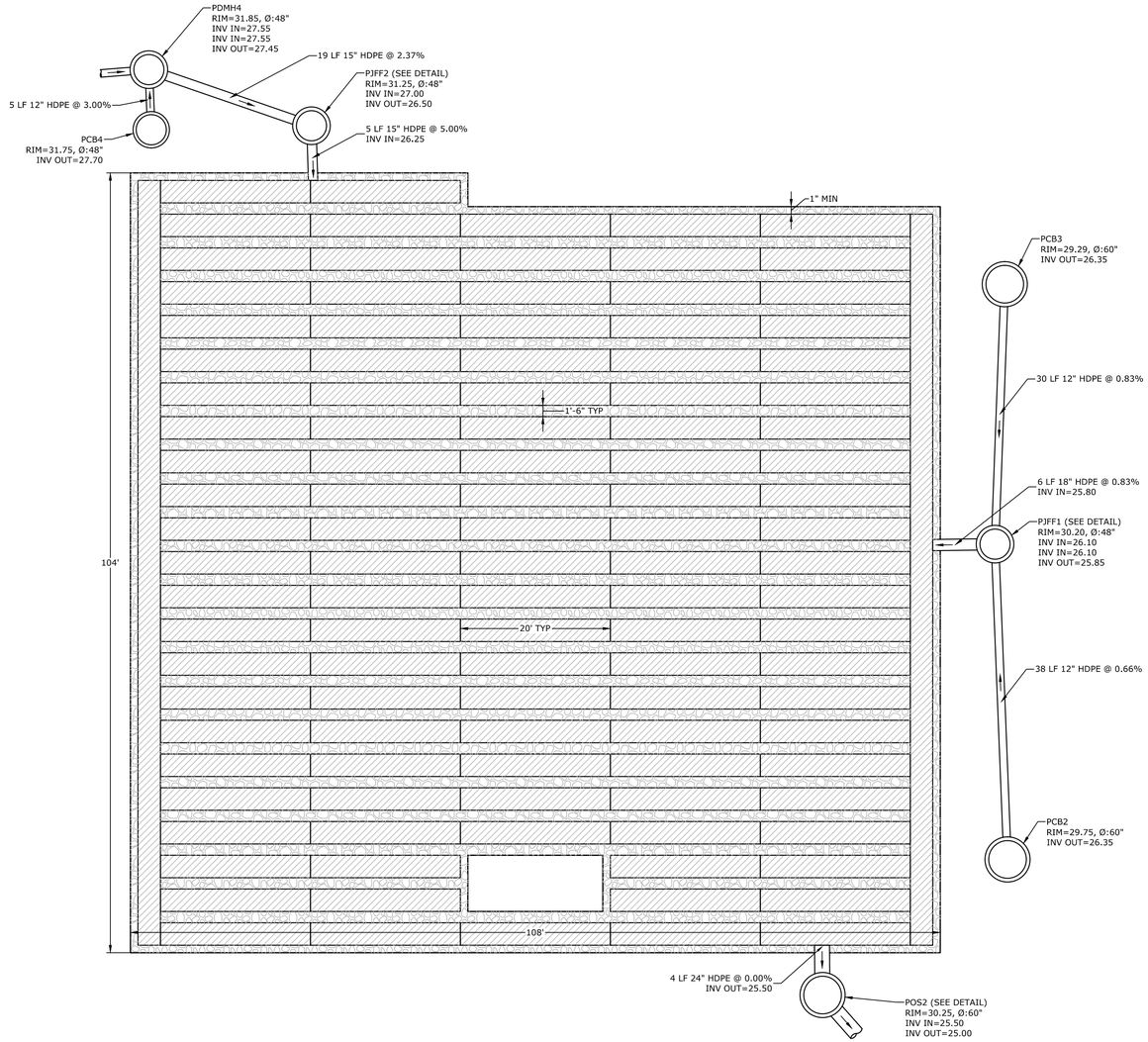
C-506

Last Save Date: March 22, 2022 1:28 PM By: CKRZCUK
Plot Date: March 22, 2022 1:28 PM By: Christopher Kreczuk
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Drawings_Figures\AutoCAD\Sheet\P0616-005_C-Details.DWG Layout Tab: C-506

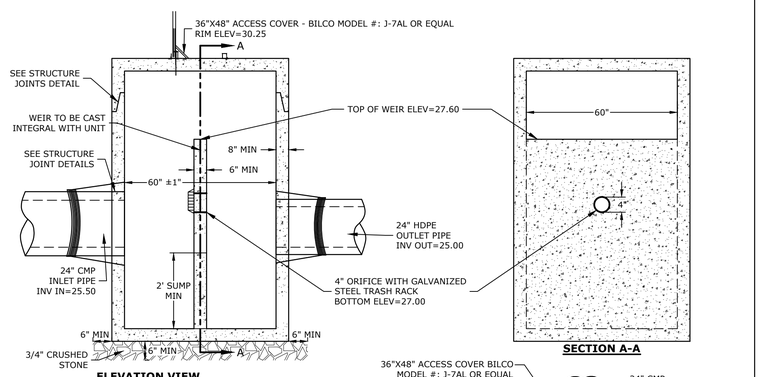


NOTE:
1. THE UNDERGROUND DETENTION BASIN (UDB) SYSTEM SHALL BE ALUMINIZED STEEL PIPE DESIGNED FOR H-20 LOADING. CONTRACTOR TO SUBMIT PIPE SPECIFICATIONS AND FINAL MANUFACTURES DESIGN TO ENGINEER FOR REVIEW AND APPROVAL.
2. THE CONTRACTOR SHALL SUBMIT PLANS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE.
3. THE DESIGN ENGINEER SHALL PROVIDE SUFFICIENT INSPECTION TO CERTIFY THAT THE SYSTEM HAS BEEN INSTALLED PER THE PROPOSED DESIGN PLAN.
4. THE DESIGN SHALL REQUIRE INSPECTION PORTS/COVERS SUCH THAT SYSTEM CAN BE CLEANED BY VACUUM TRUCK WITH A MINIMUM OF ONE IN EACH CORNER. (FINAL LOCATIONS TO BE COORDINATED PRIOR TO CONSTRUCTION)

SECTION VIEW



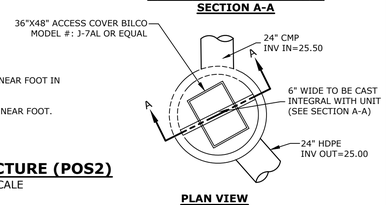
36" CORRUGATED METAL PIPE UNDERGROUND DETENTION BASIN (UDB-2) DETAIL
NO SCALE



ELEVATION VIEW

SECTION A-A

NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE (TYPE II CEMENT).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. ALL JOINTS ON THE STRUCTURE AND PIPING SHALL BE WATERTIGHT.



PLAN VIEW

OUTLET STRUCTURE (POS2)
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE
PATRICK
CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
03/22/22

STATE OF NEW HAMPSHIRE
BRADLEE
MEZQUITA
No. 08830
LICENSED
PROFESSIONAL ENGINEER
3-22-22

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth,
New Hampshire

MARK	DATE	DESCRIPTION
A	03/22/2022	TAC SUBMISSION

PROJECT NO:	P0616-001
DATE:	3/22/22
FILE:	P0616-005_C-DETAILS.DWG
DRAWN BY:	MKF
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-507

Last Save Date: March 22, 2022 1:28 PM By: CKRZCUK
Plot Date: March 22, 2022 1:28 PM By: CKRZCUK
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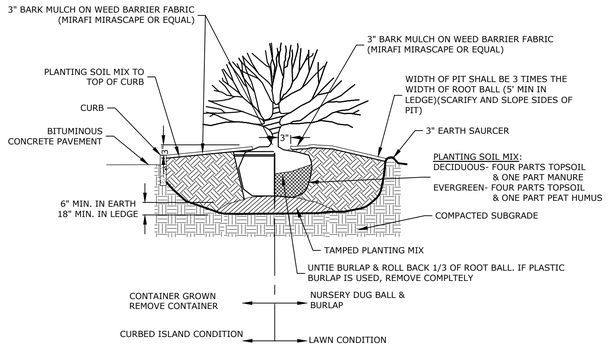
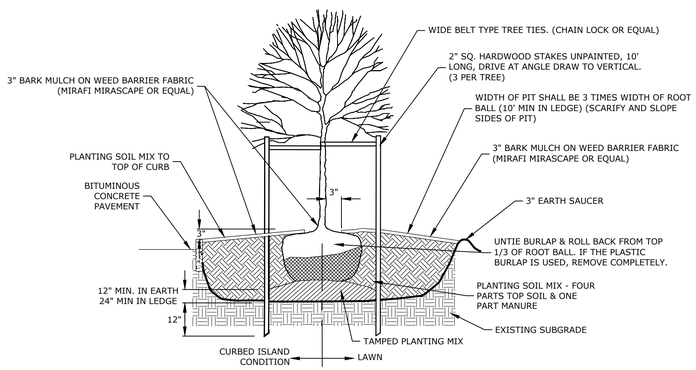


NOTES:
1. PLANT AT SAME DEPTH AS PREVIOUSLY PLANTED, OR WITHIN 2" ABOVE.

SHRUB PLANTING
NO SCALE



NOTES:
1. PLANT AT SAME DEPTH AS PREVIOUSLY PLANTED, OR WITHIN 2" ABOVE.

DECIDUOUS TREE PLANTING
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
03/22/22

STATE OF NEW HAMPSHIRE
BRADLEE MEZQUITA
No. 08830
LICENSED
PROFESSIONAL ENGINEER
3-22-22

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	03/22/2022	TAC SUBMISSION

PROJECT NO:	P0616-001
DATE:	3/22/22
FILE:	P0616-005_C-DETAILS.DWG
DRAWN BY:	MKF
CHECKED:	PMC
APPROVED:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-508

Last Save Date: March 22, 2022 12:08 PM By: CKRZCUIK
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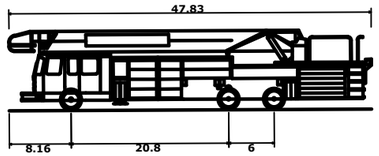


LEGEND

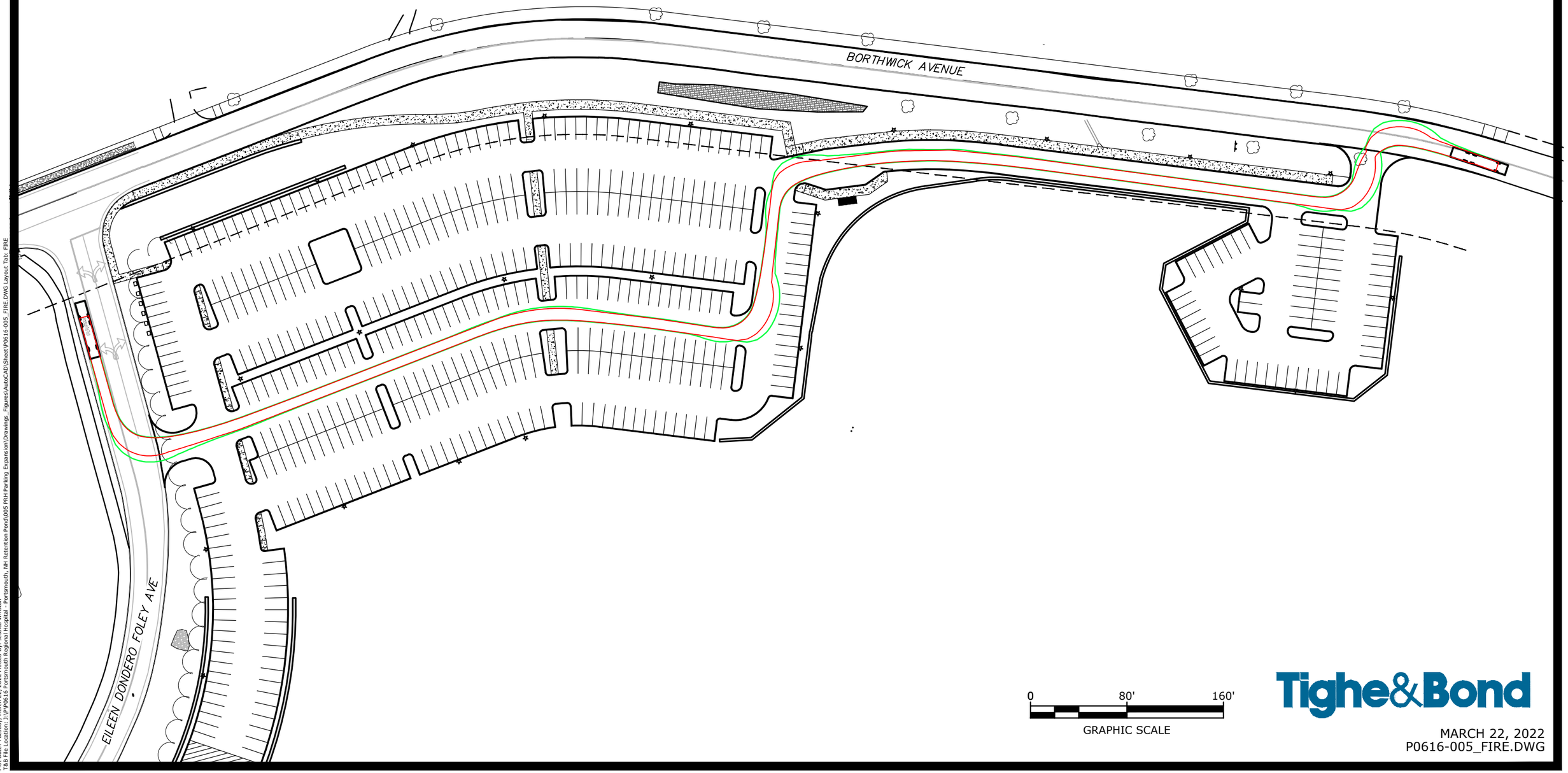
WHEEL BASE

OVERHANG

Portsmouth Fire Truck	
Overall Length	**47.830ft**
Overall Width	**8.500ft**
Overall Body Height	**10.432ft**
Min Body Ground Clearance	**0.862ft**
Track Width	**8.000ft**
Lock-to-lock time	**6.00s**
Max Steering Angle (Virtual)	**38.00°**

PROPOSED SATELLITE PARKING LOT
BORTHWICK AVE
PORTSMOUTH, NEW HAMPSHIRE

FIRE TRUCK TURNING PLAN



Tighe&Bond

MARCH 22, 2022
P0616-005_FIRE.DWG

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Plot Date: Tuesday, March 22, 2022 Plotted By: Jessica Winston
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Project		Catalog #		Type	
Prepared by		Notes		Date	



McGraw-Edison

GLEON Galleon

Area / Site Luminaire

Typical Applications

Outdoor • Parking Lots • Walkways • Roadways • Building Areas

Interactive Menu

- Ordering Information page 2
- Mounting Details page 3
- Optical Distributions page 4
- Product Specifications page 4
- Energy and Performance Data page 4
- Control Options page 9

Product Certifications

Product Features

LumenSafe Technology · Enlighted · WaveLinx · Light ARchitect™

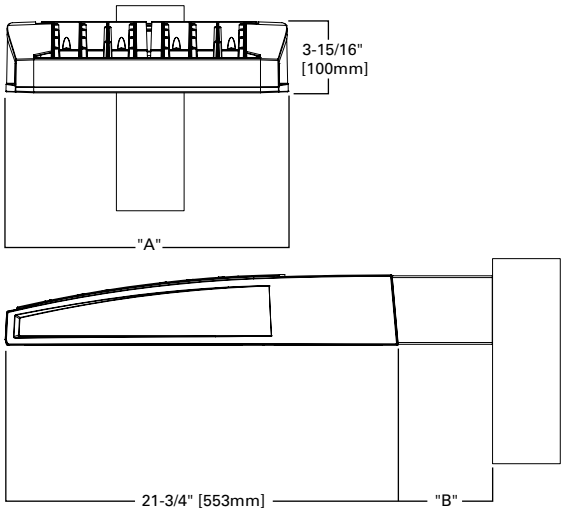
Quick Facts

- Lumen packages range from 4,200 - 80,800 (34W - 640W)
- Efficacy up to 156 lumens per watt

Connected Systems

- WaveLinx
- Enlighted

Dimensional Details



Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Extended Arm Length [1]	"B" Quick Mount Arm Length	"B" Quick Mount Extended Arm Length
1-4	15-1/2"	7"	10"	10-5/8"	16-9/16"
5-6	21-5/8"	7"	10"	10-5/8"	16-9/16"
7-8	27-5/8"	7"	13"	10-5/8"	--
9-10	33-3/4"	7"	16"	--	--

NOTES:
For arm selection requirements and additional line art, see Mounting Details section.

Ordering Information

SAMPLE NUMBER: **GLEON-SA4C-740-U-T4FT-GM**

Product Family [1, 2]	Light Engine		Color Temperature	Voltage	Distribution	Mounting	Finish
	Configuration	Drive Current					
GLEON=Galleon	**SA1**=1 Square **SA2**=2 Squares **SA3**=3 Squares **SA4**=4 Squares **SA5**=5 Squares [4] **SA6**=6 Squares **SA7**=7 Squares [5] **SA8**=8 Squares [5] **SA9**=9 Squares [6] **SA0**=10 Squares [6]	**A**=600mA **B**=800mA **C**=1000mA **D**=1200mA [16]	**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 **AMB**=Amber, 590nm [14, 16]	**U**=120-277V **1**=120V **2**=208V **3**=240V **4**=277V **8**=480V [7, 8] **9**=347V [7]	**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]**=Arm for Round or Square Pole **EA**=Extended Arm [9] **MA**=Mast Arm Adapter [10] **WM**=Wall Mount **QM**=Quick Mount Arm (Standard Length) [11] **QMEA**=Quick Mount Arm (Extended Length) [12]	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White

Options (Add as Suffix)	Controls and Systems Options (Add as Suffix)	Accessories (Order Separately)
DIM=External 0-10V Dimming Leads [19, 20] **F**=Single Fuse (120, 277 or 347V Specify Voltage) **FF**=Double Fuse (208, 240 or 480V Specify Voltage) **20K**=Series 20kV UL 1449 Surge Protective Device **2L**=Two Circuits [17, 18] **HA**=50°C High Ambient **HSS**=Installed House Side Shield [28] **GRSBK**=Glare Reducing Shield, Black [23] **GRSWH**=Glare Reducing Shield, White [23] **LCF**=Light Square Trim Painted to Match Housing [27] **MT**=Installed Mesh Top **TH**=Tool-less Door Hardware **CC**=Coastal Construction finish [3] **L90**=Optics Rotated 90° Left **R90**=Optics Rotated 90° Right **CE**=CE Marking [29] **AHD145**=After Hours Dim, 5 Hours [22] **AHD245**=After Hours Dim, 6 Hours [22] **AHD255**=After Hours Dim, 7 Hours [22] **AHD355**=After Hours Dim, 8 Hours [22] **DALI**=DALI Drivers	**BPC**=Button Type Photocontrol **PR**=NEMA 3-PIN Photocontrol Receptacle **PR7**=NEMA 7-PIN Photocontrol Receptacle [21] **SPB2**=Dimming Occupancy Sensor with Bluetooth Interface, 8' - 20' Mounting [34] **SPB4**=Dimming Occupancy Sensor with Bluetooth Interface, 21' - 40' Mounting [34] **MS-L20**=Motion Sensor for ON/OFF Operation, 9' - 20' Mounting Height [24] **MS-L40W**=Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height [24] **MS/X-L20**=Bi-Level Motion Sensor, 9' - 20' Mounting Height [24, 25] **MS/X-L40W**=Bi-Level Motion Sensor, 21' - 40' Mounting Height [24, 25] **MS/DIM-L20**=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height [24] **MS/DIM-L40W**=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height [24] **ZW**=WaveLinx Module and 4-PIN Receptacle **ZD**=WaveLinx Module with DALI driver and 4-PIN Receptacle **SWPD4XX**=WaveLinx Sensor Only, 7'-15' [13, 32, 33] **SWPD5XX**=WaveLinx Sensor Only, 15'-40' [13, 32, 33] **WOBXX**=WaveLinx Sensor with Bluetooth, 7'-15' [13, 32] **WOFXX**=WaveLinx Sensor with Bluetooth, 15'-40' [13, 32] **LWR-LW**=Enlighted Sensor, 8'–16' Mounting Height [26] **LWR-LN**=Enlighted Sensor, 16'–40' Mounting Height [26] **DIM10-MS/DIM-L08**=Synapse Occupancy Sensor (<8' Mounting) [19] **DIM10-MS/DIM-L20**=Synapse Occupancy Sensor (9'-20' Mounting) [19] **DIM10-MS/DIM-L40**=Synapse Occupancy Sensor (21'-40' Mounting) [19]	**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 **FSIR-100**=Wireless Configuration Tool for Occupancy Sensor [24] **GLEON-MT1**=Field Installed Mesh Top for 1-4 Light Squares **GLEON-MT2**=Field Installed Mesh Top for 5-6 Light Squares **GLEON-MT3**=Field Installed Mesh Top for 7-8 Light Squares **GLEON-MT4**=Field Installed Mesh Top for 9-10 Light Squares **GLEON-QM**=Quick Mount Arm Kit [11] **GLEON-QMEA**=Quick Mount Extended Arm Kit [12] **LS/HSS**=Field Installed House Side Shield [28, 30] **LS/GRSBK**=Glare Reducing Shield, Black [23, 30] **LS/GRSWH**=Glare Reducing Shield, White [23, 30] **LS/PFS**=Perimeter Shield, Black [15] **WOLC-7P-10A**=WaveLinx Outdoor Control Module [19, 31] **SWPD4-XX**=Wavelinx Wireless Sensor, 7'–15' Mounting Height [13, 19, 32, 33] **SWPD5-XX**=Wavelinx Wireless Sensor, 15'–40' Mounting Height [13, 19, 32, 33]

NOTES:

1. 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.
2. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
3. 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.
4. Not compatible with MS/4-LXX or MS/1-LXX sensors.
5. Not compatible with extended quick mount arm (QMEA).
6. Not compatible with standard quick mount arm (QM) or extended quick mount arm (QMEA).
7. Requires the use of an internal step down transformer when combined with sensor options. Not available with sensor at 1200mA. Not available in combination with the HA high ambient and sensor options at 1A.
8. 480V must utilize Wye system only. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems.)
9. May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table.
10. Factory installed.
11. Maximum 8 light squares.
12. Maximum 6 light squares.
13. Requires ZW or ZD receptacle.
14. Narrow-band 590nm +/- 5nm for wildlife and observatory use. Choose drive current A; supplied at 500mA drive current only. Available with 5WQ, 5MQ, SL2, SL3 and SL4 distributions. Can be used with HSS option.
15. Set of 4 pcs. One set required per Light Square.
16. Not available with HA option.
17. 2L is not available with MS, MS/X or MS/DIM at 347V or 480V. 2L in SA2 through SA4 requires a larger housing, normally used for SA5 or SA6. Extended arm option may be required when mounting two or more fixtures per pole at 90° or 120°. Refer to arm mounting requirement table.
18. Not available with Enlighted wireless sensors.
19. Cannot be used with other control options.
20. Low voltage control lead brought out 18" outside fixture.
21. Not available if any "MS" sensor is selected. Motion sensor has an integral photocell.
22. Requires the use of BPC photocontrol or the PR7 or PR photocontrol receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information.
23. Not for use with T4FT, T4W or SL4 optics. See IES files for details.
24. 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.
25. Replace X with number of Light Squares operating in low output mode.
26. Enlighted wireless sensors are factory installed only requiring network components LWP-EM-1, LWP-GW-1 and LWP-PoE8 in appropriate quantities.
27. Not available with house side shield (HSS).
28. Not for use with 5NQ, 5MQ, 5WQ or RW optics. A black trim plate is used when HSS is selected.
29. CE is not available with the LWR, MS, MS/X, MS/DIM, BPC, PR or PR7 options. Available in 120-277V only.
30. One required for each Light Square.
31. Requires PR7.
32. Replace XX with sensor color (WH, BZ or BK.)
33. WAC Gateway required to enable field-configurability: Order WAC-PoE and WPOE-120 (10V to PoE injector) power supply if needed.
34. Smart device with mobile application required to change system defaults. See controls section for details.

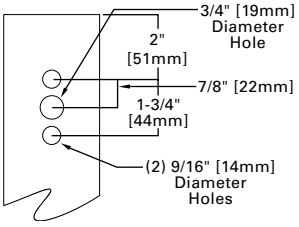
LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

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

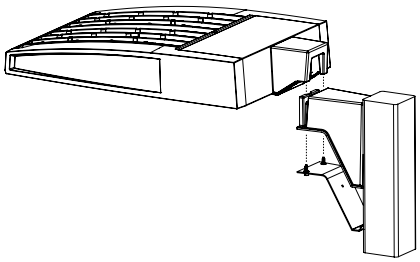
Mounting Details

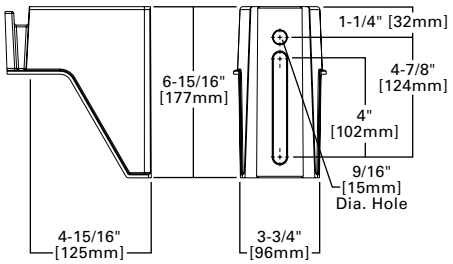
Standard Arm (Drilling Pattern)

TYPE "N"

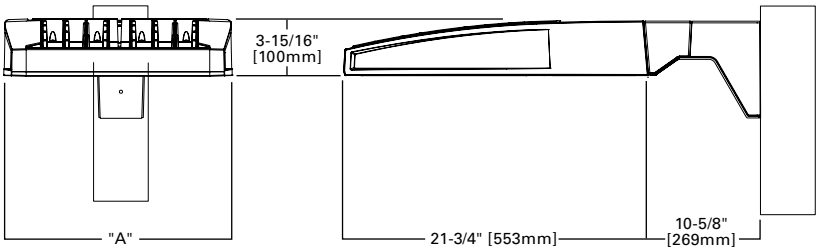


Quick Mount Arm (Includes fixture adapter)

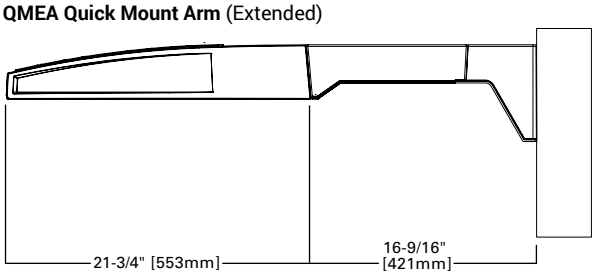




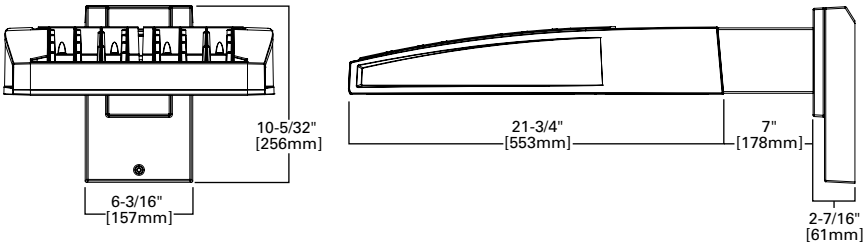
QM Quick Mount Arm (Standard)



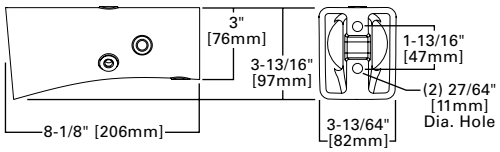
QMEA Quick Mount Arm (Extended)



Standard Wall Mount

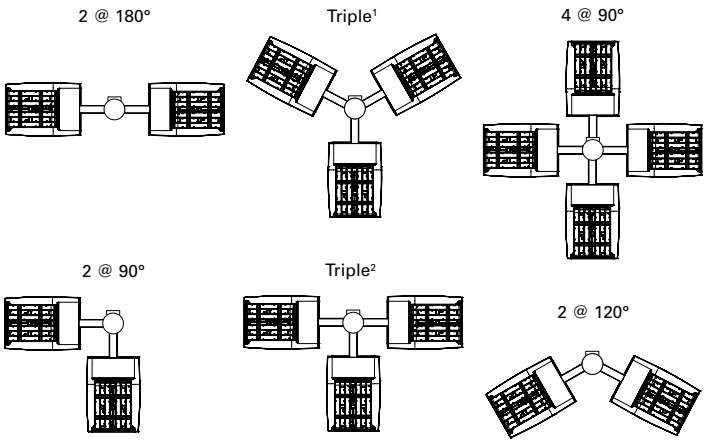


Mast Arm Mount



Arm Mounting Requirements

Number of Light Squares	Standard Arm @ 90° Apart	Standard Arm @ 120° Apart	Quick Mount Arm @ 90° Apart	Quick Mount Arm @ 120° Apart
1	Standard	Standard	QM Extended	Quick Mount
2	Standard	Standard	QM Extended	Quick Mount
3	Standard	Standard	QM Extended	Quick Mount
4	Standard	Standard	QM Extended	Quick Mount
5	Extended	Standard	QM Extended	Quick Mount
6	Extended	Standard	QM Extended	Quick Mount
7	Extended	Extended	--	Quick Mount
8	Extended	Extended	--	Quick Mount
9	Extended	Extended	--	--
10	Extended	Extended	--	--



NOTES: 1 Round poles are 3 @ 120°. Square poles are 3 @ 90°. **2** Round poles are 3 @ 90°.

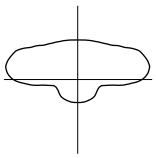
Fixture Weights and EPAs

Number of Light Squares	Weight with Standard and Extended Arm (lbs.)	EPA with Standard and Extended Arm (Sq. Ft.)	Weight with Quick Mount Arm (lbs.)	EPA with Quick Mount Arm (Sq. Ft.)	Weight with Quick Mount Extended Arm (lbs.)	EPA with Quick Mount Extended Arm (Sq. Ft.)
1-4	33	0.96	35	1.11	38	1.11
5-6	44	1.00	46	1.11	49	1.11
7-8	54	1.07	56	1.11	--	--
9-10	63	1.12	--	--	--	--

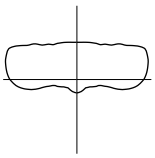
Optical Distributions

Asymmetric Area Distributions

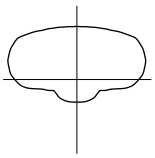
T2 (Type II)



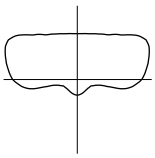
SL2 (Type II with Spill Control)



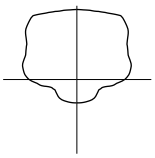
T3 (Type III)



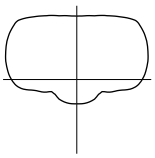
SL3 (Type III with Spill Control)



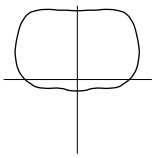
T4FT (Type IV Forward Throw)



T4W (Type IV Wide)

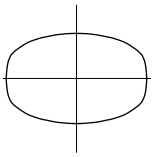


SL4 (Type IV with Spill Control)

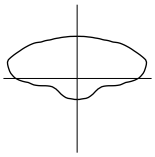


Asymmetric Roadway Distributions

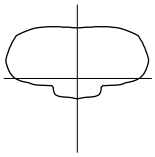
RW (Rectangular Wide Type I)



T2R (Type II Roadway)

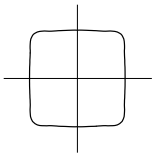


T3R (Type III Roadway)

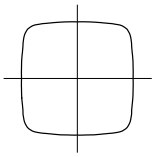


Symmetric Distributions

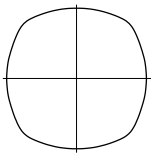
5NQ (Type V Square Narrow)



5MQ (Type V Square Medium)

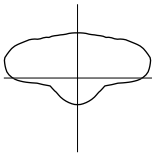


5WQ (Type V Square Wide)

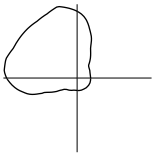


Specialized Distributions

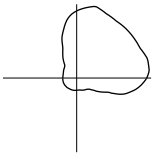
AFL (Automotive Frontline)



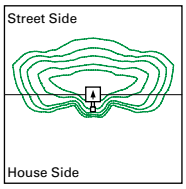
SLL (90° Spill Light Eliminator Left)



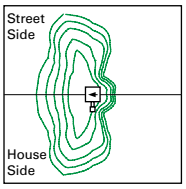
SLR (90° Spill Light Eliminator Right)



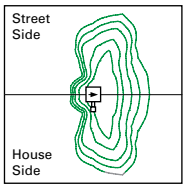
Rotated Optics



Standard



Optics Rotated Left @ 90° [L90]



Optics Rotated Right @ 90° [R90]

Product Specifications

Construction

- Extruded aluminum driver enclosure
- Heavy-wall, die-cast aluminum end caps
- Die-cast aluminum heat sinks
- Patent pending interlocking housing and heat sink

Optics

- Patented, high-efficiency injection-molded AccuLED Optics technology
- 16 optical distributions
- 3 shielding options including HSS, GRS and PFS
- IDA Certified (3000K CCT and warmer only)

Electrical

- LED drivers are mounted to removable tray assembly for ease of maintenance
- Standard with 0-10V dimming
- Standard with Cooper Lighting Solutions proprietary circuit module designed to withstand 10kV of transient line surge
- Suitable for operation in -40°C to 40°C ambient environments. Optional 50°C high ambient (HA) configuration.

Mounting

- Standard extruded arm includes internal bolt guides and round pole adapter
- Extended arms (EA and QMEA) may be required in 90° or 120° pole mount configurations, see arm mounting requirements table
- Mast arm (MA) factory installed
- Wall mount (WM) option available
- Quick mount arm (QM and QMEA) includes pole adapter and factory installed fixture mount for fast installation to square or round poles

Finish

- Super housing durable TGIC polyester powder coat paint, 2.5 mil nominal thickness
- Heat sink is powder coated black
- RAL and custom color matches available
- Coastal Construction (CC) option available

Warranty

- Five year 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

* 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.

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0ºC	1.02
10ºC	1.01
25ºC	1.00
40ºC	0.99
50ºC	0.97

View GLEON IES files

Nominal Power Lumens (1.2A)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		67	129	191	258	320	382	448	511	575	640
Input Current @ 120V (A)		0.58	1.16	1.78	2.31	2.94	3.56	4.09	4.71	5.34	5.87
Input Current @ 208V (A)		0.33	0.63	0.93	1.27	1.57	1.87	2.22	2.52	2.8	3.14
Input Current @ 240V (A)		0.29	0.55	0.80	1.10	1.35	1.61	1.93	2.18	2.41	2.71
Input Current @ 277V (A)		0.25	0.48	0.70	0.96	1.18	1.39	1.69	1.90	2.09	2.36
Input Current @ 347V (A)		0.20	0.39	0.57	0.78	0.96	1.15	1.36	1.54	1.72	1.92
Input Current @ 480V (A)		0.15	0.30	0.43	0.60	0.73	0.85	1.03	1.16	1.28	1.45
Optics											
T2	4000K Lumens	7,972	15,580	23,245	30,714	38,056	45,541	53,857	61,024	68,072	75,366
	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	B4-U0-G5
	Lumens per Watt	119	121	122	119	119	119	120	119	118	118
T2R	4000K Lumens	8,462	16,539	24,680	32,609	40,401	48,348	57,176	64,783	72,266	80,010
	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	B4-U0-G5
	Lumens per Watt	126	128	129	126	126	127	128	127	126	125
T3	4000K Lumens	8,125	15,879	23,693	31,307	38,787	46,417	54,893	62,197	69,381	76,818
	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	B4-U0-G5
	Lumens per Watt	121	123	124	121	121	122	123	122	121	120
T3R	4000K Lumens	8,306	16,232	24,220	32,001	39,651	47,447	56,114	63,580	70,924	78,523
	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	B4-U0-G5
	Lumens per Watt	124	126	127	124	124	124	125	124	123	123
T4FT	4000K Lumens	8,173	15,970	23,831	31,488	39,014	46,686	55,212	62,558	69,783	77,261
	BUG Rating	B1-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	122	124	125	122	122	122	123	122	121	121
T4W	4000K Lumens	8,067	15,764	23,522	31,080	38,510	46,082	54,499	61,751	68,881	76,263
	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	B5-U0-G5
	Lumens per Watt	120	122	123	120	120	121	122	121	120	119
SL2	4000K Lumens	7,958	15,552	23,206	30,662	37,989	45,462	53,763	60,920	67,952	75,235
	BUG Rating	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	119	121	121	119	119	119	120	119	118	118
SL3	4000K Lumens	8,124	15,877	23,690	31,302	38,784	46,410	54,885	62,189	69,372	76,805
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	121	123	124	121	121	121	123	122	121	120
SL4	4000K Lumens	7,719	15,085	22,510	29,741	36,850	44,097	52,148	59,089	65,913	72,977
	BUG Rating	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	115	117	118	115	115	115	116	116	115	114
5NQ	4000K Lumens	8,380	16,375	24,436	32,287	40,003	47,870	56,610	64,144	71,552	79,221
	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	B5-U0-G4
	Lumens per Watt	125	127	128	125	125	125	126	126	124	124
5MQ	4000K Lumens	8,534	16,676	24,885	32,881	40,739	48,752	57,653	65,326	72,868	80,679
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	127	129	130	127	127	128	129	128	127	126
5WQ	4000K Lumens	8,556	16,723	24,951	32,968	40,847	48,881	57,808	65,499	73,063	80,894
	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	B5-U0-G5
	Lumens per Watt	128	130	131	128	128	128	129	128	127	126
SLL/ SLR	4000K Lumens	7,140	13,951	20,817	27,506	34,081	40,783	48,231	54,649	60,959	67,492
	BUG Rating	B1-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	107	108	109	107	107	107	108	107	106	105
RW	4000K Lumens	8,304	16,228	24,215	31,994	39,641	47,437	56,100	63,566	70,907	78,504
	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	B5-U0-G5
	Lumens per Watt	124	126	127	124	124	124	125	124	123	123
AFL	4000K Lumens	8,335	16,287	24,302	32,110	39,784	47,610	56,303	63,796	71,163	78,790
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G5
	Lumens per Watt	124	126	127	124	124	125	126	125	124	123

*** Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.**

Nominal Power Lumens (1A)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		59	113	166	225	279	333	391	445	501	558
Input Current @ 120V (A)		0.51	1.02	1.53	2.03	2.55	3.06	3.56	4.08	4.60	5.07
Input Current @ 208V (A)		0.29	0.56	0.82	1.11	1.37	1.64	1.93	2.19	2.46	2.75
Input Current @ 240V (A)		0.26	0.48	0.71	0.96	1.19	0.41	1.67	1.89	2.12	2.39
Input Current @ 277V (A)		0.23	0.42	0.61	0.83	1.03	1.23	1.45	1.65	1.84	2.09
Input Current @ 347V (A)		0.17	0.32	0.50	0.64	0.82	1.00	1.14	1.32	1.50	1.68
Input Current @ 480V (A)		0.14	0.24	0.37	0.48	0.61	0.75	0.91	0.99	1.12	1.28
Optics											
T2	4000K Lumens	7,267	14,201	21,190	28,000	34,692	41,515	49,096	55,627	62,053	68,703
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-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	123	126	128	124	124	125	126	125	124	123
T2R	4000K Lumens	7,715	15,077	22,497	29,725	36,829	44,073	52,122	59,056	65,876	72,937
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	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	133	136	132	132	132	133	133	131	131
T3	4000K Lumens	7,408	14,475	21,598	28,539	35,358	42,313	50,039	56,698	63,246	70,024
	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	B4-U0-G5
	Lumens per Watt	126	128	130	127	127	127	128	127	126	125
T3R	4000K Lumens	7,571	14,798	22,078	29,172	36,145	43,253	51,153	57,959	64,653	71,581
	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	B4-U0-G5
	Lumens per Watt	128	131	133	130	130	130	131	130	129	128
T4FT	4000K Lumens	7,451	14,559	21,725	28,703	35,564	42,558	50,330	57,027	63,613	70,430
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	129	131	128	127	128	129	128	127	126
T4W	4000K Lumens	7,354	14,371	21,442	28,333	35,105	42,007	49,681	56,291	62,792	69,521
	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	B4-U0-G5
	Lumens per Watt	125	127	129	126	126	126	127	126	125	125
SL2	4000K Lumens	7,254	14,178	21,155	27,951	34,631	41,443	49,011	55,533	61,944	68,584
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	123	125	127	124	124	124	125	125	124	123
SL3	4000K Lumens	7,406	14,474	21,596	28,534	35,355	42,307	50,033	56,690	63,237	70,014
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	126	128	130	127	127	127	128	127	126	125
SL4	4000K Lumens	7,037	13,751	20,519	27,112	33,592	40,198	47,538	53,864	60,087	66,524
	BUG Rating	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	119	122	124	120	120	121	122	121	120	119
5NQ	4000K Lumens	7,640	14,928	22,275	29,431	36,465	43,637	51,606	58,472	65,226	72,218
	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	B5-U0-G4
	Lumens per Watt	129	132	134	131	131	131	132	131	130	129
5MQ	4000K Lumens	7,779	15,203	22,684	29,973	37,137	44,441	52,555	59,549	66,427	73,545
	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	B5-U0-G5
	Lumens per Watt	132	135	137	133	133	133	134	134	133	132
5WQ	4000K Lumens	7,800	15,243	22,744	30,052	37,236	44,560	52,697	59,708	66,603	73,742
	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	B5-U0-G5
	Lumens per Watt	132	135	137	134	133	134	135	134	133	132
SLL/ SLR	4000K Lumens	6,510	12,719	18,977	25,075	31,067	37,176	43,967	49,817	55,569	61,525
	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	B4-U0-G5	B4-U0-G5
	Lumens per Watt	110	113	114	111	111	112	112	112	111	110
RW	4000K Lumens	7,570	14,793	22,073	29,165	36,137	43,243	51,140	57,945	64,637	71,564
	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	B5-U0-G5
	Lumens per Watt	128	131	133	130	130	130	131	130	129	128
AFL	4000K Lumens	7,598	14,847	22,154	29,272	36,267	43,400	51,326	58,156	64,872	71,824
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G4
	Lumens per Watt	129	131	133	130	130	130	131	131	129	129

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Nominal Power Lumens (800mA)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		44	85	124	171	210	249	295	334	374	419
Input Current @ 120V (A)		0.39	0.77	1.13	1.54	1.90	2.26	2.67	3.03	3.39	3.80
Input Current @ 208V (A)		0.22	0.44	0.62	0.88	1.06	1.24	1.50	1.68	1.87	2.12
Input Current @ 240V (A)		0.19	0.38	0.54	0.76	0.92	1.08	1.30	1.46	1.62	1.84
Input Current @ 277V (A)		0.17	0.36	0.47	0.72	0.83	0.95	1.19	1.31	1.42	1.67
Input Current @ 347V (A)		0.15	0.24	0.38	0.49	0.63	0.77	0.87	1.01	1.15	1.52
Input Current @ 480V (A)		0.11	0.18	0.29	0.37	0.48	0.59	0.66	0.77	0.88	0.96
Optics											
T2	4000K Lumens	5,871	11,474	17,121	22,622	28,029	33,542	39,667	44,944	50,134	55,508
	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	B4-U0-G5
	Lumens per Watt	133	135	138	132	133	135	134	135	134	132
T2R	4000K Lumens	6,233	12,181	18,176	24,016	29,756	35,608	42,111	47,714	53,224	58,929
	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	B4-U0-G5
	Lumens per Watt	142	143	147	140	142	143	143	143	142	141
T3	4000K Lumens	5,986	11,695	17,450	23,057	28,568	34,186	40,430	45,809	51,099	56,576
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
	Lumens per Watt	136	138	141	135	136	137	137	137	137	135
T3R	4000K Lumens	6,117	11,955	17,838	23,569	29,203	34,946	41,328	46,827	52,235	57,832
	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	B4-U0-G5
	Lumens per Watt	139	141	144	138	139	140	140	140	140	138
T4FT	4000K Lumens	6,019	11,763	17,551	23,190	28,734	34,384	40,663	46,074	51,396	56,904
	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	B4-U0-G5
	Lumens per Watt	137	138	142	136	137	138	138	138	137	136
T4W	4000K Lumens	5,942	11,610	17,324	22,891	28,363	33,940	40,138	45,480	50,732	56,169
	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	B4-U0-G5
	Lumens per Watt	135	137	140	134	135	136	136	136	136	134
SL2	4000K Lumens	5,862	11,454	17,091	22,583	27,980	33,484	39,598	44,867	50,048	55,411
	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	B4-U0-G5
	Lumens per Watt	133	135	138	132	133	134	134	134	134	132
SL3	4000K Lumens	5,985	11,694	17,447	23,053	28,565	34,182	40,424	45,804	51,092	56,568
	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	B4-U0-G5
	Lumens per Watt	136	138	141	135	136	137	137	137	137	135
SL4	4000K Lumens	5,685	11,111	16,577	21,905	27,140	32,478	38,409	43,520	48,546	53,748
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	129	131	134	128	129	130	130	130	130	128
5NQ	4000K Lumens	6,172	12,061	17,997	23,778	29,462	35,256	41,694	47,242	52,699	58,347
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-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	140	142	145	139	140	142	141	141	141	139
5MQ	4000K Lumens	6,285	12,283	18,328	24,217	30,004	35,907	42,462	48,112	53,669	59,421
	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	B5-U0-G5
	Lumens per Watt	143	145	148	142	143	144	144	144	144	142
5WQ	4000K Lumens	6,303	12,317	18,377	24,281	30,085	36,001	42,575	48,241	53,812	59,579
	BUG Rating	B3-U0-G1	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	143	145	148	142	143	145	144	144	144	142
SLL/ SLR	4000K Lumens	5,260	10,276	15,332	20,259	25,101	30,037	35,522	40,249	44,898	49,708
	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	B3-U0-G5	B3-U0-G5
	Lumens per Watt	120	121	124	118	120	121	120	121	120	119
RW	4000K Lumens	6,116	11,952	17,834	23,563	29,196	34,938	41,317	46,817	52,224	57,819
	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	B5-U0-G4
	Lumens per Watt	139	141	144	138	139	140	140	140	140	138
AFL	4000K Lumens	6,139	11,996	17,899	23,650	29,302	35,064	41,468	46,987	52,412	58,030
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4
	Lumens per Watt	140	141	144	138	140	141	141	141	140	138

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Nominal Power Lumens (600mA)

Supplemental Performance Guide**

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		34	66	96	129	162	193	226	257	290	323
Input Current @ 120V (A)		0.30	0.58	0.86	1.16	1.44	1.73	2.03	2.33	2.59	2.89
Input Current @ 208V (A)		0.17	0.34	0.49	0.65	0.84	0.99	1.14	1.30	1.48	1.63
Input Current @ 240V (A)		0.15	0.30	0.43	0.56	0.74	0.87	1.00	1.13	1.30	1.43
Input Current @ 277V (A)		0.14	0.28	0.41	0.52	0.69	0.81	0.93	1.04	1.22	1.33
Input Current @ 347V (A)		0.11	0.19	0.30	0.39	0.49	0.60	0.69	0.77	0.90	0.99
Input Current @ 480V (A)		0.08	0.15	0.24	0.30	0.38	0.48	0.53	0.59	0.71	0.77
Optics											
T2	4000K Lumens	4,787	9,357	13,961	18,448	22,856	27,353	32,347	36,651	40,884	45,265
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	141	142	145	143	141	142	143	143	141	140
T2R	4000K Lumens	5,083	9,934	14,822	19,585	24,266	29,038	34,341	38,911	43,404	48,055
	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	B3-U0-G5
	Lumens per Watt	150	151	154	152	150	150	152	151	150	149
T3	4000K Lumens	4,880	9,537	14,231	18,803	23,296	27,878	32,970	37,358	41,671	46,137
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
	Lumens per Watt	144	145	148	146	144	144	146	145	144	143
T3R	4000K Lumens	4,988	9,749	14,547	19,220	23,814	28,497	33,703	38,188	42,598	47,162
	BUG Rating	B1-U0-G2	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	147	148	152	149	147	148	149	149	147	146
T4FT	4000K Lumens	4,909	9,591	14,312	18,911	23,432	28,040	33,161	37,574	41,913	46,404
	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	B4-U0-G5
	Lumens per Watt	144	145	149	147	145	145	147	146	145	144
T4W	4000K Lumens	4,845	9,468	14,128	18,668	23,130	27,678	32,732	37,088	41,371	45,805
	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	B4-U0-G5
	Lumens per Watt	143	143	147	145	143	143	145	144	143	142
SL2	4000K Lumens	4,779	9,341	13,937	18,416	22,818	27,305	32,292	36,589	40,813	45,188
	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	B4-U0-G5	B4-U0-G5
	Lumens per Watt	141	142	145	143	141	141	143	142	141	140
SL3	4000K Lumens	4,879	9,536	14,229	18,800	23,294	27,874	32,965	37,351	41,666	46,130
	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	B3-U0-G5
	Lumens per Watt	144	144	148	146	144	144	146	145	144	143
SL4	4000K Lumens	4,637	9,059	13,519	17,863	22,132	26,486	31,322	35,490	39,589	43,831
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	136	137	141	138	137	137	139	138	137	136
5NQ	4000K Lumens	5,033	9,835	14,676	19,392	24,026	28,751	34,002	38,526	42,975	47,581
	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	B5-U0-G3
	Lumens per Watt	148	149	153	150	148	149	150	150	148	147
5MQ	4000K Lumens	5,126	10,015	14,946	19,747	24,468	29,281	34,628	39,236	43,766	48,457
	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	B5-U0-G4
	Lumens per Watt	151	152	156	153	151	152	153	153	151	150
5WQ	4000K Lumens	5,139	10,043	14,985	19,801	24,533	29,359	34,721	39,339	43,883	48,586
	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	B5-U0-G5
	Lumens per Watt	151	152	156	153	151	152	154	153	151	150
SLL/ SLR	4000K Lumens	4,289	8,380	12,502	16,520	20,469	24,494	28,967	32,823	36,613	40,537
	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	B3-U0-G5
	Lumens per Watt	126	127	130	128	126	127	128	128	126	126
RW	4000K Lumens	4,987	9,746	14,543	19,215	23,808	28,491	33,695	38,178	42,587	47,151
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-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	147	148	151	149	147	148	149	149	147	146
AFL	4000K Lumens	5,007	9,782	14,597	19,285	23,896	28,594	33,817	38,317	42,742	47,322
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3
	Lumens per Watt	147	148	152	149	148	148	150	149	147	147

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

Control Options

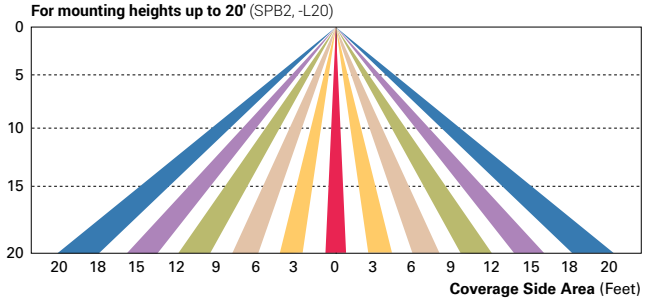
0-10V (DIM)
This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

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.

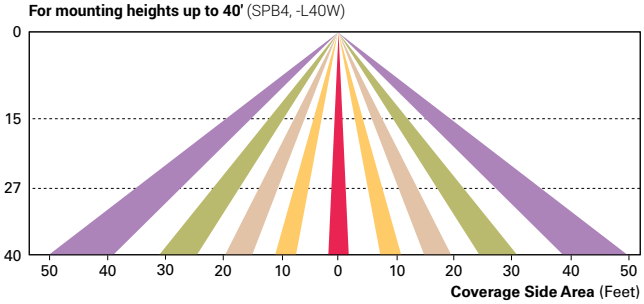
After Hours Dim (AHD)
This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a "dusk-to-dawn" period has been calculated from the photocontrol input. Specify the 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, MS/DIM-LXX, MS/X-LXX and MS-LXX)
These sensors are factory installed in the luminaire housing. When the SPB or MS/DIM sensor options are selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. The MS/X-LXX is also preset for five minutes and only controls the specified number of light engines to maintain steady output from the remaining light engines. SPB motion sensors require the Sensor Configuration mobile application by Wattstopper to change factory default dimming level, time delay, sensitivity and other parameters. Available for iOS and Android devices. The SPB sensor is factory preset to dim down to approximately 10% power with a time delay of five minutes. The MS/DIM occupancy sensors require the FSIR-100 programming tool to adjust factory defaults.

For mounting heights up to 20' (SPB2, -L20)

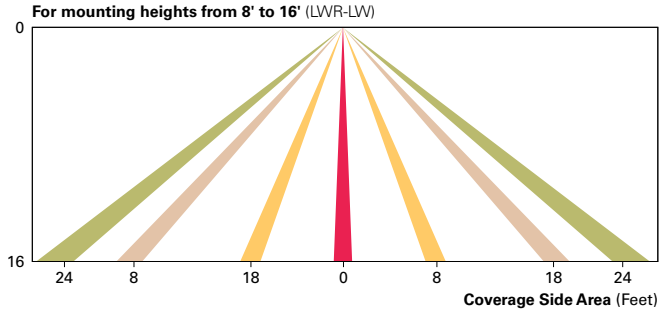


For mounting heights up to 40' (SPB4, -L40W)

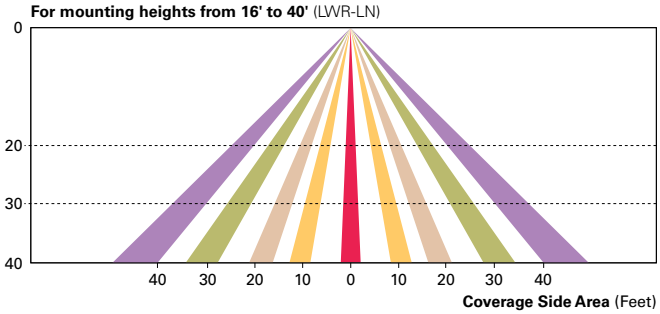


Enlighted Wireless Control and Monitoring System (LWR-LW and LWR-LN)
Enlighted is a connected lighting solution that combines a broad selection of energy-efficient LED luminaires with a powerful integrated wireless sensor system. The sensor controls the lighting system in compliance with the latest energy codes and collects valuable data about building performance and use. Software applications turn the granular data into information through energy dashboards and specialized apps that make it simple and help optimize the use of building resources, beyond lighting.

For mounting heights from 8' to 16' (LWR-LW)



For mounting heights from 16' to 40' (LWR-LN)



WaveLinx Wireless Outdoor Lighting Control Module (WOLC-7P-10A)
The 7-pin wireless outdoor lighting control module enables WaveLinx to control outdoor area, site and flood lighting. WaveLinx controls outdoor lighting using schedules to provide ON, OFF and dimming controls based on astronomic or time schedules based on a 7 day week.

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 MS/DC motion sensor; requires additional Synapse system components for operation. Contact Synapse at www.synapsewireless.com for product support, warranty and terms and conditions.

Cooper Lighting Solutions
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.cooperlighting.com

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Specifications and dimensions
subject to change without notice.

Steel Poles



SSS SQUARE STRAIGHT STEEL

Catalog #		**Type**
Project		
Comments		**Date**
Prepared by		

FEATURES

- ASTM Grade steel base plate with ASTM A366 base cover
- Hand hole assembly 3" x 5" on 5" and 6" pole; and 2" x 4" on 4" pole
- 10'-39' mounting heights
- Drilled or tenon (specify)

DESIGN CONSIDERATIONS

Wind induced vibrations resulting from steady, unidirectional winds and other aerodynamic forces, as well as vibration and coefficient of height factors for non-grounded mounted installations (e.g., installations on bridges or buildings) are not included in this document. The information contained herein is for general guidance only and is not a replacement for professional judgement. Consult with a professional, and local and federal standards, before ordering to ensure product is appropriate for the intended purpose and installation location. Also, please review Eaton's Light Pole White Paper for risk factors and design considerations. Learn more.

Specifications and dimensions subject to change without notice. Consult your lighting representative at Eaton or visit www.eaton.com/lighting for available options, accessories and ordering information.

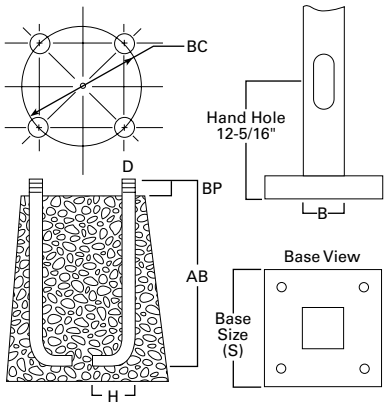
ORDERING INFORMATION

SAMPLE NUMBER: SSA5A20SFM1XG

Product Family	Shaft Size (Inches)[1]	Wall Thickness (Inches)	Mounting Height (Feet)	Base Type	Finish	Mounting Type	Number and Location of Arms	Arm Lengths (Feet)	Options (Add as Suffix)
SSS=Square Straight Steel	**4**=4" **5**=5" **6**=6"	**A**=0.120" **M**=0.188" **X**=0.250"	**10**=10' **15**=15' **20**=20' **25**=25' **30**=30' **35**=35' **39**=39'	**S**=Square Steel Base	**F**=Dark Bronze **G**=Galvanized Steel **J**=Summit White **K**=Carbon Bronze **L**=Dark Platinum **R**=Hartford Green **S**=Silver **T**=Graphite Metallic **V**=Grey **W**=White **X**=Custom Color **Y**=Black	**2**=2-3/8" O.D. Tenon (4" Long) **3**=3-1/2" O.D. Tenon (5" Long) **4**=4" O.D. Tenon (6" Long) **9**=3" O.D. Tenon (4" Long) **6**=2-3/8" O.D. Tenon (6" Long) **7**=4" O.D. Tenon (10" Long) **A**=Type A Drilling **C**=Type C Drilling **E**=Type E Drilling **F**=Type F Drilling **G**=Type G Drilling **J**=Type J Drilling **K**=Type K Drilling **M**=Type M Drilling **N**=Type N Drilling **R**=Type R Drilling **S**=Standard Upsweep Arm **Z**=Type Z Drilling	**1**=Single **2**=2 at 180° **3**=Triple[2] **4**=4 at 90° **5**=2 at 90° **X**=None	**X**=None **2**=2' **3**=2.5' **4**=4' **6**=6' **8**=8'	**A**=1/2" Tapped Hub[3] **B**=3/4" Tapped Hub[3] **C**=Convenience Outlet[4] **E**=GFCI Convenience Outlet[4] **G**=Ground Lug **H**=Additional Hand Hole[5] **V**=Vibration Dampener

NOTES: 1. All shaft sizes nominal. **2.** Square poles are 3 at 90°, round poles are 3 at 120°. **3.** Tapped Hub is located 5' below the pole top and on the same side of pole as hand hole, unless specified otherwise. **4.** Outlet is located 4' above base and on same side of pole as hand hole, unless specified otherwise. Receptacle not included, provision only. **5.** Additional hand hole is located 12" below pole top and 90° from standard hand hole location, unless otherwise specified.

DIMENSIONS



See technical information.

Effective Projected Area (At Pole Top)

Mounting Height (Feet)	Catalog Number [1, 2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Size [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]				Max. Fixture Load - Includes Bracket (Pounds)
MH			**S**	**BC**	**BP**	**B**	**D x AB x H**		**80 mph**	**90 mph**	**100 mph**	**110 mph**	
10	SSS4A10S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	85	30.0	22.0	17.0	13.0	100
15	SSS4A15S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	118	15.0	11.5	8.7	6.5	100
20	SSS4A20S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	150	8.7	5.9	3.9	2.5	150
20	SSS5A20S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	183	15.4	11.1	7.9	5.5	150
25	SSS4A25S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	181	3.7	1.7	0.3	--	200
25	SSS5A25S	0.120	10-1/2	11	5	5	3/4 x 25 x 3	222	9.3	6.0	3.5	1.6	200
25	SSS6A25S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	284	9.9	6.1	3.5	1.2	200
30	SSS5A30S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	260	4.7	2.1	--	--	200
30	SSS5M30S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	392	10.4	6.4	3.5	1.5	200
30	SSS6A30S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	330	4.3	1.4	--	--	200
30	SSS6M30S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	489	19.0	13.0	8.7	5.6	200
35	SSS5M35S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	453	5.8	2.8	--	--	200
35	SSS6M35S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	564	12.8	7.2	3.7	1.0	200
35	SSS6X35S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	738	16.5	11.0	6.8	3.5	200
39	SSS6M39S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	618	7.3	3.0	--	--	300
39	SSS6X39S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	816	13.0	7.0	3.7	0.8	300

Effective Projected Area (Two Feet Above Pole Top)

Mounting Height (Feet)	Catalog Number [1, 2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Size [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]				Max. Fixture Load - Includes Bracket (Pounds)
MH			**S**	**BC**	**BP**	**B**	**D x AB x H**		**80 mph**	**90 mph**	**100 mph**	**110 mph**	
10	SSS4A10S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	85	23.0	17.5	14.0	11.0	100
15	SSS4A15S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	118	13.4	10.0	7.5	5.7	100
20	SSS4A20S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	150	7.6	5.2	3.4	2.1	150
20	SSS5A20S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	183	13.8	9.9	7.1	4.9	150
25	SSS4A25S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	181	3.4	1.6	0.3	--	200
25	SSS5A25S	0.120	10-1/2	11	5	5	3/4 x 25 x 3	222	8.5	5.5	3.2	1.5	200
25	SSS6A25S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	284	9.1	5.6	3.0	1.2	200
30	SSS5A30S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	260	1.8	--	--	--	200
30	SSS5M30S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	392	9.6	5.9	1.9	0.2	200
30	SSS6A30S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	330	4.1	1.3	--	--	200
30	SSS6M30S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	489	18.5	12.5	8.4	5.3	200
35	SSS5M35S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	453	5.5	2.4	--	--	200
35	SSS6M35S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	564	11.8	7.0	3.5	1.0	200
35	SSS6X35S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	738	16.0	10.5	6.4	3.4	200
39	SSS6M39S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	618	7.0	2.4	--	--	300
39	SSS6X39S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	816	12.0	6.7	3.0	0.5	300

NOTES:

1. Catalog number includes pole with hardware kit. Anchor bolts not included. Before installing, make sure proper anchor bolts and templates are obtained.

2. Tenon size or machining for rectangular arms must be specified. Hand hole position relative to drill location.

3. Shaft size, base square, anchor bolts and projections may vary slightly. All dimensions nominal.

4. EPAs based on shaft properties with wind normal to flat. EPAs calculated using base wind velocity as indicated plus 30% gust factor.

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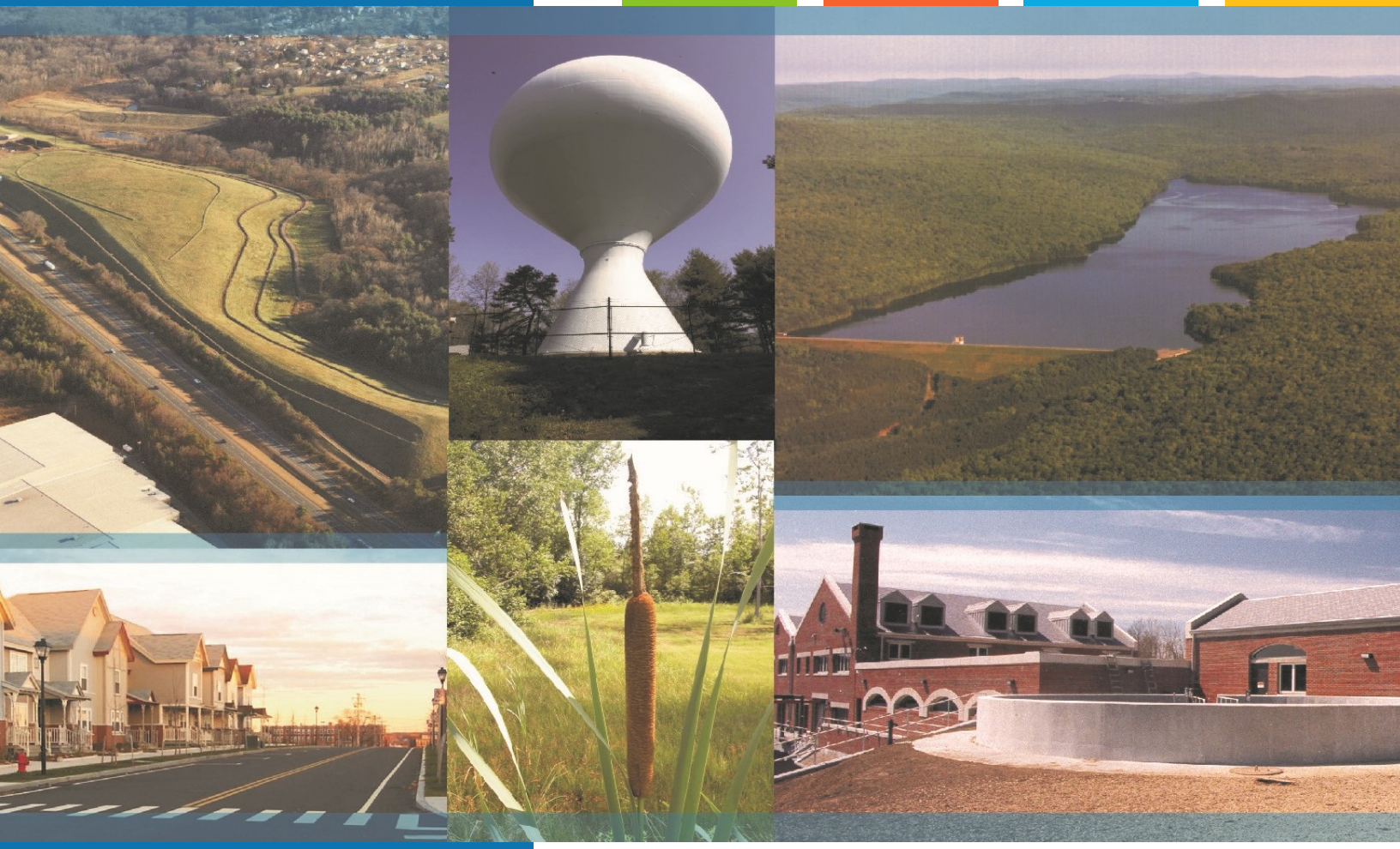
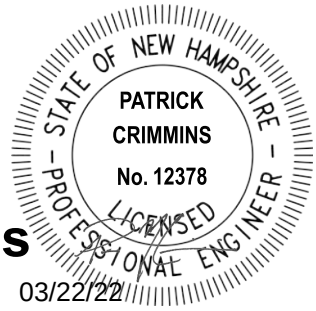


Proposed Satellite Parking Lot
Borthwick Ave
Portsmouth, NH

Drainage Analysis



03/22/22

Portsmouth Regional Hospital

March 22, 2022



Tighe&Bond

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A Site-Specific Soils Report
B Extreme Precipitation Tables

Section 1
Project Description

The proposed project is located at the East corner of Borthwick Ave and Eileen Dondero Foley Ave which is identified as Map 234 Lot 7-4A on the City of Portsmouth Tax Maps. The proposed project is to expand Portsmouth Regional Hospital parking to support the existing hospital and its growing services to the New Hampshire Seacoast region.

The proposed project includes the construction of a new 520 space satellite parking lot across the street from the existing hospital. The project will include associated site improvements such as paving, lighting, security cameras, stormwater management and landscaping.

1.1 On-Site Soil Description

The site is forested with some thick brush underneath the existing power transmission line. The existing property has a variety of high points that shed water in two general directions. The southern portion of the property sheds stormwater to an existing wetland along that edge of the property boundary. The central and northeastern portion of the property's stormwater discharges to a larger wetland that extends off the property to the east.

A site-specific soils survey was conducted by Leonard Lord, PhD, CSS, CWS of Tighe & Bond, Inc and can be found in Appendix A of this Report. Based on the soil survey, the runoff analyzed within this study has been modeled using mostly Hydrologic Soil Group C soils and some portions of Hydrologic Soil Group B soils. Much of the site is comprised of Woodbridge, Boxford and Chatfield soils with three drainage classifications, moderately well drained, somewhat poorly drained, and portions of well drained soils respectively.

1.2 Pre- and Post-Development Comparison

The watershed areas have been modeled at three (3) points of analysis (PA-1, PA-2, and PA-3). PA-1 and PA-2 remain at the same location from pre-development to post-development. PA-1 assesses flows that discharge directly to an existing wetland along the southern knob of the property line. PA-2 analyzes flows discharging to an existing wetland located in and extending beyond the eastern portion of the project area. PA-3 was used to evaluate the minimal increase in flows directed toward Borthwick Avenue to the west of the project area. The overall area analyzed as part of this drainage analysis was held constant.

1.3 Calculation Methods

The design storms analyzed in this study include 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 was obtained from the data published by the Northeast Regional Climate Center at Cornell University, with an additional 15% added factor of safety as required by Env-Wq 1503.08(l).

The time of concentration was computed using the TR-55 Method, which provides a means of determining the time for an entire watershed to contribute runoff to a specific location via sheet flows, shallow concentrated flow and channel flow. Runoff curve numbers were calculated by estimating the coverage areas and then summing the curve number for the coverage area as a percent of the entire watershed.

References:

1. HydroCAD Stormwater Modeling System, by HydroCAD Software Solutions LLC, Chocorua, New Hampshire.
2. New Hampshire Stormwater Management Manual, Volume 2, Post-Construction Best Management Practices Selection and Design, December 2008.
3. "Extreme Precipitation in New York & New England." Extreme Precipitation in New York & New England by Northeast Regional Climate Center (NRCC), 26 June 2012.

Section 2
Pre-Development Conditions

To analyze the pre-development condition, the site has been divided into three (3) distinct points of analysis (PA-1, PA-2 and PA-3). These points of analysis and watersheds are depicted on the plan entitled "Pre-Development Watershed Plan", Sheet C-801.

The points of analysis and their contributing watersheds areas are described below:

Point of Analysis (PA-1)

Pre-development Watershed 1.1 (PRE 1.1) is comprised completely of wooded area, modeled as HSG C and some potions of HSG B. Runoff travels via overland flow to the existing wetland in the corner of the watershed.

Point of Analysis (PA-2)

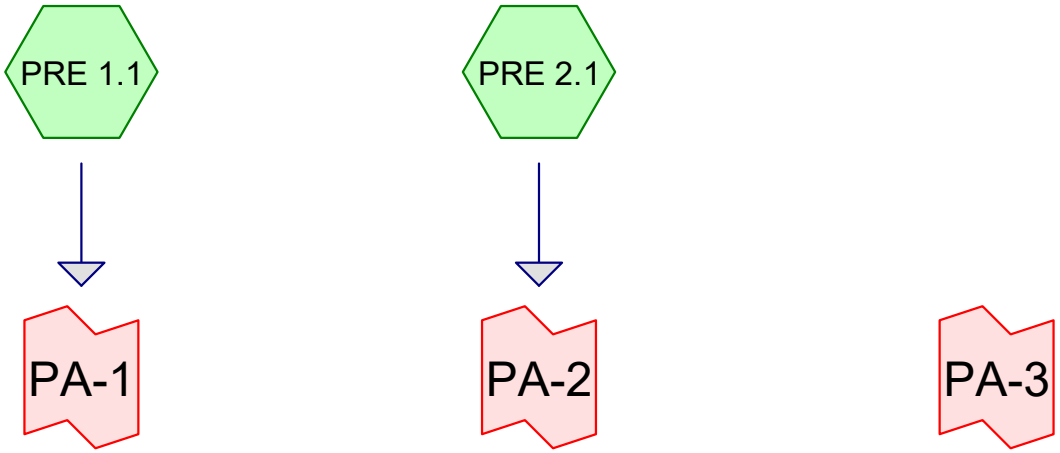
Pre-development Watershed 2.1 (PRE 2.1) is comprised of the remainder of the development area. Groundcover in this watershed is modeled as wooded and brushed areas, classified as HSG C and HSG B. Runoff from this watershed travels via overland flow to the existing wetland located to the East of the project site.

Point of Analysis (PA-3)

PA-3 does not have any contributing areas in the pre-development condition.

2.1 Pre-Development Calculations

2.2 Pre-Development Watershed Plans



Subcat Reach Pond Link

Routing Diagram for P0616-005_Pre
Prepared by Tighe & Bond, Printed 3/22/2022
HydroCAD® 10.00-20 s/n 03436 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
19,943	48	Brush, Good, HSG B (PRE 2.1)
102,963	65	Brush, Good, HSG C (PRE 2.1)
44,291	55	Woods, Good, HSG B (PRE 1.1, PRE 2.1)
184,515	70	Woods, Good, HSG C (PRE 1.1, PRE 2.1)
351,712	**65**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
64,234	HSG B	PRE 1.1, PRE 2.1
287,478	HSG C	PRE 1.1, PRE 2.1
0	HSG D	
0	Other	
351,712		**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 1.1: Runoff Area=31,588 sf 0.00% Impervious Runoff Depth>1.01"
Flow Length=251' Tc=14.7 min CN=68 Runoff=0.59 cfs 2,658 cf

Subcatchment PRE 2.1: Runoff Area=320,124 sf 0.00% Impervious Runoff Depth>0.85"
Flow Length=750' Tc=27.0 min CN=65 Runoff=3.75 cfs 22,591 cf

Link PA-1: Inflow=0.59 cfs 2,658 cf
Primary=0.59 cfs 2,658 cf

Link PA-2: Inflow=3.75 cfs 22,591 cf
Primary=3.75 cfs 22,591 cf

Link PA-3:
Primary=0.00 cfs 0 cf

Total Runoff Area = 351,712 sf Runoff Volume = 25,249 cf Average Runoff Depth = 0.86"
100.00% Pervious = 351,712 sf 0.00% Impervious = 0 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 1.1: Runoff Area=31,588 sf 0.00% Impervious Runoff Depth>2.31"
Flow Length=251' Tc=14.7 min CN=68 Runoff=1.47 cfs 6,082 cf

Subcatchment PRE 2.1: Runoff Area=320,124 sf 0.00% Impervious Runoff Depth>2.05"
Flow Length=750' Tc=27.0 min CN=65 Runoff=10.17 cfs 54,723 cf

Link PA-1: Inflow=1.47 cfs 6,082 cf
Primary=1.47 cfs 6,082 cf

Link PA-2: Inflow=10.17 cfs 54,723 cf
Primary=10.17 cfs 54,723 cf

Link PA-3:
Primary=0.00 cfs 0 cf

Total Runoff Area = 351,712 sf Runoff Volume = 60,804 cf Average Runoff Depth = 2.07"
100.00% Pervious = 351,712 sf 0.00% Impervious = 0 sf

Summary for Subcatchment PRE 1.1:

Runoff = 1.47 cfs @ 12.21 hrs, Volume= 6,082 cf, Depth> 2.31"

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-Year Rainfall=5.60"

Area (sf)	CN	Description
4,638	55	Woods, Good, HSG B
26,950	70	Woods, Good, HSG C
31,588	68	Weighted Average
31,588		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	25	0.0200	0.04		**Sheet Flow, Woods** Woods: Dense underbrush n= 0.800 P2= 3.69"
3.2	226	0.0570	1.19		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
14.7	251	Total			

Summary for Subcatchment PRE 2.1:

Runoff = 10.17 cfs @ 12.40 hrs, Volume= 54,723 cf, Depth> 2.05"

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-Year Rainfall=5.60"

Area (sf)	CN	Description
157,565	70	Woods, Good, HSG C
102,963	65	Brush, Good, HSG C
39,653	55	Woods, Good, HSG B
19,943	48	Brush, Good, HSG B
320,124	65	Weighted Average
320,124		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.1800	0.09		**Sheet Flow, woods sheet** Woods: Dense underbrush n= 0.800 P2= 3.69"
1.3	78	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.5	350	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.4	297	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.0	750	Total			

Summary for Link PA-1:

Inflow Area = 31,588 sf, 0.00% Impervious, Inflow Depth > 2.31" for 10-Year event
Inflow = 1.47 cfs @ 12.21 hrs, Volume= 6,082 cf
Primary = 1.47 cfs @ 12.21 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-2:

Inflow Area = 320,124 sf, 0.00% Impervious, Inflow Depth > 2.05" for 10-Year event
Inflow = 10.17 cfs @ 12.40 hrs, Volume= 54,723 cf
Primary = 10.17 cfs @ 12.40 hrs, Volume= 54,723 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:

[43] Hint: Has no inflow (Outflow=Zero)

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

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 1.1: Runoff Area=31,588 sf 0.00% Impervious Runoff Depth>3.48"
Flow Length=251' Tc=14.7 min CN=68 Runoff=2.24 cfs 9,164 cf

Subcatchment PRE 2.1: Runoff Area=320,124 sf 0.00% Impervious Runoff Depth>3.16"
Flow Length=750' Tc=27.0 min CN=65 Runoff=16.02 cfs 84,329 cf

Link PA-1: Inflow=2.24 cfs 9,164 cf
Primary=2.24 cfs 9,164 cf

Link PA-2: Inflow=16.02 cfs 84,329 cf
Primary=16.02 cfs 84,329 cf

Link PA-3:
Primary=0.00 cfs 0 cf

Total Runoff Area = 351,712 sf Runoff Volume = 93,492 cf Average Runoff Depth = 3.19"
100.00% Pervious = 351,712 sf 0.00% Impervious = 0 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 1.1: Runoff Area=31,588 sf 0.00% Impervious Runoff Depth>4.65"
Flow Length=251' Tc=14.7 min CN=68 Runoff=3.01 cfs 12,252 cf

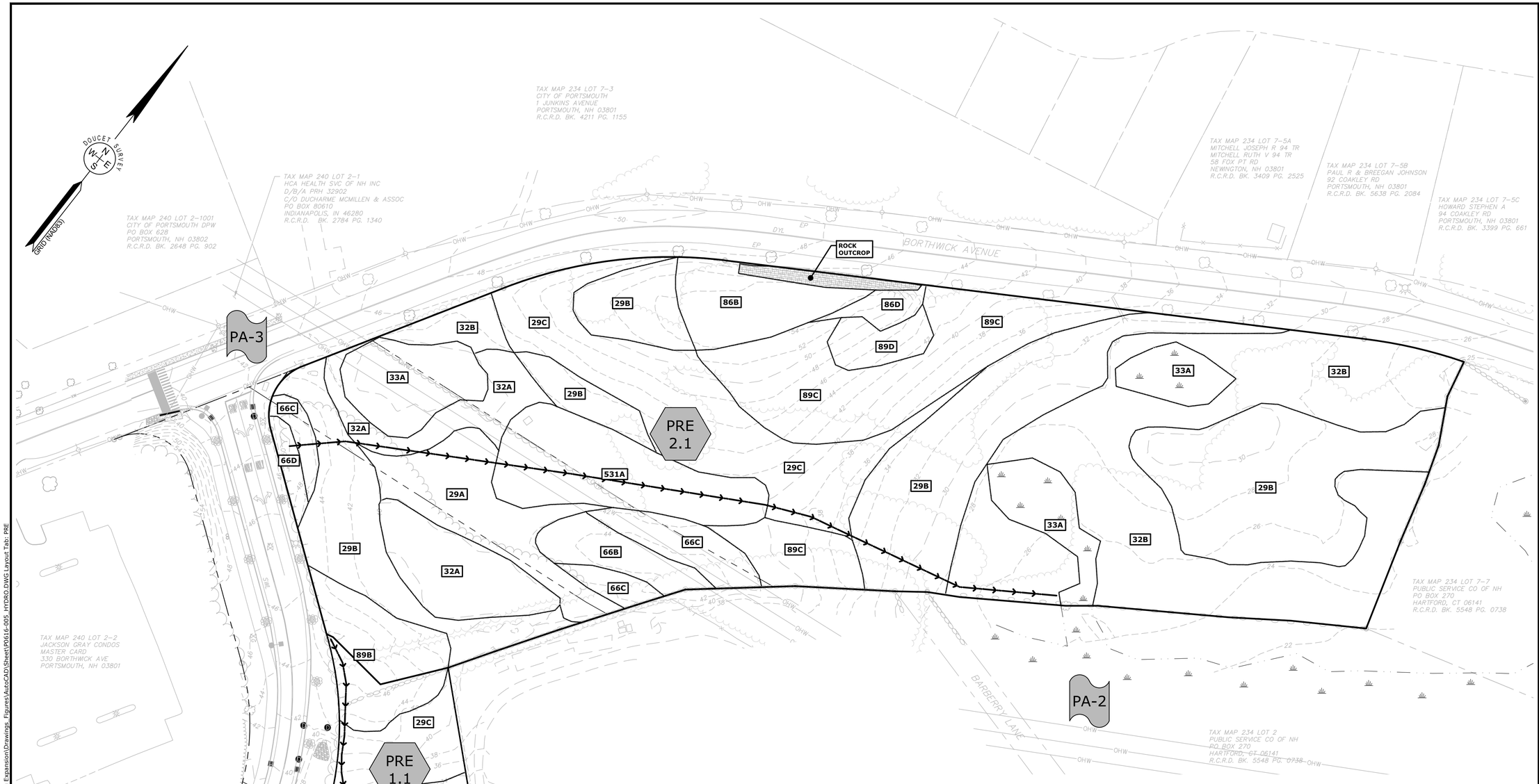
Subcatchment PRE 2.1: Runoff Area=320,124 sf 0.00% Impervious Runoff Depth>4.29"
Flow Length=750' Tc=27.0 min CN=65 Runoff=21.90 cfs 114,348 cf

Link PA-1: Inflow=3.01 cfs 12,252 cf
Primary=3.01 cfs 12,252 cf

Link PA-2: Inflow=21.90 cfs 114,348 cf
Primary=21.90 cfs 114,348 cf

Link PA-3:
Primary=0.00 cfs 0 cf

Total Runoff Area = 351,712 sf Runoff Volume = 126,600 cf Average Runoff Depth = 4.32"
100.00% Pervious = 351,712 sf 0.00% Impervious = 0 sf



LEGEND

PRE-DEVELOPMENT WATERSHED BOUNDARY

SITE SPECIFIC SOIL SURVEY BOUNDARIES

LONGEST FLOW PATH

PRE 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION

PA-1 — POINT OF ANALYSIS

SITE SPECIFIC SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

SYMBOL	SOIL TYPE	HSG
29	WOODBRIDGE	C
32	BOXFORD	C
33	SCITICO	C
66	PAXTON	C
86	HOLLIS	C
89	CHATFIELD	B
531	SCIO	B

SLOPE CLASS IDENTIFIERS

A	0-3 %	D	15-25%
B	3-8 %	E	25-50%
C	8-15%	F	>50%

NOTES:

1. HYDROLOGIC SOIL GROUPS FOR DISTURBED SOILS WERE BASED ON MOST SIMILAR SOIL SERIES LISTED IN *KSAT VALUES FOR NH SOILS,* SSSNNE SPECIAL PUBLICATION NO. 5, 2009.
2. FIELDWORK FOR THIS MAP WAS CONDUCTED BY LEONARD A. LORD, PhD, NHCSS #19 AND JEREMY DEGLER ON NOVEMBER 18 & 19, 2021.
3. THIS DETAILED SITE SPECIFIC SOIL MAP CONFORMS TO THE STANDARDS OF SSSNNE PUBLICATION NO. 3, AS AMENDED, *SITE SPECIFIC SOIL MAPPING STANDARDS FOR NH AND VT.*
4. THIS MAP HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV-WQ, ALTERATION OF TERRAIN.
5. SEE ACCOMPANYING NARRATIVE REPORT FOR METHODOLOGY, MAP SYMBOL LEGEND, AND INTERPRETATIONS.

Tighe&Bond

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION

PROJECT NO:	P0616-001
DATE:	3/22/22
FILE:	P0616-005_HYDRO.DWG
DRAWN BY:	CML/AFS
CHECKED:	PMC
APPROVED:	BLM

PRE-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-801

Last Save Date: March 21, 2022 6:45 PM By: ASELLAR
Plot Date: Tuesday, March 22, 2022 Plotted By: Colter Krzcuik
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Drawings_Figures\AutoCAD\Sheet\P0616-005_HYDRO.DWG Layout Tab: PRE

Section 3
Post-Development Conditions

The post-development condition was analyzed by dividing the watersheds into five (5) watershed areas. Stormwater runoff from these sub-catchment areas flow via either overland flow or subsurface drainage systems prior to discharging to various existing wetlands on site. Flows from these sub-catchment areas are modeled at the same three (3) points of analysis (PA-1, PA-2, and PA-3), depicted in the pre-development watershed plan.

An underground detention system is proposed for the purpose of mitigating peak flows per the requirements of Env-Wq 1507.06. Additionally, an infiltration basin is included to detain and infiltrate stormwater for the purpose of mitigating peak flows and channel protection requirements of Env-Wq 1507.05. The detention system and its respective outlet structures have been sized to detain the WQV prior to discharging to the treatment unit. Flows greater than the 2-year storm event are designed to bypass the treatment unit. The infiltration system has been designed to provide GRV requirements as established in Env-Wq 1504.12, after the stormwater has been treated by two separate treatment units.

The points of analysis and their sub-catchment areas are depicted on the plan entitled "Post-Development Watershed Plan," Sheet C-802. The points of analysis and their contributing watershed areas are described below:

Point of Analysis (PA-1)

Post-development Watershed 1.1 (POST 1.1) is comprised of a combination of woods and grass cover directly to the southeast of the southern portion of the satellite parking lot expansion. The area was modeled with mainly HSG C soils and small portions of HSG B soils. Runoff from this watershed sheets via overland flow to the existing wetland located in the eastern corner of the subcatchment.

Point of Analysis (PA-2)

Post-development Watershed 2.1 (POST 2.1) is comprised of the central portion of the proposed parking lot. This area like POST 1.1 has been modeled with mainly HSG C soils and some portions of HSG B soils. Runoff from this watershed area travels via overland flow to various catch basins. The runoff is pre-treated by either deep sump catch basins or two separate CDS units (PCDS1 & PCDS2) prior to entering the underground detention system (UDB-1.) The detention system and outlet structure (POS 1) have been sized to detain the WQV with a drain down time greater than 24 hours, prior to discharging to the treatment unit, a Contech Jellyfish Stormwater Filter (JFF3.)

Post-development Watershed 2.2 (POST 2.2) is comprised mainly of the existing wetland and wetland buffer area. This area also contains various sections surrounding the proposed parking lot area that is either downhill of the large proposed retaining wall or granite curbing. This area contains a combination of grass, brush, paved parking, and woods, with the major cover being woods and grass. Soils in this subcatchment were also modeled with mainly HSG C and small portions of HSG B soils. Runoff from this watershed sheets via overland flow to the existing wetland located in the central and eastern portion of the project area.

Post-development Watershed 2.3 (POST 2.3) is comprised of the eastern paved parking area, paved drive aisle, as well as the associated landscape islands. Runoff from this watershed area also travels via overland flow to various deep sump catch basins prior to flowing through two separate Contech Jellyfish Stormwater Filter treatment units (PJFF1 & PJFF2). These treatment units discharge flow to a 36" CMP pipe infiltration system (UIB-2). This unit is sized to detain the large storm events and provide infiltration of treated stormwater before ultimately discharging to the existing adjacent wetland to the east of the project site.

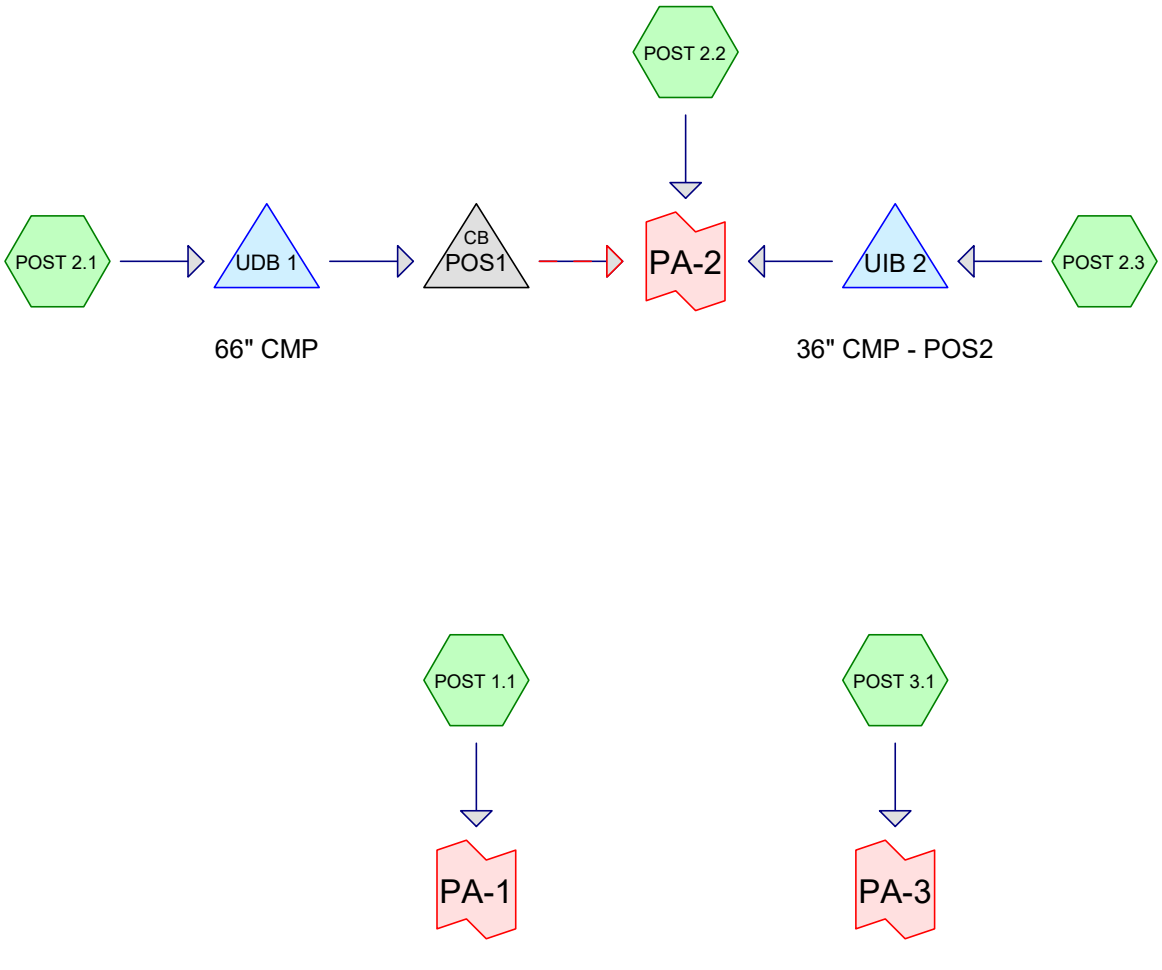
Point of Analysis (PA-3)

Post-development Watershed 3.1 (POST 3.1) is in the southwestern portion of the proposed project. This area includes a small area of land in between the proposed parking lot and Borthwick Ave and Ellen Dondero Foley Ave. The groundcover in the watershed has been modeled as mostly grass cover with small portion of concrete sidewalk. Runoff from this watershed travels via overland flow offsite to the west of the project area.

This point of analysis experiences a negligible increase in peak flows from the pre-development condition which are attributed to the proposed improvements within the City's Right of Way. The minor increase is necessary to reduce impacts on the existing wetlands as much as feasibly possible.

3.1 Post-Development Calculations

3.2 Post-Development Watershed Plans



Subcat Reach Pond Link

Routing Diagram for P0616-005_Post
Prepared by Tighe & Bond, Printed 3/22/2022
HydroCAD® 10.00-20 s/n 03436 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
12,373	61	>75% Grass cover, Good, HSG B (POST 1.1, POST 2.1, POST 2.2, POST 2.3)
45,749	74	>75% Grass cover, Good, HSG C (POST 1.1, POST 2.1, POST 2.2, POST 2.3, POST 3.1)
1,504	48	Brush, Good, HSG B (POST 2.2)
46,130	65	Brush, Good, HSG C (POST 2.2)
47,478	98	Paved parking, HSG B (POST 2.1, POST 2.3)
131,211	98	Paved parking, HSG C (POST 2.1, POST 2.2, POST 2.3, POST 3.1)
2,879	55	Woods, Good, HSG B (POST 1.1, POST 2.2)
64,388	70	Woods, Good, HSG C (POST 1.1, POST 2.2)
351,712	**84**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
64,234	HSG B	POST 1.1, POST 2.1, POST 2.2, POST 2.3
287,478	HSG C	POST 1.1, POST 2.1, POST 2.2, POST 2.3, POST 3.1
0	HSG D	
0	Other	
351,712		**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 POST 1.1: Runoff Area=19,738 sf 0.00% Impervious Runoff Depth>1.19"
Tc=6.0 min CN=71 Runoff=0.59 cfs 1,949 cf

Subcatchment POST 2.1: Runoff Area=160,095 sf 85.19% Impervious Runoff Depth>3.02"
Tc=6.0 min CN=94 Runoff=12.07 cfs 40,276 cf

Subcatchment POST 2.2: Runoff Area=107,939 sf 0.58% Impervious Runoff Depth>0.96"
Tc=6.0 min CN=67 Runoff=2.46 cfs 8,614 cf

Subcatchment POST 2.3: Runoff Area=56,484 sf 73.62% Impervious Runoff Depth>2.72"
Tc=6.0 min CN=91 Runoff=3.95 cfs 12,800 cf

Subcatchment POST 3.1: Runoff Area=7,456 sf 1.21% Impervious Runoff Depth>1.37"
Tc=6.0 min CN=74 Runoff=0.26 cfs 852 cf

Pond POS1: Peak Elev=34.44' Inflow=0.37 cfs 17,231 cf
Primary=0.37 cfs 17,231 cf Secondary=0.00 cfs 0 cf Outflow=0.37 cfs 17,231 cf

Pond UDB 1: 66" CMP Peak Elev=36.93' Storage=27,860 cf Inflow=12.07 cfs 40,276 cf
Outflow=0.37 cfs 17,231 cf

Pond UIB 2: 36" CMP - POS2 Peak Elev=26.30' Storage=11,976 cf Inflow=3.95 cfs 12,800 cf
Discarded=0.01 cfs 822 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 822 cf

Link PA-1: Inflow=0.59 cfs 1,949 cf
Primary=0.59 cfs 1,949 cf

Link PA-2: Inflow=2.74 cfs 25,845 cf
Primary=2.74 cfs 25,845 cf

Link PA-3: Inflow=0.26 cfs 852 cf
Primary=0.26 cfs 852 cf

Total Runoff Area = 351,712 sf Runoff Volume = 64,492 cf Average Runoff Depth = 2.20"
49.19% Pervious = 173,023 sf 50.81% Impervious = 178,689 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 POST 1.1: Runoff Area=19,738 sf 0.00% Impervious Runoff Depth>2.58"
Tc=6.0 min CN=71 Runoff=1.34 cfs 4,239 cf

Subcatchment POST 2.1: Runoff Area=160,095 sf 85.19% Impervious Runoff Depth>4.90"
Tc=6.0 min CN=94 Runoff=19.04 cfs 65,339 cf

Subcatchment POST 2.2: Runoff Area=107,939 sf 0.58% Impervious Runoff Depth>2.23"
Tc=6.0 min CN=67 Runoff=6.24 cfs 20,059 cf

Subcatchment POST 2.3: Runoff Area=56,484 sf 73.62% Impervious Runoff Depth>4.56"
Tc=6.0 min CN=91 Runoff=6.45 cfs 21,478 cf

Subcatchment POST 3.1: Runoff Area=7,456 sf 1.21% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=74 Runoff=0.56 cfs 1,770 cf

Pond POS1: Peak Elev=34.63' Inflow=0.76 cfs 24,983 cf
Primary=0.58 cfs 23,325 cf Secondary=0.18 cfs 1,658 cf Outflow=0.76 cfs 24,983 cf

Pond UDB 1: 66" CMP Peak Elev=38.72' Storage=45,952 cf Inflow=19.04 cfs 65,339 cf
Outflow=0.76 cfs 24,983 cf

Pond UIB 2: 36" CMP - POS2 Peak Elev=27.17' Storage=19,335 cf Inflow=6.45 cfs 21,478 cf
Discarded=0.01 cfs 898 cf Primary=0.06 cfs 1,279 cf Outflow=0.07 cfs 2,177 cf

Link PA-1: Inflow=1.34 cfs 4,239 cf
Primary=1.34 cfs 4,239 cf

Link PA-2: Inflow=6.61 cfs 46,320 cf
Primary=6.61 cfs 46,320 cf

Link PA-3: Inflow=0.56 cfs 1,770 cf
Primary=0.56 cfs 1,770 cf

Total Runoff Area = 351,712 sf Runoff Volume = 112,885 cf Average Runoff Depth = 3.85"
49.19% Pervious = 173,023 sf 50.81% Impervious = 178,689 sf

Summary for Subcatchment POST 1.1:

Runoff = 1.34 cfs @ 12.10 hrs, Volume= 4,239 cf, Depth> 2.58"

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-Year Rainfall=5.60"

Area (sf)	CN	Description
337	55	Woods, Good, HSG B
1,235	61	>75% Grass cover, Good, HSG B
6,841	74	>75% Grass cover, Good, HSG C
11,325	70	Woods, Good, HSG C
19,738	71	Weighted Average
19,738		100.00% Pervious Area

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

Summary for Subcatchment POST 2.1:

Runoff = 19.04 cfs @ 12.09 hrs, Volume= 65,339 cf, Depth> 4.90"

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-Year Rainfall=5.60"

Area (sf)	CN	Description
97,643	98	Paved parking, HSG C
18,085	74	>75% Grass cover, Good, HSG C
5,618	61	>75% Grass cover, Good, HSG B
38,749	98	Paved parking, HSG B
160,095	94	Weighted Average
23,703		14.81% Pervious Area
136,392		85.19% Impervious Area

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

Summary for Subcatchment POST 2.2:

Runoff = 6.24 cfs @ 12.10 hrs, Volume= 20,059 cf, Depth> 2.23"

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-Year Rainfall=5.60"

Area (sf)	CN	Description
2,542	55	Woods, Good, HSG B
53,063	70	Woods, Good, HSG C
1,504	48	Brush, Good, HSG B
920	61	>75% Grass cover, Good, HSG B
623	98	Paved parking, HSG C
3,157	74	>75% Grass cover, Good, HSG C
46,130	65	Brush, Good, HSG C
107,939	67	Weighted Average
107,316		99.42% Pervious Area
623		0.58% Impervious Area

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

Summary for Subcatchment POST 2.3:

Runoff = 6.45 cfs @ 12.09 hrs, Volume= 21,478 cf, Depth> 4.56"

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-Year Rainfall=5.60"

Area (sf)	CN	Description
10,300	74	>75% Grass cover, Good, HSG C
32,855	98	Paved parking, HSG C
4,600	61	>75% Grass cover, Good, HSG B
8,729	98	Paved parking, HSG B
56,484	91	Weighted Average
14,900		26.38% Pervious Area
41,584		73.62% Impervious Area

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

Summary for Subcatchment POST 3.1:

Runoff = 0.56 cfs @ 12.09 hrs, Volume= 1,770 cf, Depth> 2.85"

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-Year Rainfall=5.60"

Area (sf)	CN	Description
90	98	Paved parking, HSG C
7,366	74	>75% Grass cover, Good, HSG C
7,456	74	Weighted Average
7,366		98.79% Pervious Area
90		1.21% Impervious Area

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

Summary for Pond POS1:

[57] Hint: Peaked at 34.63' (Flood elevation advised)

Inflow Area = 160,095 sf, 85.19% Impervious, Inflow Depth > 1.87" for 10-Year event
Inflow = 0.76 cfs @ 15.12 hrs, Volume= 24,983 cf
Outflow = 0.76 cfs @ 15.12 hrs, Volume= 24,983 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 15.12 hrs, Volume= 23,325 cf
Secondary = 0.18 cfs @ 15.12 hrs, Volume= 1,658 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 34.63' @ 15.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.00'	**6.0" Round TREATMENT** L= 5.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.00' / 33.90' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Secondary	34.45'	**24.0" Round BYPASS** L= 7.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.45' / 34.35' S= 0.0143 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=0.58 cfs @ 15.12 hrs HW=34.63' TW=0.00' (Dynamic Tailwater)
↑—**1=TREATMENT** (Barrel Controls 0.58 cfs @ 3.01 fps)

Secondary OutFlow Max=0.18 cfs @ 15.12 hrs HW=34.63' TW=0.00' (Dynamic Tailwater)
↑—**2=BYPASS** (Barrel Controls 0.18 cfs @ 1.98 fps)

Summary for Pond UDB 1: 66" CMP

Inflow Area = 160,095 sf, 85.19% Impervious, Inflow Depth > 4.90" for 10-Year event
Inflow = 19.04 cfs @ 12.09 hrs, Volume= 65,339 cf
Outflow = 0.76 cfs @ 15.12 hrs, Volume= 24,983 cf, Atten= 96%, Lag= 181.7 min
Primary = 0.76 cfs @ 15.12 hrs, Volume= 24,983 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 38.72' @ 15.12 hrs Surf.Area= 13,010 sf Storage= 45,952 cf
Flood Elev= 39.50' Surf.Area= 13,010 sf Storage= 51,999 cf

Plug-Flow detention time= 381.7 min calculated for 24,983 cf (38% of inflow)
Center-of-Mass det. time= 240.7 min (1,010.6 - 769.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	34.00'	8,116 cf	**81.75'W x 83.00'L x 6.00'H Field A** 40,712 cf Overall - 20,420 cf Embedded = 20,291 cf x 40.0% Voids
#2A	34.00'	20,420 cf	**CMP Round 66** x 30 Inside #1 Effective Size= 66.0"W x 66.0"H => 23.76 sf x 20.00'L = 475.2 cf Overall Size= 66.0"W x 66.0"H x 20.00'L Row Length Adjustment= +10.00' x 23.76 sf x 10 rows 79.75' Header x 23.76 sf x 2 = 3,789.4 cf Inside
#3C	34.00'	7,521 cf	**32.25'W x 193.00'L x 6.00'H Field C** 37,346 cf Overall - 18,543 cf Embedded = 18,802 cf x 40.0% Voids
#4C	34.00'	18,543 cf	**CMP Round 66** x 36 Inside #3 Effective Size= 66.0"W x 66.0"H => 23.76 sf x 20.00'L = 475.2 cf Overall Size= 66.0"W x 66.0"H x 20.00'L 4 Rows of 9 Chambers 30.25' Header x 23.76 sf x 2 = 1,437.4 cf Inside
		54,601 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group C created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	34.00'	**24.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.00' / 34.00' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	34.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	38.65'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.76 cfs @ 15.12 hrs HW=38.72' TW=34.63' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.76 cfs of 29.19 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.48 cfs @ 9.74 fps)
3=Broad-Crested Rectangular Weir (Weir Controls 0.28 cfs @ 0.76 fps)

Summary for Pond UIB 2: 36" CMP - POS2

Inflow Area = 56,484 sf, 73.62% Impervious, Inflow Depth > 4.56" for 10-Year event
Inflow = 6.45 cfs @ 12.09 hrs, Volume= 21,478 cf
Outflow = 0.07 cfs @ 22.38 hrs, Volume= 2,177 cf, Atten= 99%, Lag= 617.2 min
Discarded = 0.01 cfs @ 6.90 hrs, Volume= 898 cf
Primary = 0.06 cfs @ 22.38 hrs, Volume= 1,279 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 27.17' @ 22.38 hrs Surf.Area= 10,746 sf Storage= 19,335 cf
Flood Elev= 28.50' Surf.Area= 10,746 sf Storage= 27,351 cf

Plug-Flow detention time= 567.6 min calculated for 2,177 cf (10% of inflow)
Center-of-Mass det. time= 303.2 min (1,085.9 - 782.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	24.50'	10,422 cf	**99.50'W x 108.00'L x 4.00'H Field A** 42,984 cf Overall - 16,929 cf Embedded = 26,055 cf x 40.0% Voids
#2A	25.00'	16,929 cf	**CMP Round 36** x 110 Inside #1 Effective Size= 36.0"W x 36.0"H => 7.07 sf x 20.00'L = 141.4 cf Overall Size= 36.0"W x 36.0"H x 20.00'L 22 Rows of 5 Chambers 97.50' Header x 7.07 sf x 2 = 1,378.4 cf Inside
		27,351 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	25.00'	**24.0" Round Culvert** L= 28.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 25.00' / 24.80' S= 0.0071 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	27.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	27.60'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	24.50'	**0.050 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 6.90 hrs HW=24.54' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.06 cfs @ 22.38 hrs HW=27.17' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.06 cfs of 14.23 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.40 fps)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link PA-1:

Inflow Area = 19,738 sf, 0.00% Impervious, Inflow Depth > 2.58" for 10-Year event
Inflow = 1.34 cfs @ 12.10 hrs, Volume= 4,239 cf
Primary = 1.34 cfs @ 12.10 hrs, Volume= 4,239 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 = 324,518 sf, 55.04% Impervious, Inflow Depth > 1.71" for 10-Year event
Inflow = 6.61 cfs @ 12.10 hrs, Volume= 46,320 cf
Primary = 6.61 cfs @ 12.10 hrs, Volume= 46,320 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 = 7,456 sf, 1.21% Impervious, Inflow Depth > 2.85" for 10-Year event
Inflow = 0.56 cfs @ 12.09 hrs, Volume= 1,770 cf
Primary = 0.56 cfs @ 12.09 hrs, Volume= 1,770 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 POST 1.1: Runoff Area=19,738 sf 0.00% Impervious Runoff Depth>3.80"
Tc=6.0 min CN=71 Runoff=1.98 cfs 6,257 cf

Subcatchment POST 2.1: Runoff Area=160,095 sf 85.19% Impervious Runoff Depth>6.38"
Tc=6.0 min CN=94 Runoff=24.45 cfs 85,164 cf

Subcatchment POST 2.2: Runoff Area=107,939 sf 0.58% Impervious Runoff Depth>3.38"
Tc=6.0 min CN=67 Runoff=9.62 cfs 30,435 cf

Subcatchment POST 2.3: Runoff Area=56,484 sf 73.62% Impervious Runoff Depth>6.03"
Tc=6.0 min CN=91 Runoff=8.38 cfs 28,398 cf

Subcatchment POST 3.1: Runoff Area=7,456 sf 1.21% Impervious Runoff Depth>4.13"
Tc=6.0 min CN=74 Runoff=0.81 cfs 2,563 cf

Pond POS1: Peak Elev=35.42' Inflow=4.80 cfs 43,150 cf
Primary=1.02 cfs 28,039 cf Secondary=3.78 cfs 15,110 cf Outflow=4.80 cfs 43,150 cf

Pond UDB 1: 66" CMP Peak Elev=39.09' Storage=49,096 cf Inflow=24.45 cfs 85,164 cf
Outflow=4.80 cfs 43,150 cf

Pond UIB 2: 36" CMP - POS2 Peak Elev=27.48' Storage=21,827 cf Inflow=8.38 cfs 28,398 cf
Discarded=0.01 cfs 932 cf Primary=0.24 cfs 7,514 cf Outflow=0.25 cfs 8,446 cf

Link PA-1: Inflow=1.98 cfs 6,257 cf
Primary=1.98 cfs 6,257 cf

Link PA-2: Inflow=10.03 cfs 81,099 cf
Primary=10.03 cfs 81,099 cf

Link PA-3: Inflow=0.81 cfs 2,563 cf
Primary=0.81 cfs 2,563 cf

Total Runoff Area = 351,712 sf Runoff Volume = 152,817 cf Average Runoff Depth = 5.21"
49.19% Pervious = 173,023 sf 50.81% Impervious = 178,689 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 POST 1.1: Runoff Area=19,738 sf 0.00% Impervious Runoff Depth>5.02"
Tc=6.0 min CN=71 Runoff=2.61 cfs 8,258 cf

Subcatchment POST 2.1: Runoff Area=160,095 sf 85.19% Impervious Runoff Depth>7.78"
Tc=6.0 min CN=94 Runoff=29.51 cfs 103,852 cf

Subcatchment POST 2.2: Runoff Area=107,939 sf 0.58% Impervious Runoff Depth>4.54"
Tc=6.0 min CN=67 Runoff=12.96 cfs 40,872 cf

Subcatchment POST 2.3: Runoff Area=56,484 sf 73.62% Impervious Runoff Depth>7.42"
Tc=6.0 min CN=91 Runoff=10.19 cfs 34,942 cf

Subcatchment POST 3.1: Runoff Area=7,456 sf 1.21% Impervious Runoff Depth>5.38"
Tc=6.0 min CN=74 Runoff=1.05 cfs 3,343 cf

Pond POS1: Peak Elev=36.28' Inflow=12.34 cfs 60,584 cf
Primary=1.35 cfs 30,641 cf Secondary=10.99 cfs 29,942 cf Outflow=12.34 cfs 60,584 cf

Pond UDB 1: 66" CMP Peak Elev=39.45' Storage=51,734 cf Inflow=29.51 cfs 103,852 cf
Outflow=12.34 cfs 60,584 cf

Pond UIB 2: 36" CMP - POS2 Peak Elev=27.70' Storage=23,402 cf Inflow=10.19 cfs 34,942 cf
Discarded=0.01 cfs 955 cf Primary=0.77 cfs 13,558 cf Outflow=0.78 cfs 14,513 cf

Link PA-1: Inflow=2.61 cfs 8,258 cf
Primary=2.61 cfs 8,258 cf

Link PA-2: Inflow=18.64 cfs 115,014 cf
Primary=18.64 cfs 115,014 cf

Link PA-3: Inflow=1.05 cfs 3,343 cf
Primary=1.05 cfs 3,343 cf

Total Runoff Area = 351,712 sf Runoff Volume = 191,267 cf Average Runoff Depth = 6.53"
49.19% Pervious = 173,023 sf 50.81% Impervious = 178,689 sf



LEGEND

- POST-DEVELOPMENT WATERSHED BOUNDARY
- SITE SPECIFIC SOIL SURVEY BOUNDARIES
- LONGEST FLOW PATH
- POST 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION
- POST POND 1 — POST-DEVELOPMENT POND DESIGNATION
- PA-1 — POINT OF ANALYSIS

SITE SPECIFIC SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

SYMBOL	SOIL TYPE	HSG
29	WOODBRIDGE	C
32	BOXFORD	C
33	SCITICO	C
66	PAXTON	C
86	HOLLIS	C
89	CHATFIELD	B
531	SCIO	B

SLOPE CLASS IDENTIFIERS

A	0-3 %	D	15-25%
B	3-8 %	E	25-50%
C	8-15%	F	>50%

NOTES:

1. HYDROLOGIC SOIL GROUPS FOR DISTURBED SOILS WERE BASED ON MOST SIMILAR SOIL SERIES LISTED IN *KSAT VALUES FOR NH SOILS,* SSSNNE SPECIAL PUBLICATION NO. 5, 2009.
2. FIELDWORK FOR THIS MAP WAS CONDUCTED BY LEONARD A. LORD, PhD, NHCSS #19 AND JEREMY DEGLER ON NOVEMBER 18 & 19, 2021.
3. THIS DETAILED SITE SPECIFIC SOIL MAP CONFORMS TO THE STANDARDS OF SSSNNE PUBLICATION NO. 3, AS AMENDED, *SITE SPECIFIC SOIL MAPPING STANDARDS FOR NH AND VT.*
4. THIS MAP HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV-WQ, ALTERATION OF TERRAIN.
5. SEE ACCOMPANYING NARRATIVE REPORT FOR METHODOLOGY, MAP SYMBOL LEGEND, AND INTERPRETATIONS.

Tighe&Bond

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A		

PROJECT NO:	P0616-001
DATE:	MARCH 21, 2022
FILE:	P0616-005_HYDRO.DWG
DRAWN BY:	CML/AFS
CHECKED:	PMC
APPROVED:	BLM

POST-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-802

Last Save Date: March 21, 2022, 6:45 PM By: ASELLAR
Plot Date: Tuesday, March 22, 2022 - 8:25am By: CCarroll
T&B File Location: I:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Drawings_Figures\AutoCAD\Sheet\P0616-005_HYDRO.DWG Layout Tab: POST

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	0.59	1.47	2.24	3.01
PA-2	3.76	10.20	16.07	21.97
PA-3	-	-	-	-
Post-Development Watershed				
PA-1	0.59	1.34	1.98	2.61
PA-2	2.74	6.61	10.03	18.64
PA-3	0.26	0.56	0.81	1.05

The Peak Runoff Control Requirements of Env-Wq 1507.06 are required to be met for all points of analysis. As shown in Table 1.2 the Post-development flows are decreased from the Pre-development flows for points of analysis PA-1 and PA-2. PA-3 does not have any flows contributing to it in the pre-development, however the post-development flows have been minimized to the greatest extent practicable.

The Channel Protection requirements of Env-Wq 1507.05 are met for points of analysis 1 and 2 per the requirements established in Env-Wq 1507.05.b.1.a.

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 consist of deep sump catch basins and Contech's proprietary CDS units.

5.2 Treatment Methods for Protecting Water Quality.

The runoff from proposed impervious areas will be treated by various Contech Jellyfish stormwater filtration systems. These Jellyfish systems are sized to treat the Water Quality Flows of their respective subcatchment areas. Each system is outfitted with an internal bypass that diverts peak flows away from treatment.

Table 5.1 – Pollutant Removal Efficiencies

BMP	Total Suspended Solids	Total Nitrogen	Total Phosphorus
Jellyfish Filter w/ Deep Sump Catch Basin Pretreatment[1]	90%	53%	61%
Jellyfish Filter w/ CDS Pretreatment[2]	92%	55%	61%

1. Pollutant removal calculations for Jellyfish Filter with deep sump catch basin pretreatment shown in Table 5.2.
2. Pollutant removal calculations for Jellyfish Filter with CDS pretreatment shown in Table 5.3

Table 5.2 – Pollutant Removal Calculations				
Contech Jellyfish Filter w/ Deep Sump Pretreatment				
BMP	TSS Removal Rate	Starting TSS Load	TSS Removed	Remaining TSS Load
Deep Sump Catch Basin w/Hood[1]	0.15	1.00	0.15	0.85
Jellyfish Filter[2]	0.89	0.85	0.75	0.10
	Total Suspended Solids Removed:			**90%**
	TN Removal Rate	Starting TN Load	TN Removed	Remaining TN Load
Deep Sump Catch Basin w/Hood[1]	0.05	1.00	0.05	0.95
Jellyfish Filter[2]	0.51	0.95	0.48	0.47
	Total Nitrogen Removed:			**53%**
	TP Removal Rate	Starting TP Load	TP Removed	Remaining TP Load
Deep Sump Catch Basin w/Hood[1]	0.05	1.00	0.05	0.95
Jellyfish Filter[2]	0.59	0.95	0.56	0.39
	Total Phosphorus Removed:			**61%**

1. Pollutant removal efficiencies from NH Stormwater Manual Volume 2, Appendix E.
2. Pollutant removal efficiencies from Contech Engineered Solutions, Jellyfish Filter Stormwater Treatment performance testing results.

Table 5.3 – Pollutant Removal Calculations				
Contech Jellyfish Filter w/ CDS Pretreatment				
BMP	TSS Removal Rate	Starting TSS Load	TSS Removed	Remaining TSS Load
CDS Hydrodynamic Separator[1]	0.35	1.00	0.35	0.65
Jellyfish Filter[2]	0.89	0.65	0.57	0.08
	Total Suspended Solids Removed:			**92%**
	TN Removal Rate	Starting TN Load	TN Removed	Remaining TN Load
CDS Hydrodynamic Separator[1]	0.10	1.00	0.10	0.90
Jellyfish Filter[2]	0.51	0.90	0.45	0.45
	Total Nitrogen Removed:			**55%**
	TP Removal Rate	Starting TP Load	TP Removed	Remaining TP Load
CDS Hydrodynamic Separator[1]	0.05	1.00	0.05	0.95
Jellyfish Filter[2]	0.59	0.95	0.56	0.39
	Total Phosphorus Removed:			**61%**

1. Pollutant removal efficiencies from NH Stormwater Manual Volume 2, Appendix E.
2. Pollutant removal efficiencies from Contech Engineered Solutions, Jellyfish Filter Stormwater Treatment performance testing results

Section 6
Rip Rap Apron Sizing

Tighe&Bond

Engineers | Environmental Specialists

Project: Proposed Satellite Parking Lot
Location: Borthwick Ave Portsmouth, NH
T&B #: P-0616-005
Calculations By: CJK/AFS
Checked By: PMC
Date: 3/22/2022

APRON DESIGN

Terms: FES 1

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:

Q (cfs)	0.24	cfs
Do (ft.)	2.00	ft
T_w (ft.)	0.80	ft

Output:

Width of Apron (W1)	6	ft.
Width of Apron (W2)	20	ft.
Length of Apron (L_a)	14	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

Tighe&Bond

Engineers | Environmental Specialists

Project: Proposed Satellite Parking Lot
Location: Borthwick Ave Portsmouth, NH
T&B #: P-0616-005
Calculations By: CJK/AFS
Checked By: PMC
Date: 3/22/2022

APRON DESIGN

Terms: FES 1

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	15.85	[1]cfs
Do (ft.)	2.00	ft
T_w (ft.)	0.80	ft

Output:		
Width of Apron (W1)	6	ft.
Width of Apron (W2)	30	ft.
Length of Apron (L_a)	24	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

[1]Flow assumed to be a 24" RCP pipe with a slope of 0.49% at maximum capacity

Tighe&Bond

Engineers | Environmental Specialists

Project: Proposed Satellite Parking Lot
Location: Borthwick Ave Portsmouth, NH
T&B #: P-0616-005
Calculations By: CJK/AFS
Checked By: PMC
Date: 3/22/2022

APRON DESIGN

Terms: FES 3

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:

Q (cfs)	3.78	cfs
Do (ft.)	2.00	ft
T_w (ft.)	0.80	ft

Output:

Width of Apron (W1)	6	ft.
Width of Apron (W2)	22	ft.
Length of Apron (L_a)	16	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

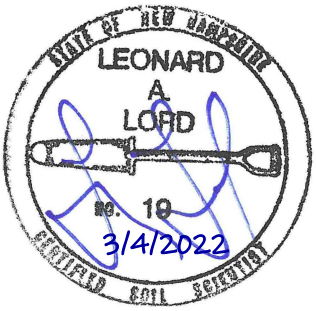


PRH Parking Expansion
Borthwick Avenue, Portsmouth, NH

SITE SPECIFIC SOIL MAP

Portsmouth Regional Hospital

March 2022



Tighe&Bond

100% Recyclable

1.0 Introduction

This report is provided in conjunction with a nine +/- acre Site Specific Soil Map (SSSM) prepared by Tighe & Bond along Borthwick Avenue in Portsmouth, NH. The purpose of the mapping was to assist in the evaluation of drainage and other soil-related uses associated with site improvements, and may be used as part of an Alteration of Terrain (AoT) permit application.

2.0 Methods

Fieldwork for the soil mapping was completed November 18-19, 2021 based on *Site-Specific Soil Mapping Standards for New Hampshire and Vermont*, *Version 5.0,* (Society of Soil Scientists of Northern New England [SSSNNE] Special Publication No. 3, December 2017). The poorly and very poorly drained soil types under this system are based on the most recent version of *Field Indicators for Identifying Hydric Soils in New England*, *Version 4* (New England Interstate Water Pollution Control Commission, 2018).

The soil legend for this map is based on the soil series currently mapped in the State of New Hampshire as published in the *New Hampshire State-Wide Numerical Soils Legend* (USDA Natural Resources Conservation Service, Issue #10, 2011). 3.0 Site Features.

3.0 Soil Map Unit Descriptions

Below are descriptions for the map unit found on the accompanying SSSM. The "*" after the numerical map unit symbol represents a placeholder for the slope class indicators described above. Representative test pit logs for each series mapped are attached.

29*—Woodbridge

Landscape Setting: Mid-slope positions upland hills

Drainage Class: Moderately well drained

Parent Material: Basal glacial till

Typical Textures: Fine sandy loam and sandy loam

Hydrologic Soil Group: C

Dissimilar Inclusions: Estimated up to 15% Charlton and Paxton inclusions

Limiting Inclusions: None noted

Representative Test Pit(s): 5, 8

Inclusion Test Pit(s): 10

32*—Boxford

Landscape Setting: Low areas at slightly higher positions than wetlands

Drainage Class: Somewhat poorly drained

Parent Material: Marine silts and clays

Typical Textures: Silt loams and silty clay loams

Hydrologic Soil Group: C

Dissimilar Inclusions: None noted

Limiting Inclusions: None noted

Representative Test Pit(s): 12

33*—Scitico

Landscape Setting: Low areas along the eastern edge of the site

Drainage Class: Pooly drained

Parent Material: Marine silts and clays

Typical Textures: Silt loams and silty clay loams

Hydrologic Soil Group: C

Dissimilar Inclusions: None noted

Limiting Inclusions: None noted

Representative Test Pit(s): 9

66*—Paxton

Landscape Setting: Upper slope positions upland hills

Drainage Class: Well drained

Parent Material: Basal glacial till

Typical Textures: Fine sandy loam and sandy loam

Hydrologic Soil Group: C

Dissimilar Inclusions: None noted

Limiting Inclusions: None noted

Representative Test Pit(s): 2, 10

86*—Hollis

Landscape Setting: Upper slope position adjacent to a bedrock outcrop along Borthwick Avenue

Drainage Class: Somewhat excessively drained

Parent Material: Basal glacial till 10-20 inches over bedrock

Typical Textures: Fine sandy loam and sandy loam

Hydrologic Soil Group: C

Dissimilar Inclusions: None noted

Limiting Inclusions: None noted

Representative Test Pit(s): 11

89*—Chatfield

Landscape Setting: Upper slope positions upland hills

Drainage Class: Well drained

Parent Material: Basal glacial till over bedrock at 20-40 inches

Typical Textures: Fine sandy loam and sandy loam

Hydrologic Soil Group:

Dissimilar Inclusions: Estimated 15% Woodbridge and Charlton inclusions

Limiting Inclusions: None noted

Representative Test Pit(s): 1, 4, 6

Inclusion Test Pit(s): 7

531*—Scio

Landscape Setting: One map unit in a concave area in a lower position between hills

Drainage Class: Moderately well drained

Parent Material: Estuarine silts

Typical Textures: Silt loams

Hydrologic Soil Group: B

Dissimilar Inclusions: None noted

Limiting Inclusions: None noted

Representative Test Pit(s): 3

Notes: Observations along the edge of this map unit are underlain by glacial till with a densipan beneath the 40-inch (1m) depth used to classify the series (e.g., TP-3).

Site Specific Soil Map Legend

Portsmouth Regional Hospital
Parking Expansion Project

Slope Class Identifiers

A	0-3%	D	15-25%
B	3-8%	E	25-50%
C	8-15%	F	>50%

Map Unit Symbols

Map Symbol	Soil Map Unit Name	Hydrologic Soil Group
29	Woodbridge	C
32	Boxford	C
33	Scitico	C
66	Paxton	C
86	Hollis	C
89	Chatfield	B
531	Scio	B

Soil Mapping Notes:

1. Hydrologic soil groups for disturbed soils were based on most similar soil series listed in *Ksat Values for NH Soils*, SSSNNE Special Publication No. 5, 2009.
2. Fieldwork for this map was conducted by Leonard A. Lord, PhD, NHCSS #19 and Jeremy Degler on November 18-19, 2021.
3. This detailed Site Specific Soil Map conforms to the standards of SSSNNE Publication No. 3, as amended, *Site Specific Soil Mapping Standards for NH and VT.*
4. This map has been prepared to comply with soil mapping requirements of RSA 485 A:17 and NHDES Env-Wq, Alteration of Terrain.
5. See accompanying narrative report for methodology, map symbol legend, and interpretations.

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/18/2021
Test Pit No.: TP-1
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-16	10YR 4/4	gravelly fine sandy loam	granular	friable		20% gravel
Bw	16-39	10YR 4/6	gravelly fine sandy loam	granular	friable		20% gravel

Apparent/Perched

Seasonal High Water (in): None
Observed Water (in): None
Restrictive Layer (in): None
Bedrock/Refusal (in): 39"

Soil Series: Chatfield
Drainage Class: Well drained
Hydrologic Group: B
Limiting Ksat of C (in./hr.): 0.6-6.0
Ksat of C at depth (in.): N/A
Series used as basis for Ksat:
(if different)

Notes:

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/18/2021
Test Pit No.: TP-2
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-10	10YR 3/3	fine sandy loam	granular	friable		
Bw	10-22	10YR 4/4	gravelly fine sandy loam	subangular blocky	friable		30% gravel
BC	22-33	10YR 4/3	very gravelly fine sandy loam	subangular blocky	friable		40% gravel
Cd	33-68	10YR 4/3	very gravelly fine sandy loam	platy	firm		40% gravel

Apparent/Perched

Seasonal High Water (in): None
Observed Water (in): None
Restrictive Layer (in): 33"
Bedrock/Refusal (in): 68"

Soil Series: Paxton
Drainage Class: Well drained
Hydrologic Group: C
Limiting Ksat of C (in./hr.): 0.0-0.2
Ksat of C at depth (in.): 33-68
Series used as basis for Ksat:
(if different)

Notes:
Roots to 44"

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/18/2021
Test Pit No.: TP-3
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-16	10YR 2/2	fine sandy loam	granular	friable		
Bw	16-29	2.5Y 5/3	silt loam	subangular blocky	friable		
BC	29-43	2.5Y 5/3	silt loam	angular blocky	friable	25% 10YR 4/6 conc. 25% 2.5Y 5/2 depl.	
2Cd	43-58	10YR 3/4	gravelly sandy loam	angular blocky	friable	10% 7.5YR 4/4 conc. 10% 2.5Y 4/1 depl.	20% gravel

		Apparent/Perched
Seasonal High Water (in):	29"	Perched
Observed Water (in):	56"	Perched
Restrictive Layer (in):	43"	
Bedrock/Refusal (in):	58"	

Soil Series: Scio
Drainage Class: Moderately well drained
Hydrologic Group: B
Limiting Ksat of C (in./hr.): 0.6-2.0
Ksat of C at depth (in.): 43-58
Series used as basis for Ksat:
(if different)

Notes:

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/18/2021
Test Pit No.: TP-4
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-9	10YR 3/2	fine sandy loam	granular	friable		3% gravel
Bw	9-14	10YR 3/4	fine sandy loam	subangular blocky	friable		13% gravel
C	14-35	2.5Y 4/4	gravelly fine sandy loam	subangular blocky	friable		20% gravel

Apparent/Perched

Seasonal High Water (in): None
Observed Water (in): None
Restrictive Layer (in): None
Bedrock/Refusal (in): 35"

Soil Series: Chatfield
Drainage Class: Well drained
Hydrologic Group: B
Limiting Ksat of C (in./hr.): 0.6-6.0
Ksat of C at depth (in.): 14-35
Series used as basis for Ksat:
(if different)

Notes:

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/18/2021
Test Pit No.: TP-5
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-11	10YR 3/2	loam	granular	friable		3% gravel
BC	11-18	2.5Y 4/3	gravelly fine sandy loam	angular blocky	friable		20% gravel
Cd	18-60	2.5Y 4/3	gravelly fine sandy loam	angular blocky	firm	20% 7.5YR 3/2 conc. 25% 5Y 5/3 conc.	30% gravel

		Apparent/Perched
Seasonal High Water (in):	18"	Perched
Observed Water (in):	35"	Perched
Restrictive Layer (in):	18"	
Bedrock/Refusal (in):	None	

Soil Series: Woodbridge
Drainage Class: Moderately well drained
Hydrologic Group: C
Limiting Ksat of C (in./hr.): 0.0-0.6
Ksat of C at depth (in.): 18-60
Series used as basis for Ksat:
(if different)

Notes:

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/18/2021
Test Pit No.: TP-6
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-10	10YR 3/2	fine sandy loam	granular	friable		3% gravel
Bw	10-20	10YR 4/6	fine sandy loam	subangular blocky	friable		10% gravel
C	20-35	2.5Y 4/3	gravelly fine sandy loam	subangular blocky	friable		20% gravel

Apparent/Perched

Seasonal High Water (in): None
Observed Water (in): None
Restrictive Layer (in): None
Bedrock/Refusal (in): 35"

Soil Series: Chatfield
Drainage Class: Well drained
Hydrologic Group: B
Limiting Ksat of C (in./hr.): 0.6-6.0
Ksat of C at depth (in.): 20-35
Series used as basis for Ksat:
(if different)

Notes:

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/18/2021
Test Pit No.: TP-7
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-6	10YR 3/2	fine sandy loam	granular	friable		
Bw	6-17	10YR 3/4	very gravelly fine sandy loam	subangular blocky	friable		40% gravel & cobbles
C	17-44	2.5Y 4/4	very gravelly fine sandy loam	subangular blocky	friable		40% gravel & cobbles

Apparent/Perched

Seasonal High Water (in): None
Observed Water (in): None
Restrictive Layer (in): None
Bedrock/Refusal (in): 44"

Soil Series: Charlton
Drainage Class: Well drained
Hydrologic Group: B
Limiting Ksat of C (in./hr.): 0.6-6.0
Ksat of C at depth (in.): 17-44
Series used as basis for Ksat:
(if different)

Notes:

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/18/2021
Test Pit No.: TP-8
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-19	10YR 3/3	fine sandy loam	granular	friable		
Bw	19-26	10YR 4/4	fine sandy loam	subangular blocky	friable		10% gravel
BC	26-39	2.5Y 4/4	fine sandy loam	subangular blocky	friable		10% gravel
Cd	39-54	2.5Y 4/4	fine sandy loam	angular blocky	firm	5% 7.5YR 4.4 conc. 5% 2.5Y 6/1 depl.	10% gravel

		Apparent/Perched
Seasonal High Water (in):	39"	Perched
Observed Water (in):	None	
Restrictive Layer (in):	39"	
Bedrock/Refusal (in):	54"	

Soil Series: Woodbridge
Drainage Class: Moderately well drained
Hydrologic Group: C
Limiting Ksat of C (in./hr.): 0.0-0.6
Ksat of C at depth (in.): 39-54
Series used as basis for Ksat:
(if different)

Notes:

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/18/2021
Test Pit No.: TP-9
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-10	10YR 3/2	silt loam	granular	friable		
Bg	10-15	5Y 6/1	silty clay loam	subangular blocky	friable	15% 5YR 4/6 conc.	10% gravel
Cg	15-49	5Y 5/1	silty clay loam	blocky	firm	30% 2.5YR 4/6 conc.	

		Apparent/Perched
Seasonal High Water (in):	10"	Perched
Observed Water (in):	13"	Perched
Restrictive Layer (in):	15"	
Bedrock/Refusal (in):	None	

Soil Series: Scitico
Drainage Class: Poorly drained
Hydrologic Group: C
Limiting Ksat of C (in./hr.): 0.0-0.2
Ksat of C at depth (in.): 15-49
Series used as basis for Ksat:
(if different)

Notes:

Roots to 24", seep at 13"
Rusty drain pipe (8") in north end of pit

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/18/2021
Test Pit No.: TP-10
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-8	10YR 3/3	fine sandy loam	granular	friable		3% gravel
Bw	8-18	2.5Y 4/4	fine sandy loam	subangular blocky	friable		10% gravel
Cd	18-60	2.5Y 4/4	gravelly fine sandy loam	blocky	firm with friable lenses		20% gravel & cobbles

Apparent/Perched

Seasonal High Water (in): None
Observed Water (in): None
Restrictive Layer (in): 18"
Bedrock/Refusal (in): None

Soil Series: Paxton
Drainage Class: Well drained
Hydrologic Group: C
Limiting Ksat of C (in./hr.): 0.0-0.2
Ksat of C at depth (in.): 18-60
Series used as basis for Ksat:
(if different)

Notes:

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/18/2021
Test Pit No.: TP-11
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-9	10YR 3/3	gravelly fine sandy loam	granular	friable		25% gravel
Bw	9-18	10YR 4/6	very gravelly fine sandy loam	subangular blocky	friable		40% gravel

Apparent/Perched

Seasonal High Water (in): None
Observed Water (in): None
Restrictive Layer (in): None
Bedrock/Refusal (in): 18"

Soil Series: Hollis
Drainage Class: Somewhat excessively drained
Hydrologic Group: C/D
Limiting Ksat of C (in./hr.): 0.6-6.0
Ksat of C at depth (in.): N/A
Series used as basis for Ksat:
(if different)

Notes:
Bedrock at 18" sloping to 30"

Tighe&Bond

PORTSMOUTH REGIONAL HOSPITAL
BORTHWICK AVENUE
PORTSMOUTH, NH

Date: 11/19/2021
Test Pit No.: TP-12
Page No.:
Tighe & Bond Project No.: P0616-005

Observed by: Leonard Lord, PhD, CSS, CWS, DSDS

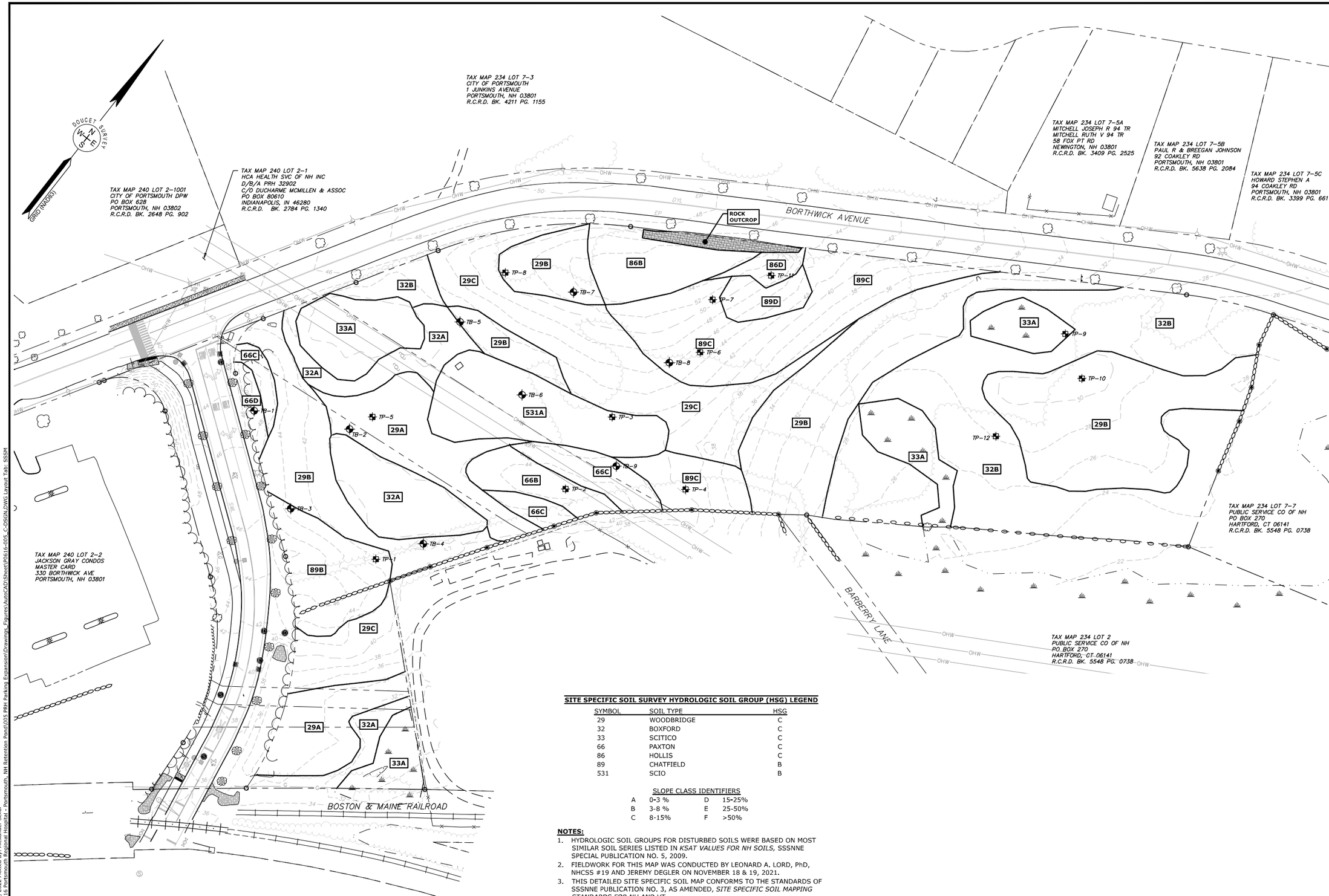
Horizon	Depth (in.)	Color	Texture	Structure	Consistence	Redox Features	Fragments
Ap	0-8	10YR 4/2	silt loam	granular	friable		
Bw	8-12	2.5Y 4/3	silt loam	subangular blocky	friable		
Bg	12-16	2.5Y 5/2	silt loam	angular blocky	friable	10% 10YR 4/6 conc. 10% 5Y 5/2 depl.	
Cg	16-36	5Y 5/2	silty clay loam	blocky	firm	25% 10YR 4/6 conc. 25% 5Y 5/1 depl.	

		Apparent/Perched
Seasonal High Water (in):	12"	Perched
Observed Water (in):	14"	Perched
Restrictive Layer (in):	16"	
Bedrock/Refusal (in):	None	

Soil Series: Boxford
Drainage Class: Somewhat poorly drained
Hydrologic Group: C
Limiting Ksat of C (in./hr.): 0.0-0.2
Ksat of C at depth (in.): 16-36
Series used as basis for Ksat:
(if different)

Notes:

Test pit conducted with hand tools



SITE SPECIFIC SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

SYMBOL	SOIL TYPE	HSG
29	WOODBRIDGE	C
32	BOXFORD	C
33	SCITICO	C
66	PAXTON	C
86	HOLLIS	C
89	CHATFIELD	B
531	SCIO	B

SLOPE CLASS IDENTIFIERS

A	0-3 %	D	15-25%
B	3-8 %	E	25-50%
C	8-15%	F	>50%

NOTES:

1. HYDROLOGIC SOIL GROUPS FOR DISTURBED SOILS WERE BASED ON MOST SIMILAR SOIL SERIES LISTED IN *KSAT VALUES FOR NH SOILS,* SSSNNE SPECIAL PUBLICATION NO. 5, 2009.
2. FIELDWORK FOR THIS MAP WAS CONDUCTED BY LEONARD A. LORD, PhD, NHCSS #19 AND JEREMY DEGLER ON NOVEMBER 18 & 19, 2021.
3. THIS DETAILED SITE SPECIFIC SOIL MAP CONFORMS TO THE STANDARDS OF SSSNNE PUBLICATION NO. 3, AS AMENDED, *SITE SPECIFIC SOIL MAPPING STANDARDS FOR NH AND VT.*
4. THIS MAP HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV-WQ, ALTERATION OF TERRAIN.
5. SEE ACCOMPANYING NARRATIVE REPORT FOR METHODOLOGY, MAP SYMBOL LEGEND, AND INTERPRETATIONS.

Tighe&Bond

STATE OF NEW HAMPSHIRE
LEONARD A. LORD
No. 19
3/4/2022
CERTIFIED SOIL SCIENTIST

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

Proposed Satellite Parking Lot

Portsmouth Regional Hospital

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A		

PROJECT NO:	P0616-001
DATE:	March 4, 2022
FILE:	P0616-005_C-DSGN.DWG
DRAWN BY:	CML/AFS
CHECKED:	LAL
APPROVED:	LAL

SITE SPECIFIC SOIL PLAN

SCALE: AS SHOWN

1 OF 1

Last Save Date: March 3, 2022 4:56 PM By: ASELLAR
Plot Date: Friday, March 04, 2022 Plotted By: Alexander Sellar
T&B File Location: J:\P\P0616 Portsmouth Regional Hospital - Portsmouth, NH Retention Pond\005 PRH Parking Expansion\Drawings_Figures\AutoCAD\Sheet\P0616-005_C-DSGN.DWG Layout Tab: SSSM

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Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.808 degrees West
Latitude	43.075 degrees North
Elevation	0 feet
Date/Time	Tue, 29 Jun 2021 09:16:17 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.82	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66	2.92	**1yr**	2.35	2.81	3.21	3.94	4.54	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.51	1.94	2.49	3.21	3.57	**2yr**	2.84	3.43	3.93	4.67	5.32	**2yr**
5yr	0.37	0.58	0.73	0.97	1.24	1.60	**5yr**	1.07	1.46	1.88	2.43	3.14	4.07	4.57	**5yr**	3.60	4.40	5.03	5.93	6.70	**5yr**
10yr	0.41	0.64	0.81	1.11	1.44	1.88	**10yr**	1.25	1.72	2.22	2.88	3.74	4.87	5.53	**10yr**	4.31	5.31	6.07	7.10	7.98	**10yr**
25yr	0.47	0.75	0.96	1.32	1.76	2.32	**25yr**	1.52	2.13	2.76	3.61	4.73	6.17	7.10	**25yr**	5.46	6.82	7.78	9.02	10.06	**25yr**
50yr	0.53	0.85	1.09	1.52	2.05	2.74	**50yr**	1.77	2.51	3.27	4.30	5.65	7.40	8.58	**50yr**	6.55	8.25	9.40	10.81	11.99	**50yr**
100yr	0.60	0.97	1.25	1.76	2.39	3.22	**100yr**	2.06	2.96	3.86	5.11	6.74	8.86	10.38	**100yr**	7.84	9.98	11.35	12.96	14.30	**100yr**
200yr	0.67	1.09	1.41	2.02	2.79	3.80	**200yr**	2.41	3.49	4.58	6.09	8.06	10.62	12.55	**200yr**	9.40	12.07	13.71	15.54	17.05	**200yr**
500yr	0.79	1.30	1.69	2.45	3.43	4.71	**500yr**	2.96	4.34	5.71	7.65	10.19	13.50	16.15	**500yr**	11.95	15.53	17.61	19.77	21.55	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.89	**1yr**	0.63	0.87	0.92	1.32	1.66	2.23	2.53	**1yr**	1.97	2.43	2.85	3.16	3.88	**1yr**
2yr	0.32	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.05	3.46	**2yr**	2.70	3.32	3.82	4.55	5.07	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.13	2.74	3.80	4.21	**5yr**	3.36	4.05	4.71	5.54	6.26	**5yr**
10yr	0.39	0.59	0.73	1.03	1.32	1.60	**10yr**	1.14	1.56	1.81	2.40	3.07	4.38	4.89	**10yr**	3.88	4.70	5.46	6.43	7.22	**10yr**
25yr	0.44	0.67	0.83	1.19	1.56	1.90	**25yr**	1.35	1.86	2.10	2.78	3.56	4.70	5.94	**25yr**	4.16	5.72	6.69	7.84	8.73	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.17	**50yr**	1.53	2.12	2.35	3.10	3.97	5.31	6.88	**50yr**	4.70	6.61	7.80	9.11	10.08	**50yr**
100yr	0.54	0.81	1.02	1.47	2.02	2.47	**100yr**	1.74	2.42	2.63	3.45	4.40	5.96	7.96	**100yr**	5.27	7.65	9.09	10.60	11.64	**100yr**
200yr	0.59	0.89	1.13	1.64	2.29	2.82	**200yr**	1.98	2.76	2.94	3.83	4.86	6.67	9.21	**200yr**	5.91	8.85	10.59	12.34	13.46	**200yr**
500yr	0.69	1.03	1.32	1.92	2.73	3.38	**500yr**	2.36	3.30	3.41	4.39	5.56	7.76	11.16	**500yr**	6.87	10.73	12.98	15.12	16.29	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	**1yr**	0.77	1.06	1.26	1.75	2.21	3.00	3.14	**1yr**	2.66	3.02	3.58	4.37	5.05	**1yr**
2yr	0.33	0.52	0.64	0.86	1.06	1.26	**2yr**	0.92	1.24	1.48	1.96	2.51	3.43	3.69	**2yr**	3.03	3.54	4.07	4.82	5.64	**2yr**
5yr	0.40	0.61	0.76	1.05	1.33	1.61	**5yr**	1.15	1.58	1.88	2.53	3.24	4.33	4.93	**5yr**	3.84	4.74	5.36	6.34	7.13	**5yr**
10yr	0.47	0.71	0.89	1.24	1.60	1.96	**10yr**	1.38	1.92	2.27	3.09	3.93	5.33	6.16	**10yr**	4.72	5.92	6.75	7.80	8.71	**10yr**
25yr	0.57	0.87	1.08	1.54	2.03	2.55	**25yr**	1.75	2.49	2.93	4.05	5.10	7.79	8.26	**25yr**	6.90	7.95	9.02	10.27	11.35	**25yr**
50yr	0.66	1.01	1.26	1.81	2.43	3.10	**50yr**	2.10	3.03	3.57	4.96	6.24	9.76	10.34	**50yr**	8.64	9.94	11.25	12.63	13.88	**50yr**
100yr	0.78	1.18	1.47	2.13	2.92	3.77	**100yr**	2.52	3.68	4.34	6.10	7.64	12.21	12.94	**100yr**	10.81	12.44	14.02	15.57	16.99	**100yr**
200yr	0.91	1.37	1.73	2.51	3.50	4.59	**200yr**	3.02	4.49	5.29	7.51	9.36	15.32	16.21	**200yr**	13.56	15.59	17.49	19.17	20.80	**200yr**
500yr	1.12	1.67	2.15	3.13	4.44	5.95	**500yr**	3.84	5.81	6.86	9.90	12.27	20.70	21.84	**500yr**	18.32	21.00	23.45	25.25	27.19	**500yr**

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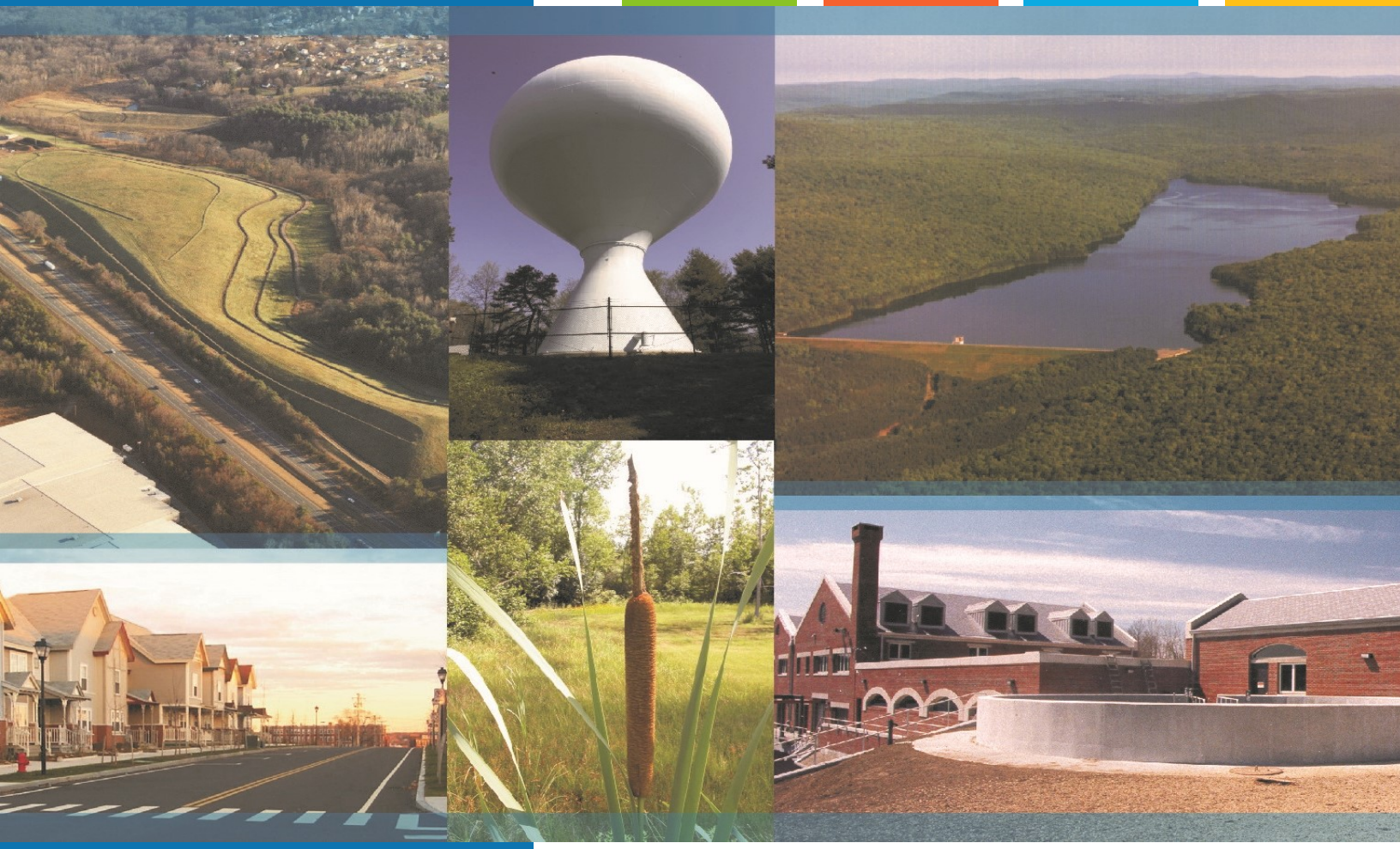

Proposed Satellite Parking Lot
Borthwick Ave
Portsmouth, NH

Long-Term Operation & Maintenance Plan

Portsmouth Regional Hospital

March 22, 2022

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Section 1 Long-Term Operation & Maintenance Plan

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Section 1
Long-Term Operation & Maintenance Plan

It is the intent of this Operation and Maintenance Plan to identify the areas of this site that need special attention and consideration, as well as 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

Portsmouth Regional Hospital
333 Borthwick Avenue
Portsmouth, New Hampshire 03801

(Note: The contact information for the Contact/Responsible Party shall be kept current. If ownership changes, the Operation and Maintenance Plan must be transferred to the new party.)

1.2 Maintenance Items

Maintenance of the following items shall be recorded:

- Litter/Debris Removal
- Landscaping
- Catchbasin Cleaning
- Pavement Sweeping
- Underground Detention System
- Contech Jellyfish Filtration System
- Contech CDS System

The following maintenance items and schedule represent the minimum action required. Periodic site inspections shall be conducted, and all measures must be maintained in effective operating condition. The following items shall be observed during site inspection and maintenance:

- Inspect vegetated areas, particularly slopes and embankments for areas of erosion. Replant and restore as necessary
- Inspect catch basins for sediment buildup
- Inspect site for trash and debris

1.3 Overall Site Operation & Maintenance Schedule

Maintenance Item	Frequency of Maintenance
Litter/Debris Removal	Weekly
Pavement Sweeping - Sweep impervious areas to remove sand and litter.	Bi-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
Jelly Fish Units	Annually/ In accordance with Manufacturer's Recommendations (See section 1.5 for I&M Manuals)
CDS Units	Twice Annually/ In accordance with Manufacturer's Recommendations (See section 1.6 for I&M Manuals)
Underground Detention Basin - Visual observation of sediment levels within system	Bi-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	- Trash, debris and sediment to be removed - Any required maintenance shall be addressed
Deep Sump Catchbasins	Two (2) times annually	- Removal of sediment as warranted by inspection - No less than once annually
Monitor detention system for sediment accumulation	Two (2) times annually	- Trash, debris and sediment to be removed - Any required maintenance shall be addressed

1.5 Contech Jellyfish Filter System Maintenance Requirements and O&M Manual

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

CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter
Owner's Manual



Jellyfish® Filter

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THANK YOU FOR PURCHASING THE JELLYFISH® FILTER!

Contech Engineered Solutions would like to thank you for selecting the Jellyfish Filter to meet your project's stormwater treatment needs. With proper inspection and maintenance, the Jellyfish Filter is designed to deliver ongoing, high levels of stormwater pollutant removal.

If you have any questions, please feel free to call us or e-mail us:

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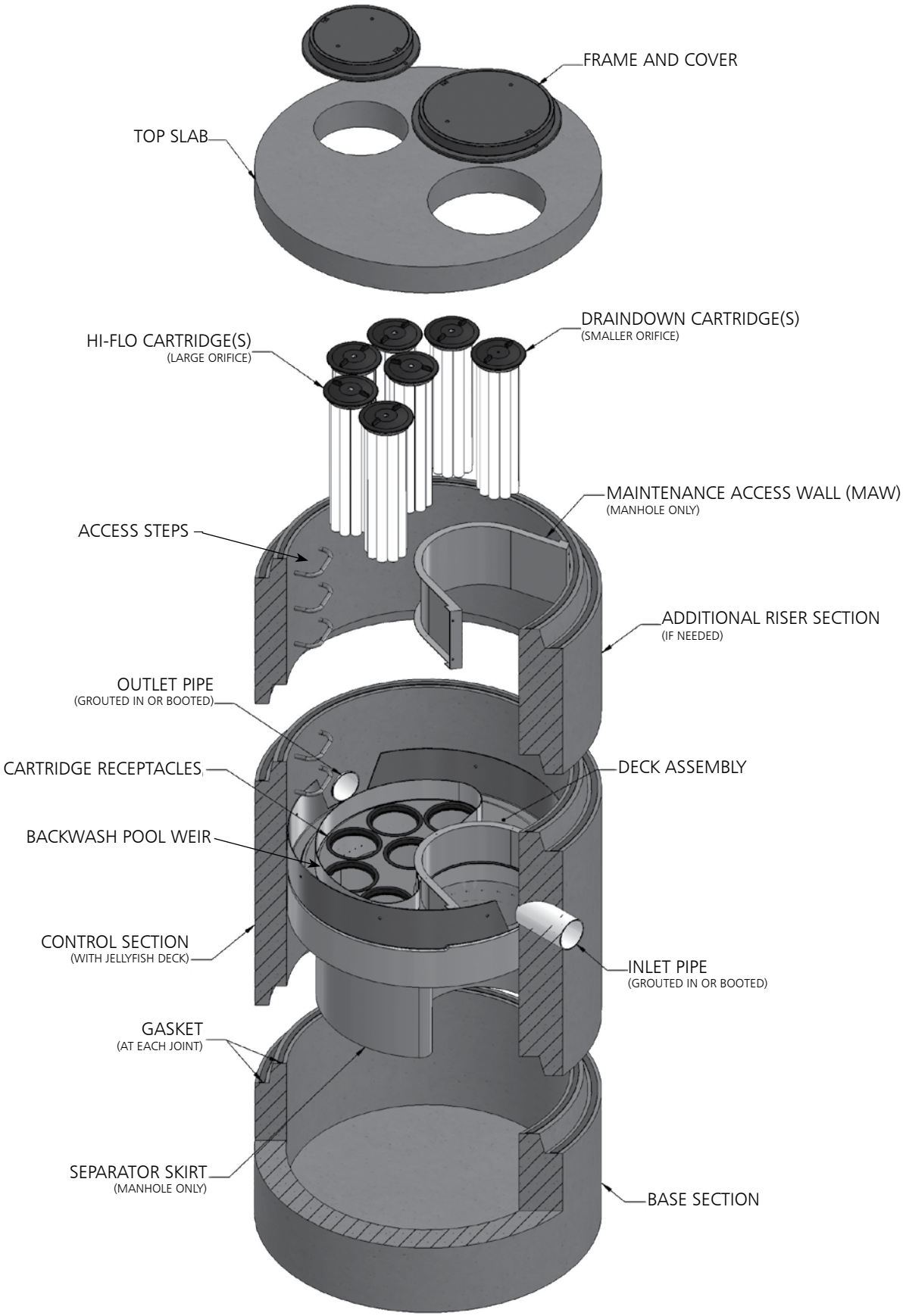

FRAME AND COVER
TOP SLAB
DRAINDOWN CARTRIDGE(S)
(SMALLER ORIFICE)
HI-FLO CARTRIDGE(S)
(LARGE ORIFICE)
MAINTENANCE ACCESS WALL (MAW)
(MANHOLE ONLY)
ACCESS STEPS
ADDITIONAL RISER SECTION
(IF NEEDED)
OUTLET PIPE
(GROUTED IN OR BOOTED)
CARTRIDGE RECEPTACLES
DECK ASSEMBLY
BACKWASH POOL WEIR
CONTROL SECTION
(WITH JELLYFISH DECK)
INLET PIPE
(GROUTED IN OR BOOTED)
GASKET
(AT EACH JOINT)
SEPARATOR SKIRT
(MANHOLE ONLY)
BASE SECTION

WARNINGS / CAUTION

1. FALL PROTECTION may be required.
2. WATCH YOUR STEP if standing on the Jellyfish Filter Deck at any time; Great care and safety must be taken while walking or maneuvering on the Jellyfish Filter Deck. Attentive care must be taken while standing on the Jellyfish Filter Deck at all times to prevent stepping onto a lid, into or through a cartridge hole or slipping on the deck.
3. The Jellyfish Filter Deck can be SLIPPERY WHEN WET.
4. If the Top Slab, Covers or Hatches have not yet been installed, or are removed for any reason, great care must be taken to NOT DROP ANYTHING ONTO THE JELLYFISH FILTER DECK. The Jellyfish Filter Deck and Cartridge Receptacle Rings can be damaged under high impact loads. This type of activity voids all warranties. All damaged items to be replaced at owner's expense.
5. Maximum deck load 2 persons, total weight 450 lbs.

Safety Notice

Jobsite safety is a topic and practice addressed comprehensively by others. The inclusions here are intended to be reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Contractor's responsibility and outside the scope of Contech Engineered Solutions.

Confined Space Entry

Secure all equipment and perform all training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to proceed safely at all times.

Personal Safety Equipment

Contractor is responsible to provide and wear appropriate personal protection equipment as needed including, but not limited to safety boots, hard hat, reflective vest, protective eyewear, gloves and fall protection equipment as necessary. Make sure all equipment is staffed with trained and/or certified personnel, and all equipment is checked for proper operation and safety features prior to use.

- Fall protection equipment
- Eye protection
- Safety boots
- Ear protection
- Gloves
- Ventilation and respiratory protection
- Hard hat
- Maintenance and protection of traffic plan

Chapter 1

1.0 – Owner Specific Jellyfish Filter Product Information

Below you will find a reference page that can be filled out according to your Jellyfish Filter specification to help you easily inspect, maintain and order parts for your system.

Owner Name:	
Phone Number:	
Site Address:	
Site GPS Coordinates/unit location:	
Unit Location Description:	
Jellyfish Filter Model No.:	
Contech Project & Sequence Number	
No. of Hi-Flo Cartridges	
No. of Cartridges:	
Length of Draindown Cartridges:	
No. of Blank Cartridge Lids:	
Bypass Configuration (Online/Offline):	

Notes:

_____

_____

_____

_____

Chapter 2

2.0 – Jellyfish Filter System Operations and Functions

The Jellyfish Filter is an engineered stormwater quality treatment technology that removes a high level and wide variety of stormwater pollutants. Each Jellyfish Filter cartridge consists of eleven membrane - encased filter elements ("filtration tentacles") attached to a cartridge head plate. The filtration tentacles provide a large filtration surface area, resulting in high flow and high pollutant removal capacity.

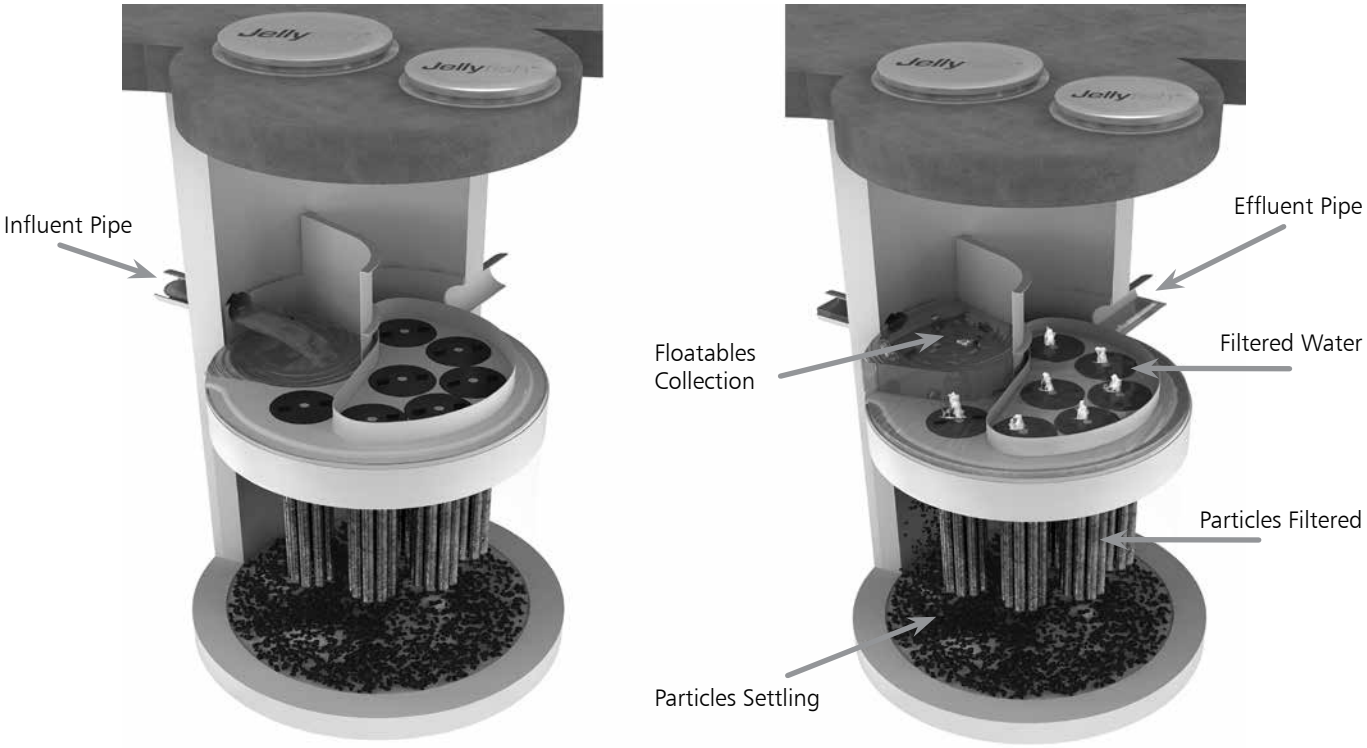
The Jellyfish Filter functions are depicted in Figure 1 below.

FIGURE 1

Jellyfish Filter Treatment Functions

Membrane Filtration

Section View with Maintenance Access Wall (MAW) Cutaway



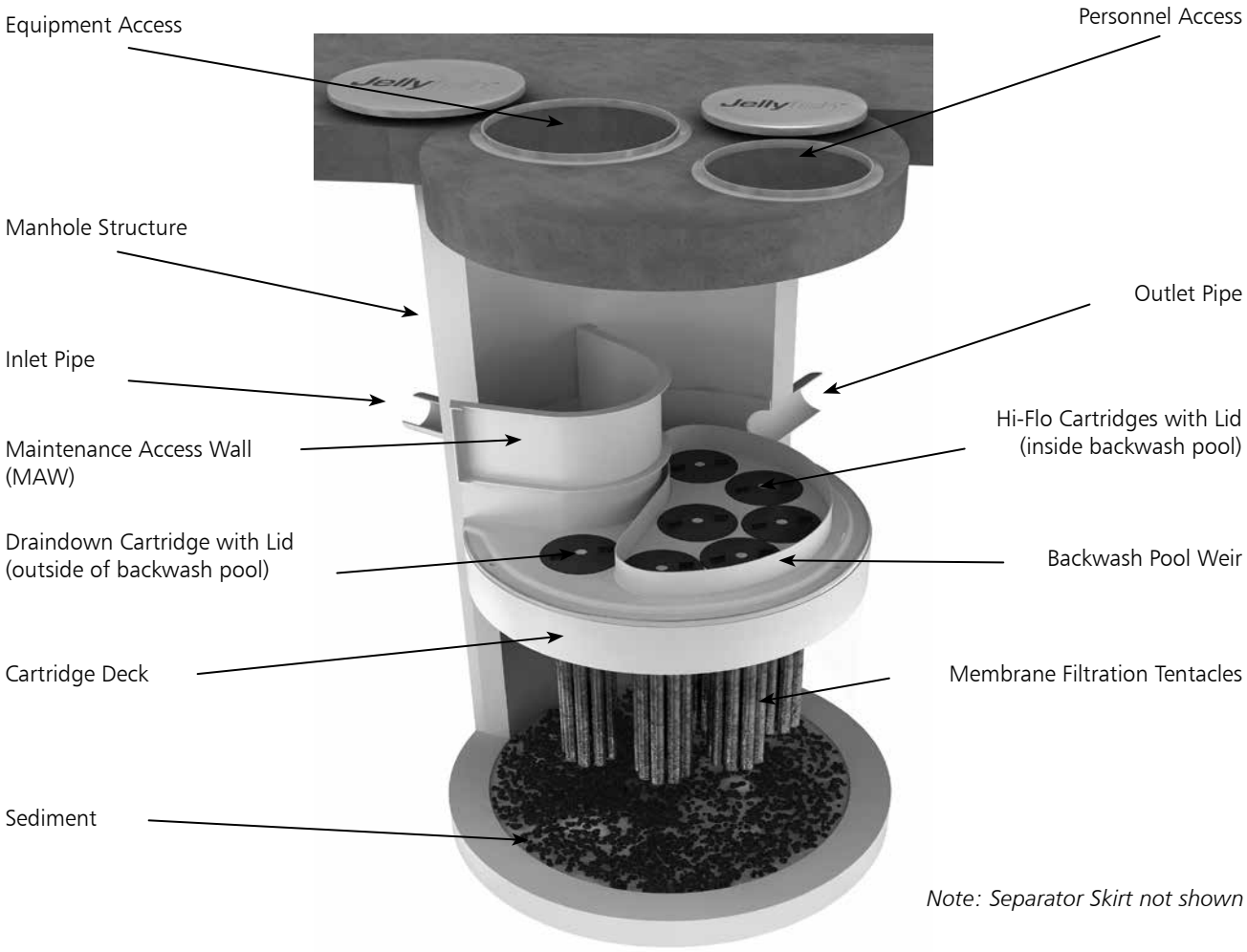
Jellyfish Filter cartridges are backwashed after each peak storm event, which removes accumulated sediment from the membranes. This backwash process extends the service life of the cartridges and increases the time between maintenance events.

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

2.1 – Components and Cartridges

The Jellyfish Filter and components are depicted in Figure 2 below.

FIGURE 2 **Jellyfish Filter Components**



Tentacles are available in various lengths as depicted in Table 1 below.

Table 1 – Cartridge Lengths / Weights and Cartridge Lid Orifice Diameters

Cartridge Lengths	Dry Weight	Hi-Flo Orifice Diameter	Draindown Orifice Diameter
15 inches (381 mm)	10 lbs (4.5 kg)	35 mm	20 mm
27 inches (686 mm)	14.5 lbs (6.6 kg)	45 mm	25 mm
40 inches (1,016 mm)	19.5 lbs (8.9 kg)	55 mm	30 mm
54 inches (1,372 mm)	25 lbs (11.4 kg)	70 mm	35 mm

2.2 – Jellyfish Membrane Filtration Cartridge Assembly

The Jellyfish Filter utilizes multiple membrane filtration cartridges. Each cartridge consists of removable cylindrical filtration "tentacles" attached to a cartridge head plate. Each filtration tentacle has a threaded pipe nipple and o-ring. To attach, insert the top pipe nipples with the o-ring through the head plate holes and secure with locking nuts. Hex nuts to be hand tightened and checked with a wrench as shown below.

2.3 – Jellyfish Membrane Filtration Cartridge Installation

- Cartridge installation will be performed by trained individuals and coordinated with the installing site Contractor. Flow diversion devices are required to be in place until the site is stabilized (final paving and landscaping in place). Failure to address this step completely will reduce the time between required maintenance.
- Descend to the cartridge deck (see Safety Notice and page 3).
- Refer to Contech's submittal drawings to determine proper quantity and placement of Hi-Flo, Draindown and Blank cartridges with appropriate lids. Lower the Jellyfish membrane filtration cartridges into the cartridge receptacles within the cartridge deck. It is possible that not all cartridge receptacles will be filled with a filter cartridge. In that case, a blank headplate and blank cartridge lid (no orifice) would be installed.



Cartridge Assembly

Do not force the tentacles down into the cartridge receptacle, as this may damage the membranes. Apply downward pressure on the cartridge head plate to seat the lubricated rim gasket (thick circular gasket surrounding the circumference of the head plate) into the cartridge receptacle. (See Figure 3 for details on approved lubricants for use with rim gasket.)

- Examine the cartridge lids to differentiate lids with a small orifice, a large orifice, and no orifice.
  - Lids with a small orifice are to be inserted into the Draindown cartridge receptacles, outside of the backwash pool weir.
  - Lids with a large orifice are to be inserted into the Hi-Flo cartridge receptacles within the backwash pool weir.
  - Lids with no orifice (blank cartridge lids) and a blank headplate are to be inserted into unoccupied cartridge receptacles.
- To install a cartridge lid, align both cartridge lid male threads with the cartridge receptacle female threads before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation.

3.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.
Inspection activities are typically conducted from surface observations and include:

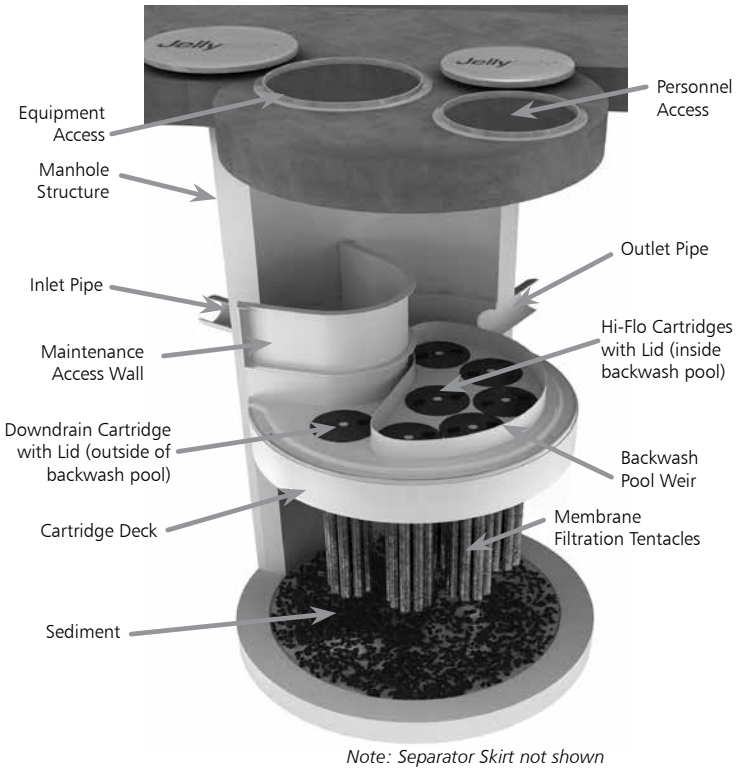
- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed

4.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.



Note: Separator Skirt not shown

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

5.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

5.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

5.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

6.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

7.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

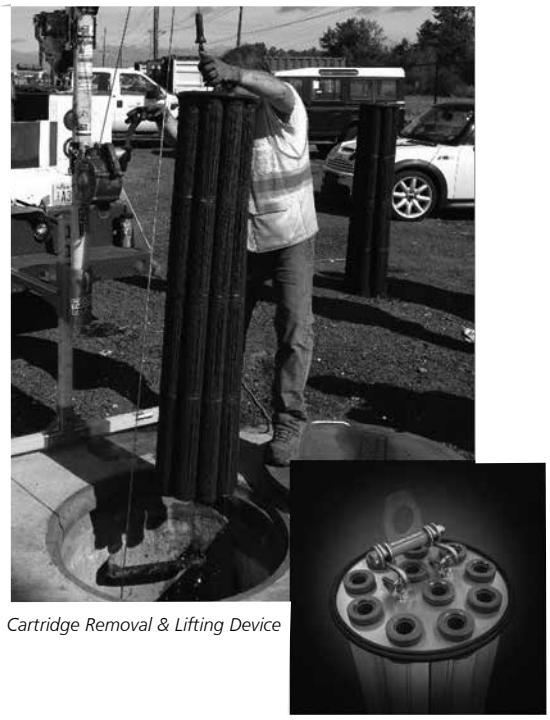
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

7.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. *Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs*.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

7.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.
2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.



Cartridge Removal & Lifting Device

3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane*.
4. Collected rinse water is typically removed by vacuum hose.

5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

7.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.
3. Pressure wash cartridge deck and receptacles to remove all



Rinsing Cartridge with Contech Rinse Tool

sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.

4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.
6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some



Vacuuming Sump Through MAW

vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

7.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. *Caution: Do not force the cartridge downward; damage may occur.*
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

7.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

7.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

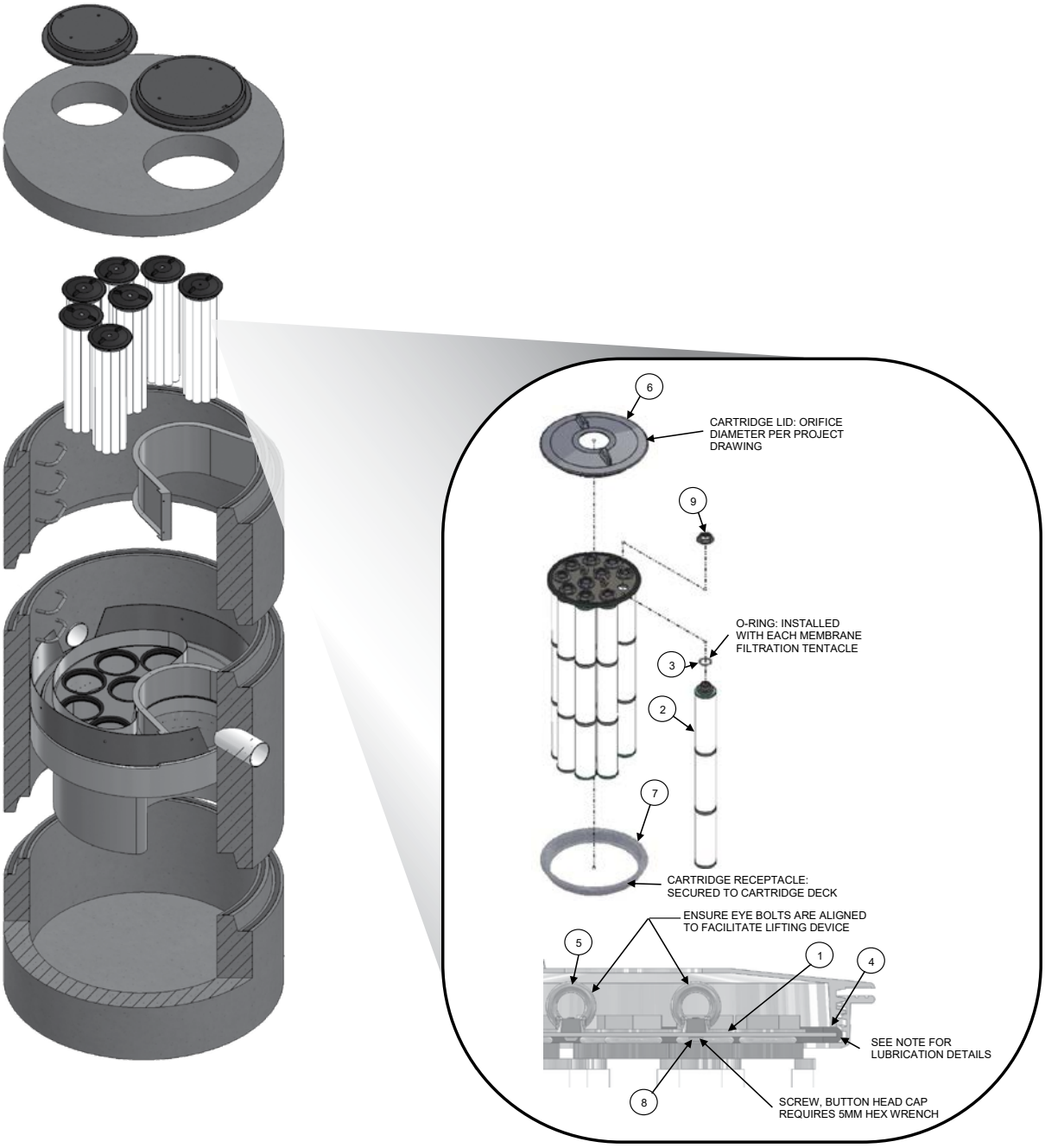


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lid (Item 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner: _____ Jellyfish Model No.:_____

Location: _____ GPS Coordinates: _____

Land Use: Commercial:_____ Industrial: _____ Service Station:_____

Road/Highway:____ Airport: _____ Residential: _____ Parking Lot:_____

Date/Time:					
Inspector:					
Maintenance Contractor:					
Visible Oil Present: (Y/N)					
Oil Quantity Removed					
Floatable Debris Present: (Y/N)					
Floatable Debris removed: (Y/N)					
Water Depth in Backwash Pool					
Cartridges externally rinsed/re-commissioned: (Y/N)					
New tentacles put on Cartridges: (Y/N)					
Sediment Depth Measured: (Y/N)					
Sediment Depth (inches or mm):					
Sediment Removed: (Y/N)					
Cartridge Lids intact: (Y/N)					
Observed Damage:					
Comments:					

1.6 Contech CDS O&M Manual

CONTECH®
ENGINEERED SOLUTIONS

CDS Guide
Operation, Design, Performance and Maintenance



CDS®

Using patented continuous deflective separation technology, the CDS system screens, separates and traps debris, sediment, and oil and grease from stormwater runoff. The indirect screening capability of the system allows for 100% removal of floatables and neutrally buoyant material without blinding. Flow and screening controls physically separate captured solids, and minimize the re-suspension and release of previously trapped pollutants. Inline units can treat up to 6 cfs, and internally bypass flows in excess of 50 cfs (1416 L/s). Available precast or cast-in-place, offline units can treat flows from 1 to 300 cfs (28.3 to 8495 L/s). The pollutant removal capacity of the CDS system has been proven in lab and field testing.

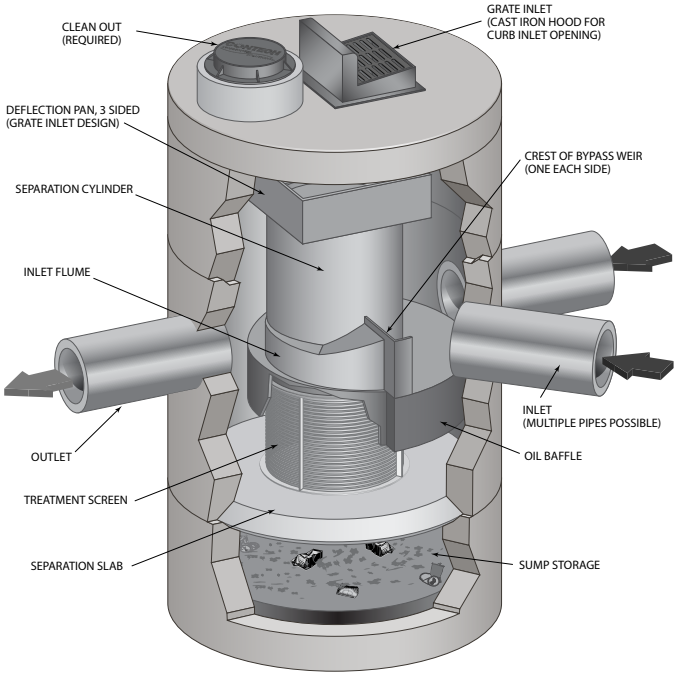
Operation Overview

Stormwater enters the diversion chamber where the diversion weir guides the flow into the unit's separation chamber and pollutants are removed from the flow. All flows up to the system's treatment design capacity enter the separation chamber and are treated.

Swirl concentration and screen deflection force floatables and solids to the center of the separation chamber where 100% of floatables and neutrally buoyant debris larger than the screen apertures are trapped.

Stormwater then moves through the separation screen, under the oil baffle and exits the system. The separation screen remains clog free due to continuous deflection.

During the flow events exceeding the treatment design capacity, the diversion weir bypasses excessive flows around the separation chamber, so captured pollutants are retained in the separation cylinder.



Design Basics

There are three primary methods of sizing a CDS system. The Water Quality Flow Rate Method determines which model size provides the desired removal efficiency at a given flow rate for a defined particle size. The Rational Rainfall Method™ or the and Probabilistic Method is used when a specific removal efficiency of the net annual sediment load is required.

Typically in the Unites States, CDS systems are designed to achieve an 80% annual solids load reduction based on lab generated performance curves for a gradation with an average particle size (d50) of 125 microns (μm). For some regulatory environments, CDS systems can also be designed to achieve an 80% annual solids load reduction based on an average particle size (d50) of 75 microns (μm) or 50 microns (μm).

Water Quality Flow Rate Method

In some cases, regulations require that a specific treatment rate, often referred to as the water quality design flow (WQQ), be treated. This WQQ represents the peak flow rate from either an event with a specific recurrence interval, e.g. the six-month storm, or a water quality depth, e.g. 1/2-inch (13 mm) of rainfall.

The CDS is designed to treat all flows up to the WQQ. At influent rates higher than the WQQ, the diversion weir will direct most flow exceeding the WQQ around the separation chamber. This allows removal efficiency to remain relatively constant in the separation chamber and eliminates the risk of washout during bypass flows regardless of influent flow rates.

Treatment flow rates are defined as the rate at which the CDS will remove a specific gradation of sediment at a specific removal efficiency. Therefore the treatment flow rate is variable, based on the gradation and removal efficiency specified by the design engineer.

Rational Rainfall Method™

Differences in local climate, topography and scale make every site hydraulically unique. It is important to take these factors into consideration when estimating the long-term performance of any stormwater treatment system. The Rational Rainfall Method combines site-specific information with laboratory generated performance data, and local historical precipitation records to estimate removal efficiencies as accurately as possible.

Short duration rain gauge records from across the United States and Canada were analyzed to determine the percent of the total annual rainfall that fell at a range of intensities. US stations' depths were totaled every 15 minutes, or hourly, and recorded in 0.01-inch increments. Depths were recorded hourly with 1-mm resolution at Canadian stations. One trend was consistent at all sites; the vast majority of precipitation fell at low intensities and high intensity storms contributed relatively little to the total annual depth.

These intensities, along with the total drainage area and runoff coefficient for each specific site, are translated into flow rates using the Rational Rainfall Method. Since most sites are relatively small and highly impervious, the Rational Rainfall Method is appropriate. Based on the runoff flow rates calculated for each intensity, operating rates within a proposed CDS system are

determined. Performance efficiency curve determined from full scale laboratory tests on defined sediment PSDs is applied to calculate solids removal efficiency. The relative removal efficiency at each operating rate is added to produce a net annual pollutant removal efficiency estimate.

Probabilistic Rational Method

The Probabilistic Rational Method is a sizing program Contech developed to estimate a net annual sediment load reduction for a particular CDS model based on site size, site runoff coefficient, regional rainfall intensity distribution, and anticipated pollutant characteristics.

The Probabilistic Method is an extension of the Rational Method used to estimate peak discharge rates generated by storm events of varying statistical return frequencies (e.g. 2-year storm event). Under the Rational Method, an adjustment factor is used to adjust the runoff coefficient estimated for the 10-year event, correlating a known hydrologic parameter with the target storm event. The rainfall intensities vary depending on the return frequency of the storm event under consideration. In general, these two frequency dependent parameters (rainfall intensity and runoff coefficient) increase as the return frequency increases while the drainage area remains constant.

These intensities, along with the total drainage area and runoff coefficient for each specific site, are translated into flow rates using the Rational Method. Since most sites are relatively small and highly impervious, the Rational Method is appropriate. Based on the runoff flow rates calculated for each intensity, operating rates within a proposed CDS are determined. Performance efficiency curve on defined sediment PSDs is applied to calculate solids removal efficiency. The relative removal efficiency at each operating rate is added to produce a net annual pollutant removal efficiency estimate.

Treatment Flow Rate

The inlet throat area is sized to ensure that the WQQ passes through the separation chamber at a water surface elevation equal to the crest of the diversion weir. The diversion weir bypasses excessive flows around the separation chamber, thus preventing re-suspension or re-entrainment of previously captured particles.

Hydraulic Capacity

The hydraulic capacity of a CDS system is determined by the length and height of the diversion weir and by the maximum allowable head in the system. Typical configurations allow hydraulic capacities of up to ten times the treatment flow rate. The crest of the diversion weir may be lowered and the inlet throat may be widened to increase the capacity of the system at a given water surface elevation. The unit is designed to meet project specific hydraulic requirements.

Performance

Full-Scale Laboratory Test Results

A full-scale CDS system (Model CDS2020-5B) was tested at the facility of University of Florida, Gainesville, FL. This CDS unit was evaluated under controlled laboratory conditions of influent flow rate and addition of sediment.

Two different gradations of silica sand material (UF Sediment & OK-110) were used in the CDS performance evaluation. The particle size distributions (PSDs) of the test materials were analyzed using standard method "Gradation ASTM D-422 "Standard Test Method for Particle-Size Analysis of Soils" by a certified laboratory.

UF Sediment is a mixture of three different products produced by the U.S. Silica Company: "Sil-Co-Sil 106", "#1 DRY" and "20/40 Oil Frac". Particle size distribution analysis shows that the UF Sediment has a very fine gradation (d50 = 20 to 30 μm) covering a wide size range (Coefficient of Uniformity, C averaged at 10.6). In comparison with the hypothetical TSS gradation specified in the NJDEP (New Jersey Department of Environmental Protection) and NJCAT (New Jersey Corporation for Advanced Technology) protocol for lab testing, the UF Sediment covers a similar range of particle size but with a finer d50 (d50 for NJDEP is approximately 50 μm) (NJDEP, 2003).

The OK-110 silica sand is a commercial product of U.S. Silica Sand. The particle size distribution analysis of this material, also included in Figure 1, shows that 99.9% of the OK-110 sand is finer than 250 microns, with a mean particle size (d50) of 106 microns. The PSDs for the test material are shown in Figure 1.

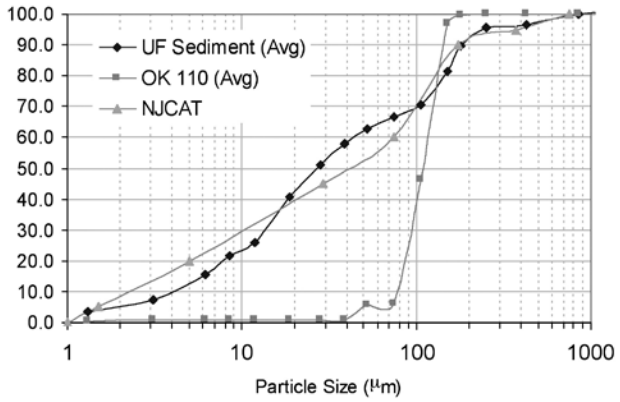


Figure 1. Particle size distributions

Tests were conducted to quantify the performance of a specific CDS unit (1.1 cfs (31.3-L/s) design capacity) at various flow rates, ranging from 1% up to 125% of the treatment design capacity of the unit, using the 2400 micron screen. All tests were conducted with controlled influent concentrations of approximately 200 mg/L. Effluent samples were taken at equal time intervals across the entire duration of each test run. These samples were then processed with a Dekaport Cone sample splitter to obtain representative sub-samples for Suspended Sediment Concentration (SSC) testing using ASTM D3977-97 "Standard Test Methods for Determining Sediment Concentration in Water Samples", and particle size distribution analysis.

Results and Modeling

Based on the data from the University of Florida, a performance model was developed for the CDS system. A regression analysis was used to develop a fitting curve representative of the scattered data points at various design flow rates. This model, which demonstrated good agreement with the laboratory data, can then be used to predict CDS system performance with respect

to SSC removal for any particle size gradation, assuming the particles are inorganic sandy-silt. Figure 2 shows CDS predictive performance for two typical particle size gradations (NJCAT gradation and OK-110 sand) as a function of operating rate.

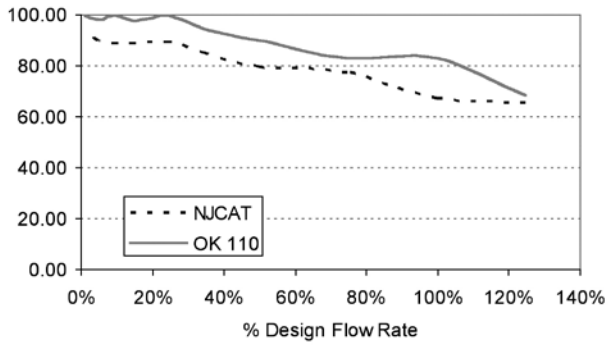


Figure 2. CDS stormwater treatment predictive performance for various particle gradations as a function of operating rate.

Many regulatory jurisdictions set a performance standard for hydrodynamic devices by stating that the devices shall be capable of achieving an 80% removal efficiency for particles having a mean particle size (d50) of 125 microns (e.g. Washington State Department of Ecology — WASDOE - 2008). The model can be used to calculate the expected performance of such a PSD (shown in Figure 3). The model indicates (Figure 4) that the CDS system with 2400 micron screen achieves approximately 80% removal at the design (100%) flow rate, for this particle size distribution (d50 = 125 μm).

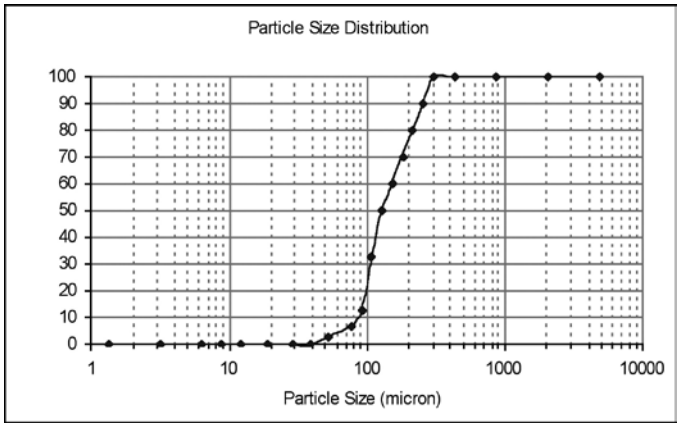


Figure 3. WASDOE PSD

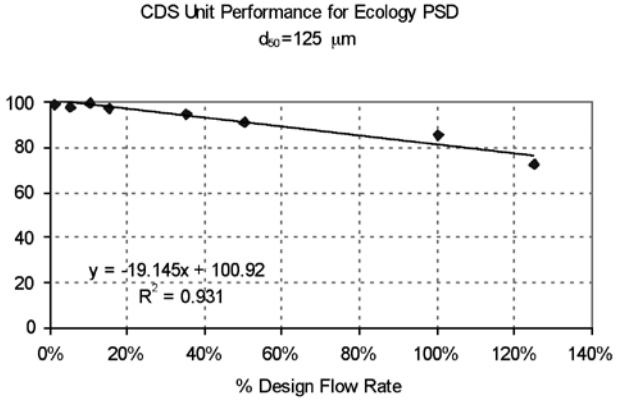


Figure 4. Modeled performance for WASDOE PSD.

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 allows 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 weather 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 systems 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. 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 cleaned to ensure it is free of trash and debris.

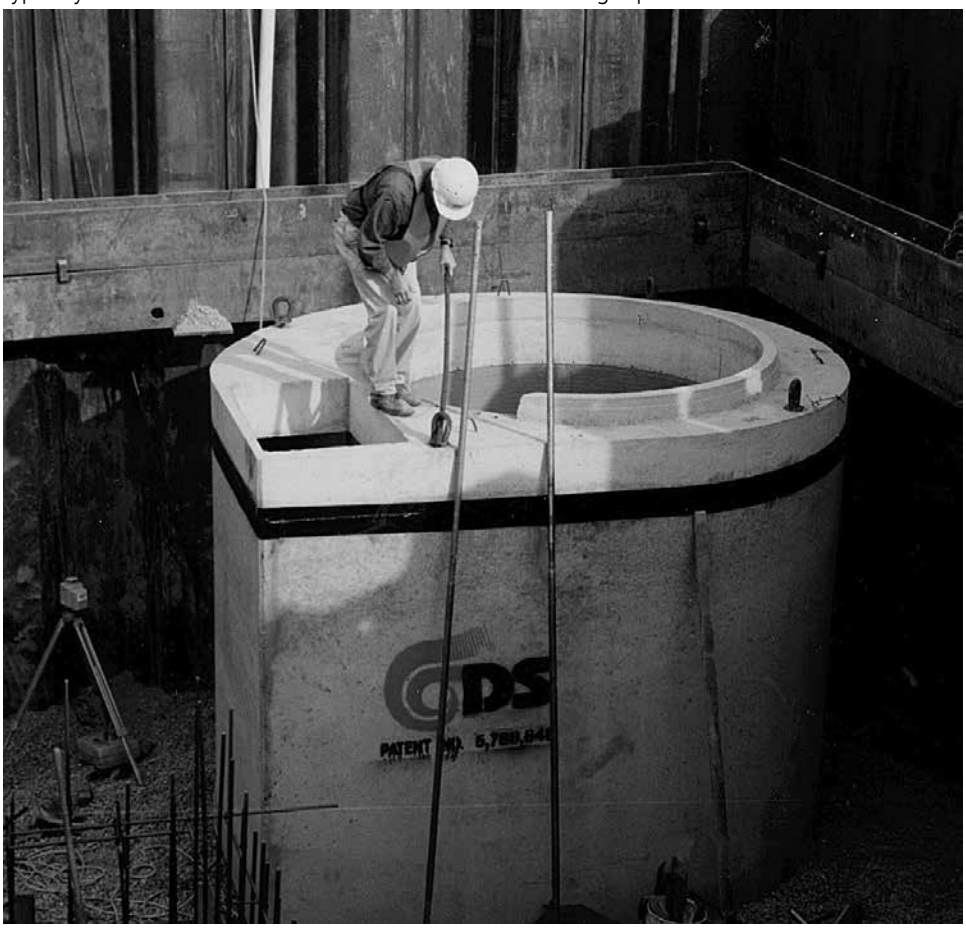
Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material 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. Check your local regulations for specific requirements on disposal.



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	1.5	3.0	0.9	1.3	1.0
CDS2020	5	1.5	3.5	1.1	1.3	1.0
CDS2025	5	1.5	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

Note: To avoid underestimating the volume of sediment in the chamber, carefully lower the measuring device to the top of the sediment pile. Finer silty particles at the top of the pile may be more difficult to feel with a measuring stick. These finer particles typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile.



CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

Date	Water depth to sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile**.

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

SUPPORT

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

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cds_manual 3/17 PDF

RECYCLED PAPER

1.7 Snow & Ice Management for Standard Asphalt and Walkways

As shown on the Site Plans, the site has reasonable accommodations for on-site snow storage. If required, the property manager will be responsible for timely snow removal from all private sidewalks, driveways, and parking areas. All snow removal will be hauled off-site and legally disposed of. Salt storage areas shall be covered or located such that no direct untreated discharges are possible to receiving waters from the storage site. Salt storage is not permitted withing the 100' wetland buffer. 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,).

Section 2
Chloride Management Plan

Winter Operational Guidelines

The following Chloride Management Plan is for the Borthwick Avenue, Satellite Parking Lot 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 Borthwick Avenue, Satellite Parking Lot is located within the Borthwick Ave Tributary in Portsmouth, New Hampshire. This tributary has been identified as a chloride impaired.

2.2 Operational Guidelines – Chloride Management

All private contractors engaged at the development site for the purposes of winter operational snow removal and surface maintenance, are responsible for assisting in meeting compliance for the following protocols. 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 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 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 premises for the purpose of winter operational snow removal and surface maintenance shall provide to the property management two copies of the annual UNHT2 Green SnowPro certificate or equivalent for each operator utilized on the premises. The annual UNHT2 Green SnowPro certificate or equivalent for each operator will be available on file in the Facilities Management office and be present in the vehicle/carrier at all times.

2.2.2 Improved Weather Monitoring

The property manager 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 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 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 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 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 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 Management Team in order to accurately dispense material. All private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance will be subject to spot inspections by members of the Property 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 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 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 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 premises. The property manager 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 Operational Manual and are to be used to qualify and retain all private contractors engaged at the Borthwick Avenue 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 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 employees directly involved with winter operational activities, and all private contractors engaged at the 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.

Deicing Application Rate Guidelines

24' of pavement (typcial two-lane road)

These rates are not fixed values, but rather the middle of a range to be selected and adjusted by an agency according to its local conditions and experience.

			Pounds per two-lane mile			
Pavement Temp. (°F) and Trend (↑↓)	Weather Condition	Maintenance Actions	Salt Prewetted / Pretreated with Salt Brine	Salt Prewetted / Pretreated with Other Blends	Dry Salt*	Winter Sand (abrasives)
> 30° ↑	Snow	Plow, treat intersections only	80	70	100*	Not recommended
	Freezing Rain	Apply Chemical	80 - 160	70 - 140	100 - 200*	Not recommended
30° ↓	Snow	Plow and apply chemical	80 - 160	70 - 140	100 - 200*	Not recommended
	Freezing Rain	Apply Chemical	150 - 200	130 - 180	180 - 240*	Not recommended
25° - 30° ↑	Snow	Plow and apply chemical	120 - 160	100 - 140	150 - 200*	Not recommended
	Freezing Rain	Apply Chemical	150 - 200	130 - 180	180 - 240*	Not recommended
25° - 30° ↓	Snow	Plow and apply chemical	120 - 160	100 - 140	150 - 200*	Not recommended
	Freezing Rain	Apply Chemical	160 - 240	140 - 210	200 - 300*	400
20° - 25° ↑	Snow or Freezing Rain	Plow and apply chemical	160 - 240	140 - 210	200 - 300*	400
20° - 25° ↓	Snow	Plow and apply chemical	200 - 280	175 - 250	250 - 350*	Not recommended
	Freezing Rain	Apply Chemical	240 - 320	210 - 280	300 - 400*	400
15° - 20° ↑	Snow	Plow and apply chemical	200 - 280	175 - 250	250 - 350*	Not recommended
	Freezing Rain	Apply Chemical	240 - 320	210 - 280	300 - 400*	400
15° - 20° ↓	Snow or Freezing Rain	Plow and apply chemical	240 - 320	210 - 280	300 - 400*	500 for freezing rain
0° - 15° ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	300 - 400	Not recommended	500 - 750 spot treatment as needed
< 0°	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	400 - 600**	Not recommended	500 - 750 spot treatment as needed

* Dry salt is not recommended. It is likely to blow off the road before it melts ice.

** A blend of 6 - 8 gal/ton $MgCl_2$ or $CaCl_2$ added to NaCl can melt ice as low as -10°.

Anti-icing Route Data Form				
Truck Station:				
Date:				
Air Temperature	Pavement Temperature	Relative Humidity	Dew Point	Sky
Reason for applying:				
Route:				
Chemical:				
Application Time:				
Application Amount:				
Observation (first day):				
Observation (after event):				
Observation (before next application):				
Name:				

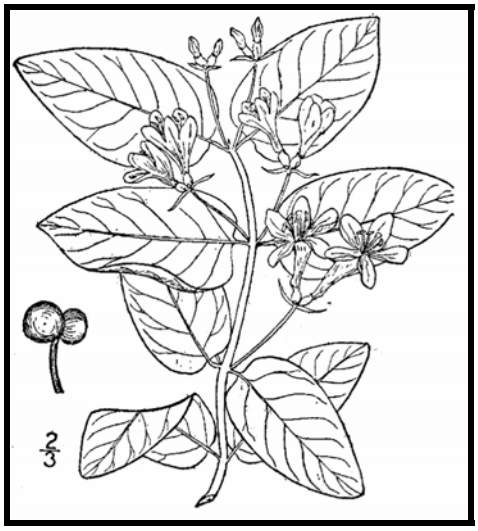
Section 3
Invasive Species

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.

UNIVERSITY of NEW HAMPSHIRE COOPERATIVE EXTENSION

Methods for Disposing Non-Native Invasive Plants

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



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

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

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

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

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

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

New Hampshire Regulations

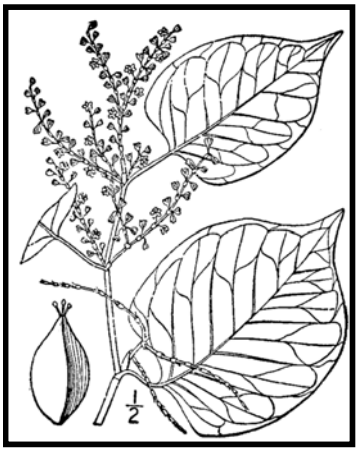
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

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

How and When to Dispose of Invasives?

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

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



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

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

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

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

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

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

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

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

Suggested Disposal Methods for Non-Native Invasive Plants

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

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

Non-Woody Plants	Method of Reproducing	Methods of Disposal
garlic mustard *(Alliaria petiolata)* spotted knapweed *(Centaurea maculosa)* ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. black swallow-wort *(Cynanchum nigrum)* ▪ May cause skin rash. Wear gloves and long sleeves when handling. pale swallow-wort *(Cynanchum rossicum)* giant hogweed *(Heracleum mantegazzianum)* ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. dame's rocket *(Hesperis matronalis)* perennial pepperweed *(Lepidium latifolium)* purple loosestrife *(Lythrum salicaria)* Japanese stilt grass *(Microstegium vimineum)* mile-a-minute weed *(Polygonum perfoliatum)*	**Fruits and Seeds** 	**Prior to flowering** Depends on scale of infestation Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. **During and following flowering** Do nothing until the following year or remove flowering heads and bag and let rot. Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
common reed (*Phragmites australis*) Japanese knotweed *(Polygonum cuspidatum)* Bohemian knotweed *(Polygonum x bohemicum)*	**Fruits, Seeds, Plant Fragments** Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.	**Small infestation** ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. **Large infestation** ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

January 2010

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Managing Invasive Plants
Methods of Control

by Christopher Mattrick

They're out there. The problem of invasive plants is as close as your own backyard.

Maybe a favorite dogwood tree is struggling in the clutches of an Oriental bittersweet vine. Clawlike canes of multiflora rose are scratching at the side of your house. That handsome burning bush you planted few years ago has become a whole clump in practically no time … but what happened to the azalea that used to grow right next to it?

If you think controlling or managing invasive plants on your property is a daunting task, you're not alone. Though this topic is getting lots of attention from federal, state, and local government agencies, as well as the media, the basic question for most homeowners is simply, "How do I get rid of the invasive plants in my own landscape?" Fortunately, the best place to begin to tackle this complex issue is in our own backyards and on local conservation lands. We hope the information provided here will help you take back your yard. We won't kid you—there's some work involved, but the payoff in beauty, wildlife habitat, and peace of mind makes it all worthwhile.

PLAN OF ATTACK

Three broad categories cover most invasive plant control: mechanical, chemical, and biological. Mechanical control means physically removing plants from the environment through cutting or pulling. Chemical control uses herbicides to kill plants and inhibit regrowth. Techniques and chemicals used will vary depending on the species. Biological controls use plant diseases or insect predators, typically from the targeted species' home range. Several techniques may be effective in controlling a single species, but there is usually one preferred method—the one that is most resource efficient with minimal impact on non-target species and the environment.



Spraying chemicals to control invasive plants.

MECHANICAL CONTROL METHODS

Mechanical treatments are usually the first ones to look at when evaluating an invasive plant removal project. These procedures do not require special licensing or introduce chemicals into the environment. They do require permits in some situations, such as wetland zones. [See sidebar on page 23.] Mechanical removal is highly labor intensive and creates a significant amount of site disturbance, which can lead to rapid reinvasion if not handled properly.

Pulling and digging

Many herbaceous plants and some woody species (up to about one inch in diameter), if present in limited quantities, can be pulled out or dug up. It's important to remove as much of the root system as possible; even a small portion can restart the infestation. Pull plants by hand or use a digging fork, as shovels can shear off portions of the root system, allowing for regrowth. To remove larger woody stems (up to about three inches in diameter), use a Weed Wrench™, Root Jack, or Root Talon. These tools, available from several manufacturers, are designed to remove the aboveground portion of the plant as well as the entire root system. It's easiest to undertake this type of control in the spring or early summer when soils are moist and plants come out more easily.



Using tools to remove woody stems.





Volunteers hand pulling invasive plants.

Suffocation

Try suffocating small seedlings and herbaceous plants. Place double or triple layers of thick UV-stabilized plastic sheeting, either clear or black (personally I like clear), over the infestation and secure the plastic with stakes or weights. Make sure the plastic extends at least five feet past the edge of infestation on all sides. Leave the plastic in place for at least two years. This technique will kill everything beneath the plastic—invasive and non-invasive plants alike. Once the plastic is removed, sow a cover crop such as annual rye to prevent new invasions.

Cutting or mowing

This technique is best suited for locations you can visit and treat often. To be effective, you will need to mow or cut infested areas three or four times a year for up to five years. The goal is to interrupt the plant's ability to photosynthesize by removing as much leafy material as possible. Cut the plants at ground level and remove all resulting debris from the site. With this treatment, the infestation may actually appear to get worse at first, so you will need to be as persistent as the invasive plants themselves. Each time you cut the plants back, the root system gets slightly larger, but must also rely on its energy reserves to push up new growth. Eventually, you will exhaust these reserves and the plants will die. This may take many years, so you have to remain committed to this process once you start; otherwise the treatment can backfire, making the problem worse.

CHEMICAL CONTROL METHODS

Herbicides are among the most effective and resource-efficient tools to treat invasive species. Most of the commonly known invasive plants can be treated using only two herbicides—glyphosate (the active ingredient in Roundup™ and Rodeo™) and triclopyr (the active ingredient in Brush-B-Gone™ and Garlon™). Glyphosate is non-selective, meaning it kills everything it contacts. Triclopyr is selective and does not injure monocots (grasses, orchids, lilies, etc.). Please read labels and follow directions precisely for both environmental and personal safety. These are relatively benign herbicides, but improperly used they can still cause both short- and long-term health and environmental problems. Special aquatic formulations are required when working in wetland zones. You are required to have a state-issued pesticide applicator license when applying these chemicals on land you do not own. To learn more about the pesticide regulations in your state, visit or call your state's pesticide control division, usually part of the state's Department of Agriculture. In wetland areas, additional permits are usually required by the Wetlands Protection Act. [See sidebar on page 23.]

Foliar applications

When problems are on a small scale, this type of treatment is usually applied with a backpack sprayer or even a small handheld spray bottle. It is an excellent way to treat large monocultures of herbaceous plants, or to spot-treat individual plants that are difficult to remove mechanically, such as goutweed, swallowwort, or purple loosestrife. It is also an effective treatment for some woody species, such as Japanese barberry, multiflora rose, Japanese honeysuckle, and Oriental bittersweet that grow in dense masses or large numbers over many acres. The herbicide mixture should contain no more than five percent of the active ingredient, but it is important to follow the instructions on the product label. This treatment is most effective when the plants are actively growing, ideally when they are flowering or beginning to form fruit. It has been shown that plants are often more susceptible to this type of treatment if the existing stems are cut off and the regrowth is treated. This is especially true for Japanese knotweed. The target plants should be thoroughly wetted with the herbicide on a day when there is no rain in the forecast for the next 24 to 48 hours.

Cut stem treatments

There are several different types of cut stem treatments, but here we will review only the one most commonly used. All treatments of this type require a higher concentration of the active ingredient than is used in foliar applications. A 25 to 35 percent solution of the active ingredient should be used for cut stem treatments, but read and follow all label instructions. In most cases, the appropriate herbicide is glyphosate, except for Oriental bittersweet, on which triclopyr should be used. This treatment can be used on all woody stems, as well as phragmites and Japanese knotweed.

For woody stems, treatments are most effective when applied in the late summer and autumn—between late August and November. Stems should be cut close to the ground, but not so close that you will lose track of them. Apply herbicide directly to the cut surface as soon as possible after cutting. Delaying the application will reduce the effectiveness of the treatment. The herbicide can be applied with a sponge, paintbrush, or spray bottle.



Cut stem treatment tools.

For phragmites and Japanese knotweed, treatment is the same, but the timing and equipment are different. Plants should be treated anytime from mid-July through September, but the hottest, most humid days of the summer are best for this method. Cut the stems halfway between two leaf nodes at a comfortable height. Inject (or squirt) herbicide into the exposed hollow stem. All stems in an infestation should be treated. A wash bottle is the most effective application tool, but you can also use an eyedropper, spray bottle, or one of the recently developed high-tech injection systems.

It is helpful to mix a dye in with the herbicide solution. The dye will stain the treated surface and mark the areas that have been treated, preventing unnecessary reapplication. You can buy a specially formulated herbicide dye, or use food coloring or laundry dye.

There is not enough space in this article to describe all the possible ways to control invasive plants. You can find other treatments, along with more details on the above-described methods, and species-specific recommendations on The Nature Conservancy Web site (tncweeds.ucdavis.edu). An upcoming posting on the Invasive Plant Atlas of New England (www.ipane.org) and the New England Wild Flower Society (www.newfs.org) Web sites will also provide further details.



Hollow stem injection tools.

Biological controls—still on the horizon

Biological controls are moving into the forefront of control methodology, but currently the only widely available and applied biocontrol relates to purple loosestrife. More information on purple loosestrife and other biological control projects can be found at www.invasiveplants.net.

DISPOSAL OF INVASIVE PLANTS

Proper disposal of removed invasive plant material is critical to the control process. Leftover plant material can cause new infestations or reinfest the existing project area. There are many appropriate ways to dispose of invasive plant debris. I've listed them here in order of preference.

1. **Burn it**—Make a brush pile and burn the material following local safety regulations and restrictions, or haul it to your town's landfill and place it in their burn pile.

2. **Pile it**—Make a pile of the woody debris. This technique will provide shelter for wildlife as well.

3. **Compost it**—Place all your herbaceous invasive plant debris in a pile and process as compost. Watch the pile closely for resprouts and remove as necessary. Do not use the resulting compost in your garden. The pile is for invasive plants only.



Injecting herbicide into the hollow stem of phragmites.

4. **Dry it/cook it**—Place woody debris out on your driveway or any asphalt surface and let it dry out for a month. Place herbaceous material in a doubled-up black trash bag and let it cook in the sun for one month. At the end of the month, the material should be non-viable and you can dump it or dispose of it with the trash. The method assumes there is no viable seed mixed in with the removed material.

Care should be taken in the disposal of all invasive plants, but several species need extra attention. These are the ones that have the ability to sprout vigorously from plant fragments and should ideally be burned or dried prior to disposal: Oriental bittersweet, multiflora rose, Japanese honeysuckle, phragmites, and Japanese knotweed.

Christopher Mattrick is the former Senior Conservation Programs Manager for New England Wild Flower Society, where he managed conservation volunteer and invasive and rare plant management programs. Today, Chris and his family work and play in the White Mountains of New Hampshire, where he is the Forest Botanist and Invasive Species Coordinator for the White Mountain National Forest.



Controlling Invasive Plants in Wetlands

Special concerns; special precautions

Control of invasive plants in or around wetlands or bodies of water requires a unique set of considerations. Removal projects in wetland zones can be legal and effective if handled appropriately. In many cases, herbicides may be the least disruptive tools with which to remove invasive plants. You will need a state-issued pesticide license to apply herbicide on someone else's property, but all projects in wetland or aquatic systems fall under the jurisdiction of the Wetlands Protection Act and therefore require a permit. ***Yes, even hand-pulling that colony of glossy buckthorn plants from your own swampland requires a permit.*** Getting a permit for legal removal is fairly painless if you plan your project carefully.

1. Investigate and understand the required permits and learn how to obtain them. The entity charged with the enforcement of the Wetlands Protection Act varies from state to state. For more information in your state, contact:

   ME: Department of Environmental Protection
   www.state.me.us/dep/blwq/docstand/nrpapage.htm

   NH: Department of Environmental Services
   www.des.state.nh.us/wetlands/

   VT: Department of Environmental Conservation
   www.anr.state.vt.us/dec/waterq/permits/htm/pm_cud.htm

   MA: Consult your local town conservation commission

   RI: Department of Environmental Management
   www.dem.ri.gov/programs/benviron/water/permits/fresh/index.htm

   CT: Consult your local town Inland Wetland and Conservation Commission

2. Consult an individual or organization with experience in this area. Firsthand experience in conducting projects in wetland zones and navigating the permitting process is priceless. Most states have wetland scientist societies whose members are experienced in working in wetlands and navigating the regulations affecting them. A simple Web search will reveal the contact point for these societies. Additionally, most environmental consulting firms and some nonprofit organizations have skills in this area.

3. Develop a well-written and thorough project plan. You are more likely to be successful in obtaining a permit for your project if you submit a project plan along with your permit application. The plan should include the reasons for the project, your objectives in completing the project, how you plan to reach those objectives, and how you will monitor the outcome.

4. Ensure that the herbicides you plan to use are approved for aquatic use. Experts consider most herbicides harmful to water quality or aquatic organisms, but rate some formulations as safe for aquatic use. Do the research and select an approved herbicide, and then closely follow the instructions on the label.

5. If you are unsure—research, study, and most of all, ask for help. Follow the rules. The damage caused to aquatic systems by the use of an inappropriate herbicide or the misapplication of an appropriate herbicide not only damages the environment, but also may reduce public support for safe, well-planned projects.

Section 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						
Satellite Parking Lot		**Borthwick Avenue**				
BMP Description	**Date of Inspection**	**Inspector**	**BMP Installed and Operating Properly?**	**Cleaning / Corrective Action Needed**	**Date of Cleaning / Repair**	**Performed By**
Deep Sump CB's			❑Yes ❑No			
Underground Detention Basin 1			❑Yes ❑No			
Underground Infiltration Basin 2			❑Yes ❑No			
Jellyfish Filter 1			❑Yes ❑No			
Jellyfish Filter 2			❑Yes ❑No			
Jellyfish Filter 3			❑Yes ❑No			
CDS 1			❑Yes ❑No			
CDS 2			❑Yes ❑No			

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City of Portsmouth Planning Department

Site Plan Review Application Fee

Project: Borthwick Avenue **Map/Lot:** 234/7-4A

Applicant: Porthsmouth Regional Hospital

All development

Base fee $500			$500.00
Plus $5.00 per $1,000 of site costs			
Site costs	$800,000	+	$4,000.00
Plus $10.00 per 1,000 S.F. of site development area			
Site development area	250,000 S.F.	+	$2,500.00
		Fee	**$7,000.00**

Maximum fee: $15,000.00

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.

W5008-008A
March 22, 2022

Mr. Peter Stith, Principal Planner, Chair
Site Plan Review Technical Advisory Committee
City of Portsmouth Planning Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Amended Site Review Permit Application
Proposed Building Expansion, 2454 Lafayette Road, Portsmouth, NH

Dear Peter:

On behalf of 2422 Lafayette Road Associates, LLC (owner/applicant), we are pleased to submit one (1) set of hard copies of the following information to support a request for an Amended Site Review Permit for the above referenced project:

- One (1) full size & one (1) half size copy of the Site Plan Set, dated March 22, 2022;
- Owner Authorization, dated March 15, 2022;
- Amended Site Plan Overlay Exhibit, dated March 22, 2022;
- Fire Truck Turning Exhibit, dated March 22, 2022;
- Proposed Building Elevations, prepared by Landry Architects
- Amended Site Review Application fee check in the amount of $800

The proposed project is located at 2454 Lafayette Road on properties identified as Map 273 Lot 3 on the City of Portsmouth Tax Maps and is located in the Gateway Neighborhood Mixed Use Corridor, G1 District. The existing parcel is approximately 18.7 acres and is bound by an access drive for Water County to the north, Water Country property to the east, Route One (Lafayette Road) to the south and Constitution Avenue to the west.

The proposed project will amend the commercial pad along the eastern property line of the site which was previously approved in October 2012 and constructed in 2013. The Portsmouth Green site previously received an additional Site Plan approval from the Planning Board in April 2016 for the construction of a 4-story residential building in the rear of the site and two (2) new commercial pads in the plaza's existing front parking lot. The residential building was completed in the fall of 2017. The project site received an Amended Site Plan approval from the Planning Board in December 2018 for the commercial pads near the entrance to the plaza. Construction of those commercial spaces was completed in 2020. Site Plan approval was also granted from the Planning Board in December 2021 for the demolition of the existing cinema and the construction of a 5-story residential building.

The enclosed Amended Site Plan package includes the demolition of the existing 1,833 SF diner located at the end of the eastern commercial building and replacing it with 3,650 SF of retail space. The proposed retail space will be divided into two separate spaces to accommodate two new tenants. In addition to the pad revision, the enclosed Site Plans reconfigure the sidewalk adjacent to the new retail spaces, relocate five (5) bicycle racks previously approved and constructed adjacent to the diner, and reroute the existing sewer line around the proposed retail pad.

Also enclosed is an Amended Site Plan Overlay Exhibit with the current proposed site revisions (in red) overlaid on the prior approved layout (in black). This amended proposal will result in a minor increase of impervious area from the prior approval by approximately 1,355 SF (±0.17% of the entire site). These changes have a negligible impact on the existing stormwater management system that treats and infiltrates the runoff generated by the plaza. Peak runoff rates in the Post Development stormwater calculations that were previously prepared for the project do not change.

We respectfully request to be placed on the TAC meeting agenda for April 5, 2022. If you have any questions or need any additional information, please contact Neil Hansen 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

Cc: 2422 Lafayette Road Associates, LLC (via e-mail)

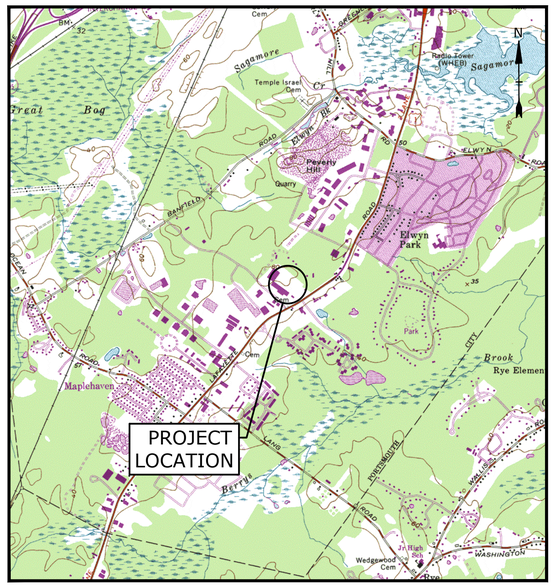
PORTSMOUTH GREEN PROPOSED BUILDING EXPANSION

PORTSMOUTH, NEW HAMPSHIRE

AMENDED SITE PLAN DRAWINGS

MARCH 22, 2022

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	03/22/2022
C-101	OVERALL APPROVED PLAZA PLAN	03/22/2022
C-101.1	EXISTING CONDITIONS / DEMOLITION PLAN	03/22/2022
C-102	OVERALL PROPOSED PLAZA PLAN	03/22/2022
C-102.1	SITE PLAN	03/22/2022
C-103	GRADING, DRAINAGE, EROSION CONTROL & UTILITIES PLAN	03/22/2022
C-501	EROSION CONTROL NOTES & DETAILS SHEET	03/22/2022
C-502	DETAILS SHEET	03/22/2022
C-503	DETAILS SHEET	03/22/2022



LOCATION MAP
SCALE: 1" = 2,000'

CONSTRUCTION NOTES:
1. THE CONTRACTOR SHALL NOT RELY ON SCALED DIMENSIONS AND SHALL CONTACT THE ENGINEER FOR CLARIFICATION IF A REQUIRED DIMENSION IS NOT PROVIDED ON THE PLANS.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, AND FOR SITE CONDITIONS THROUGHOUT CONSTRUCTION. NEITHER THE PLANS NOR THE SEAL OF THE ENGINEER AFFIXED HEREON EXTEND TO OR INCLUDE SYSTEMS REQUIRED FOR THE SAFETY OF THE CONTRACTOR, THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND IMPLEMENTING SAFETY PROCEDURES AND SYSTEMS AS REQUIRED BY THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND ANY STATE OR LOCAL SAFETY REGULATIONS.

3. TIGHE & BOND. ASSUMES NO RESPONSIBILITY FOR ANY ISSUES LEGAL OR OTHERWISE, RESULTING FROM CHANGES MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION OF TIGHE & BOND.

PREPARED BY:

Tighe&Bond
177 Corporate Drive
Portsmouth, NH 03801
(603) 433-8818

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
3/22/22

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED
PROFESSIONAL ENGINEER
3/22/22

OWNER:
2422 Lafayette Road Associates, LLC
c/o Waterstone Retail Development
250 First Avenue, Suite 202
Needham, Massachusetts 02494

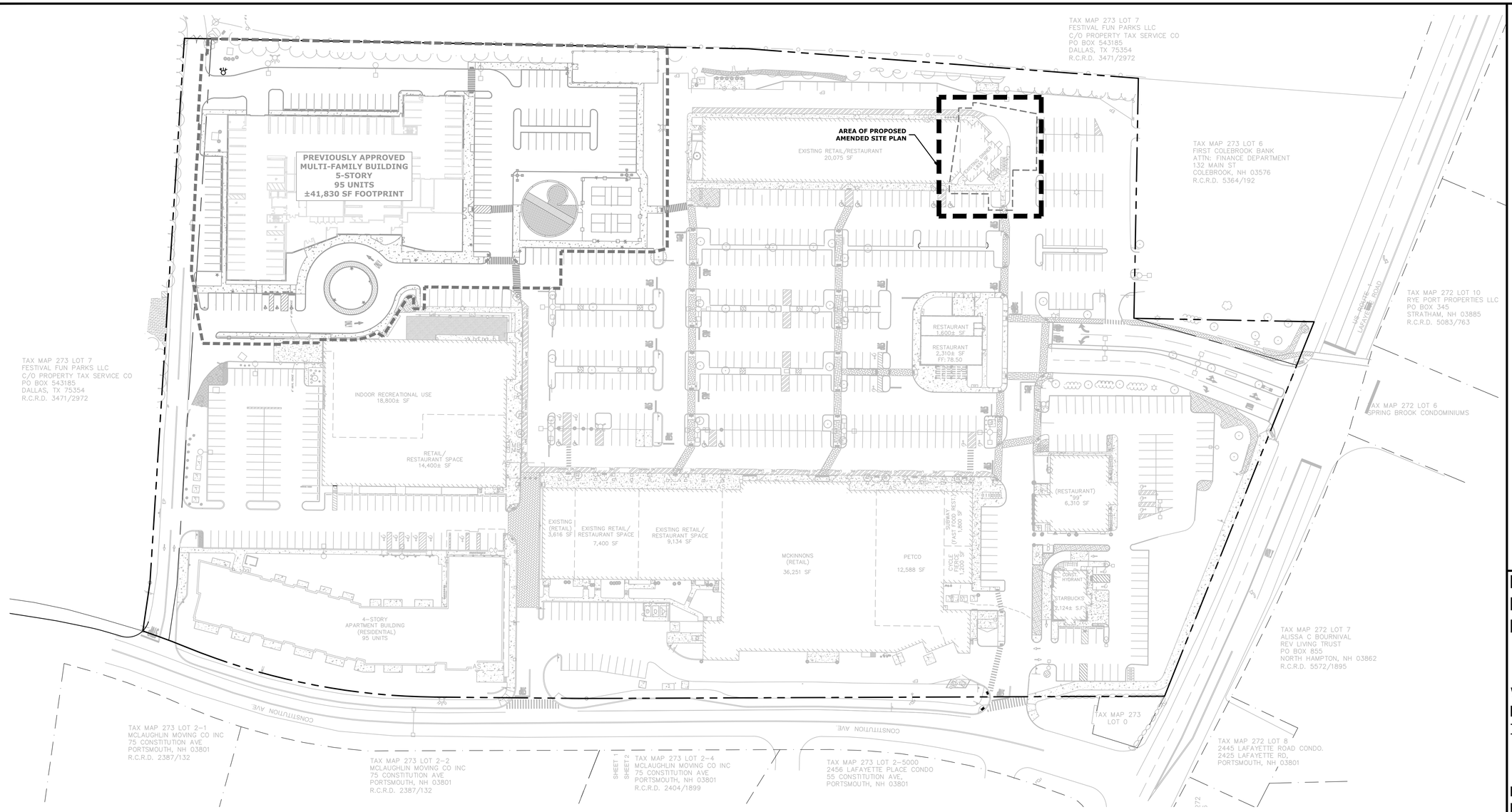
APPLICANT:
Waterstone Properties Group, Inc.
250 First Avenue, Suite 202
Needham, Massachusetts 02494

SURVEY CONSULTANT:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03110

TAC SUBMISSION
COMPLETE SET 9 SHEETS

811 DigSafe MA-ME-NH-RI-VT

Last Save Date: March 22, 2022 11:12 AM By: CWL
Plot Date: March 22, 2022 11:12 AM Plotted By: Craig M. Langton
T&B File Location: J:\W\W5008 Waterstone Retail\008A - Portsmouth Green - Building 2 Expansion\Drawings, Figures\AutoCAD\Sheet\W5008-008A_C-CS.dwg Layout Tab: T&B_CS_22x34



EXISTING CONDITIONS PLAN NOTES:

1. **EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY PERFORMED BY DOUCET SURVEY INC. SEE REFERENCE PLANS.**
2. **HORIZONTAL DATUM BASED ON REFERENCE PLAN #5.**
3. **VERTICAL DATUM BASED ON REFERENCE PLAN #5.**

REFERENCE PLANS:

1. **"STANDARD BOUNDARY SURVEY MAP 273 - LOT 3 FOR LAYFAYETTE PLAZA, LLC" DATED FEBRUARY 2004 BY AMBIT ENGINEERING, INC. R.C.R.D. PLAN D-34306.**
2. **"CONDOMINIUM SITE PLAN OF PORTSMOUTH GREEN CONDOMINIUM FOR 2422 LAFAYETTE ROAD ASSOCIATES, LLC C/O WATERSTONE RETAIL, TAX MAP 273 LOT 3, 2454 LAFAYETTE ROAD (US ROUTE 1) PORTSMOUTH, NEW HAMPSHIRE" DATED OCTOBER 2016 BY DOUCET SURVEY, INC. TO BE RECORDED IN THE R.C.R.D.**
3. **"SOUTHGATE PLAZA RESIDENTIAL DEVELOPMENT, 2454 LAFAYETTE ROAD PORTSMOUTH NEW HAMPSHIRE SITE PLANS" DATED JANUARY 19, 2016 (REVISED SEPTEMBER 26, 2016) BY TIGHE & BOND CONSULTING ENGINEERS.**
4. **"PROPOSED EASEMENT PLAN" FOR 2422 LAFAYETTE ROAD ASSOCIATES, LLC C/O WATERSTONE RETAIL. DATED OCTOBER 26, 2016 BY DOUCET SURVEY, INC.**
5. **"TOPOGRAPHIC WORKSHEET OF PORTSMOUTH GREEN" FOR TIGHE & BOND, TAX MAP 273 LOT 3, 2454 LAFAYETTE ROAD (US ROUTE 1) PORTSMOUTH, NEW HAMPSHIRE" DATED DECEMBER 2017 BY DOUCET SURVEY, INC.**
6. **"AS-BUILT CONDOMINIUM SITE PLAN FOR 2422 LAFAYETTE ROAD ASSOCIATES, LLC OF PORTSMOUTH GREEN CONDOMINIUM, TAX MAP 273 LOT 3, 2454 LAFAYETTE ROAD (US ROUTE 1) PORTSMOUTH, NEW HAMPSHIRE" DATED AUGUST 25, 2020 BY DOUCET SURVEY, INC.**
7. **"PROPOSED MULTI-FAMILY DEVELOPMENT - PORTSMOUTH GREEN" SITE PLAN SET, COMPLETE SET 27 SHEETS, DATED AUGUST 5, 2021 (REVISED DECEMBER 8, 2021) PREPARED BY TIGHE & BOND CONSULTING ENGINEERS.**

Tighe&Bond

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
3/22/22

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED
PROFESSIONAL ENGINEER
3/22/22

SCALE IN FEET
0 60' 120'
GRAPHIC SCALE

Proposed Building Expansion

Waterstone Properties Group, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
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DRAWN BY:	CML
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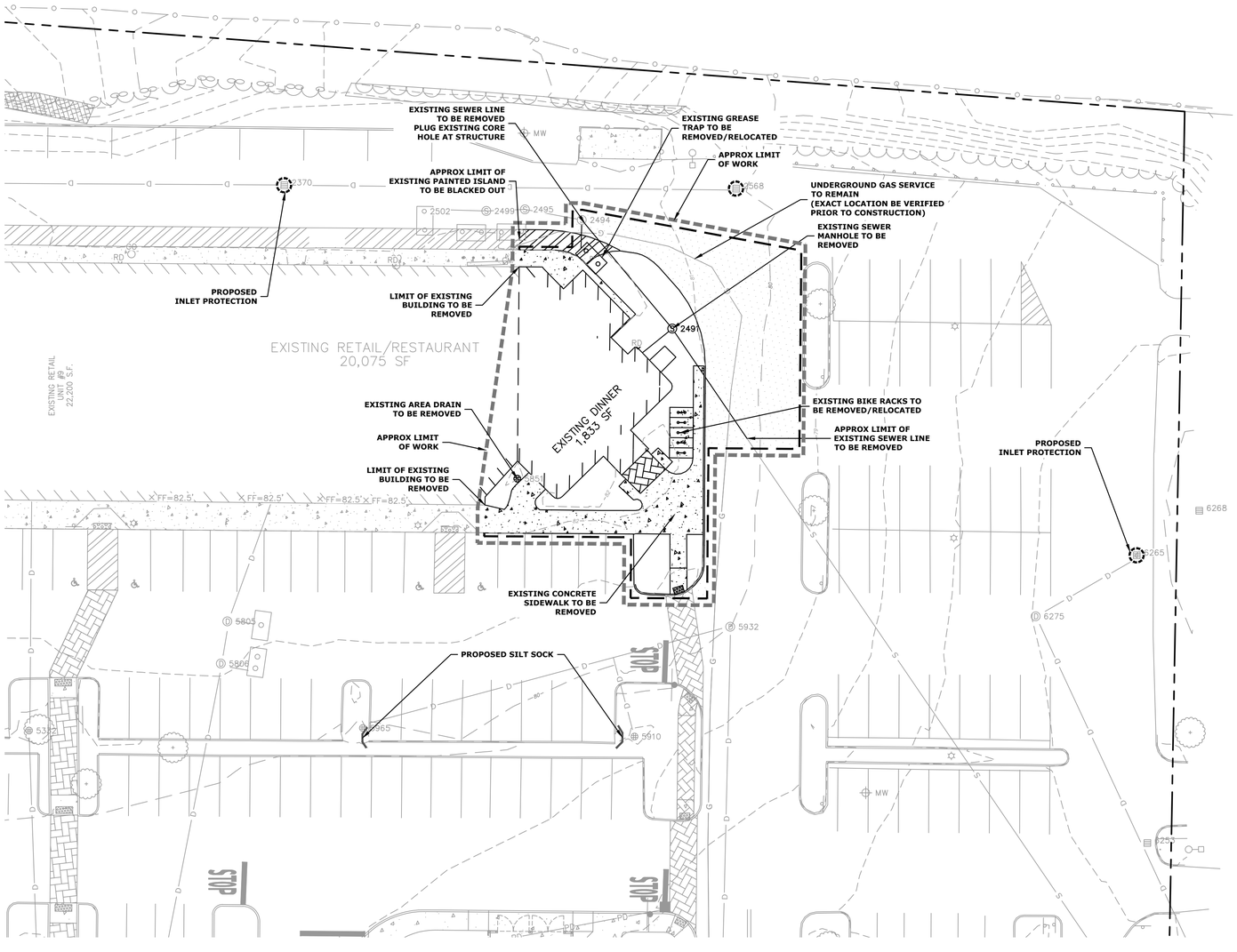
APPROVED:	PMC

OVERALL APPROVED PLAZA PLAN

SCALE: AS SHOWN

C-101

Last Save Date: March 22, 2022 11:16 AM By: CML
Plot Date: Tuesday, March 22, 2022 Plotted By: Christine M. Langton
T&B File Location: J:\W\W5008 Waterstone Retail\008A - Portsmouth Green - Building 2 Expansion\Drawings, Figures\AutoCAD\Sheet\W5008-008A_C-DSGN.dwg Layout Tab: O-Exist



LEGEND

- APPROXIMATE LIMIT OF PROPOSED SAW CUT
- LIMIT OF WORK
- PROPOSED SILT SOCK
- APPROXIMATE LIMIT OF PAVEMENT TO BE REMOVED
- PROPOSED CONSTRUCTION EXIT
- BUILDING TO BE REMOVED
- LOCATION OF PROPOSED BUILDING
- INLET PROTECTION SILT SACK
- TBR — TO BE REMOVED
- BLDG — BUILDING
- TYP — TYPICAL
- COORD — COORDINATE

DEMOLITION 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. 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.
3. 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.
4. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
5. 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.
6. 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.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
8. THE CONTRACTOR SHALL OBTAIN AND PAY FOR 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.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK.
10. UTILITIES SHALL BE TERMINATED AT THE MAIN LINE PER UTILITY COMPANY STANDARDS. THE CONTRACTOR SHALL REMOVE ALL ABANDONED UTILITIES LOCATED WITHIN THE LIMITS OF WORK.
11. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
18. 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.
19. 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.

Tighe&Bond

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STATE OF NEW HAMPSHIRE — PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER — 3/22/22

STATE OF NEW HAMPSHIRE — NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER — 3/22/22

SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Proposed Building Expansion

Waterstone Properties Group, Inc.

Portsmouth, New Hampshire

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CHECKED:	NAH
APPROVED:	PMC

EXISTING CONDITIONS / DEMOLITION PLAN

SCALE: AS SHOWN

C-101.1

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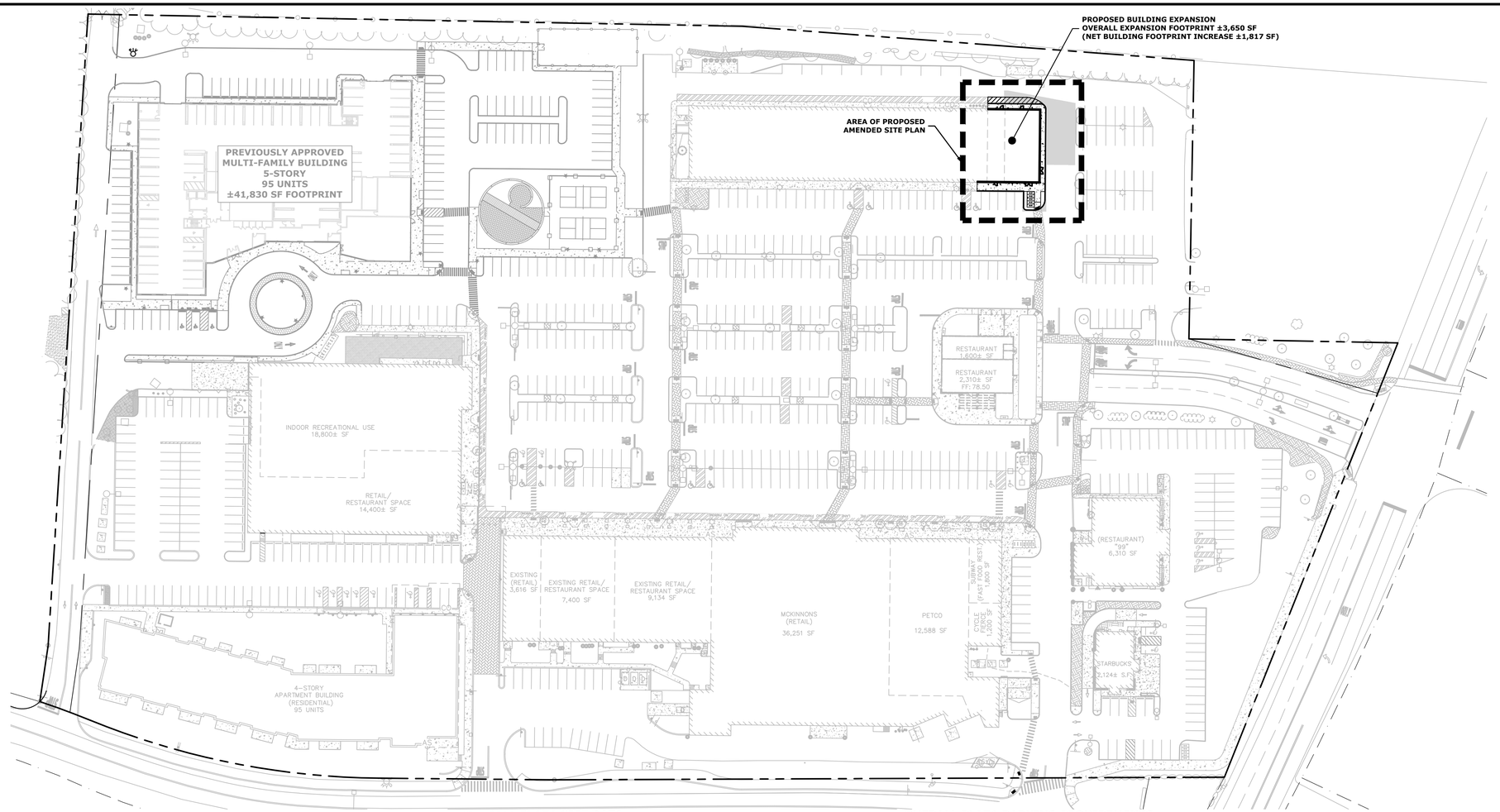

OVERALL PLAZA SITE DATA:

LOCATION: TAX MAP 273, LOT 3

OWNER: 2422 LAFAYETTE ROAD ASSOCIATES, LLC
C/O WATERSTONE RETAIL DEVELOPMENT
250 FIRST AVENUE, SUITE 202
NEEDHAM, MASSACHUSETTS 02494

ZONING DISTRICT: GATEWAY CORRIDOR (G1)
PROPOSED USE: SHOPPING CENTER/RESIDENTIAL
PROPOSED LOT SIZE: ±18.71 ACRES (±814,896 SF)

OVERALL PLAZA BUILDING PLACEMENT & LOT STANDARDS

	REQUIRED	PROVIDED
BUILDING STANDARDS:		
MINIMUM LOT DEPTH:	NR	NR
MINIMUM STREET FRONTAGE:	50 FT	±450 FT
FRONT BUILDING SETBACK:	10 FT MIN, 30 FT MAX	± 419 FT(1)
MINIMUM SIDE BUILDING SETBACK:	15 FT	± 57 FT
MINIMUM REAR BUILDING SETBACK:	20 FT	± 52 FT
MINIMUM OPEN SPACE COVERAGE:	20%	±21.6%
FRONT LOT LINE BUILDOUT:	75%	0%(4)
BUILDING DESIGN STANDARDS:		
MAXIMUM BUILDING HEIGHT:	4 STORIES 50 FT	5 STORIES(2) <60 FT(2)
MINIMUM STREET FACING FACADE HEIGHT:	24 FT	>24 FT
MAXIMUM FINISHED FLOOR SURFACE OF GROUND FLOOR ABOVE SIDEWALK GRADE:	36 IN	<36 IN
MAXIMUM BUILDING FOOTPRINT:	NR	
MAXIMUM FACADE MODULATION LENGTH:	50 FT	<50 FT
MINIMUM STREET FACING FACADE GLAZING:	20% GROUND FLOOR	>20%
DEVELOPMENT SITE STANDARDS:(3)		
MINIMUM DEVELOPMENT SITE AREA:	20,000 SF	±814,896 SF
MINIMUM SITE WIDTH:	100 FT	±721 FT
MINIMUM SITE DEPTH:	100 FT	±1,137 FT
MINIMUM PERIMETER BUFFER FROM RESIDENTIAL, MIXED RESIDENTIAL, OR CD4-L1 DISTRICTS:	75 FT	N/A
MAXIMUM DEVELOPMENT BLOCK DIMENSIONS:		
BLOCK LENGTH:	800 FT	±1,137 FT(4)
BLOCK PERIMETER:	2,200 FT	±3,780 FT(4)
MAXIMUM BUILDING COVERAGE:	70%	25.6%
MINIMUM OPEN SPACE COVERAGE:	20%	±21.6%
FRONT LOT LINE BUILDOUT:	75%	0%(4)
DENSITY THRESHOLDS AND BONUSES:		
DWELLING UNITS PER ACRE:	16 UNITS	10.2 UNITS
DWELLING UNITS PER BUILDING:	36 UNITS	95 UNITS(1)(2)
PLUS 1-STORY, MAX 10 FT	5 STORIES 60 FT	5 STORIES(2) <60 FT(2)

(1) - MODIFICATION OF STANDARDS ALLOWED AS PART OF CONDITIONAL USE PERMIT PER 10.5B74.30, APPROVED JANUARY 19, 2022.
(2) - ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B72 FOR PROVIDING 20% WORK FORCE HOUSING AND PUBLIC REALM IMPROVEMENTS, APPROVED JANUARY 19, 2022.
(3) - USE OF DEVELOPMENT SITE STANDARDS ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B40, APPROVED JANUARY 19, 2022.
(4) - EXISTING NON-CONFORMING CONDITION, MODIFICATION OF STANDARDS ALLOWED AS PART OF CONDITIONAL USE PERMIT PER 10.5B74.30, APPROVED JANUARY 19, 2022.

OVERALL PLAZA PARKING REQUIREMENTS

PARKING CALCULATIONS:

RETAIL:	1 SPACE PER 300 GFA
RESTAURANT:	1 SPACE PER 100 GFA
INDOOR RECREATION:	1 SPACE PER 4 PERSONS
RESIDENTIAL:	0.5 SPACES PER UNIT <500 SF 1 SPACE PER UNIT 500 SF - 750 SF 1.3 SPACES PER UNIT >750 SF

LOADING CALCULATIONS:

RETAIL:	0 SPACES FOR 0 - 10,000 SF 1 SPACE FOR 10,001 - 25,000 SF 2 SPACES FOR 25,001 - 60,000 SF
OTHER NON-RESIDENTIAL:	0 SPACES FOR 0 - 10,000 SF 1 SPACE FOR 10,001 SF - 40,000 SF

SHOPPING CENTER:				LOADING SPACES:	
RETAIL:	**AREA (SF):**	**MINIMUM**	**PROVIDED**	**MINIMUM**	**PROVIDED**
PETCO	±12,588			1	1
CYCLE FIERCE	±1,200			0	1
EXISTING RETAIL/RESTAURANT	±20,075			0	1
PROPOSED RETAIL AREA	±3,650			0	0
EXISTING RETAIL/RESTAURANT (MUSE)	±3,616			0	1
EXISTING RETAIL/RESTAURANT (SHIO JAPANESE)	±7,400			0	1
PROPOSED RESTAURANT (OLD BIG LOTS)	±14,400			1	1
INDOOR RECREATIONAL (PINZ)	±18,800			1	1
SUBWAY	±1,800			0	0
THE 99	±6,310			0	1
McKINNON'S	±36,251			2	3
RETAIL	±9,134			0	1
PROPOSED RESTAURANT	±1,600			1	0
PROPOSED RESTAURANT	±2,310			0	0
STARBUCKS	±2,124			0	1
TOTAL SHOPPING CENTER	±141,258	406 SPACES(1)		8	15
RESIDENTIAL:					
PREVIOUSLY APPROVED DWELLING UNITS	95 UNITS				
EXISTING DWELLING UNITS	95 UNITS				
VISITOR PARKING					
TOTAL:		654 SPACES(1)	795 SPACES	9	15

(1) - PER PARKING DEMAND ANALYSIS PERFORMED BY TIGHE & BOND DATED OCTOBER 18, 2021, BASED ON A TOTAL SHOPPING CENTER AREA OF ±139,441 SF.

	REQUIRED	PROVIDED
ACCESSIBLE SPACES (2% OF TOTAL):	15	32
VAN ACCESSIBLE SPACES (1 PER 6 ACCESSIBLE SPACES):	2	24
PARKING STALL SIZE:	8.5 FT X 19 FT	8.5 FT X 19 FT
DRIVE AISLE:	24 FT	24 FT, 26 FT

BIKE SPACES REQUIRED:

	REQUIRED	PROVIDED
SHOPPING CENTER:		
1 BIKE SPACE / 10 PARKING SPACES MAXIMUM OF 30 SPACES	30 SPACES	42 SPACES
RESIDENTIAL:		
EXISTING 95 DWELLING UNITS	19 SPACES	30 SPACES
PREVIOUSLY APPROVED 95 DWELLING UNITS	19 SPACES	20 SPACES

LEGEND

	PROPERTY LINE
	PROPOSED PROPERTY LINE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED CURB
	PROPOSED BUILDING
	PROPOSED PAVEMENT SECTION
	PROPOSED CONCRETE SIDEWALK
	PROPOSED BRICK SIDEWALK
•	PROPOSED BOLLARD
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
30'R	PROPOSED CURB RADIUS
VGC	PROPOSED VERTICAL GRANITE CURB
SGC	PROPOSED SLOPED GRANITE CURB

Tighe&Bond

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SCALE IN FEET
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Portsmouth, New Hampshire

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OVERALL PROPOSED PLAZA PLAN

SCALE: AS SHOWN

C-102

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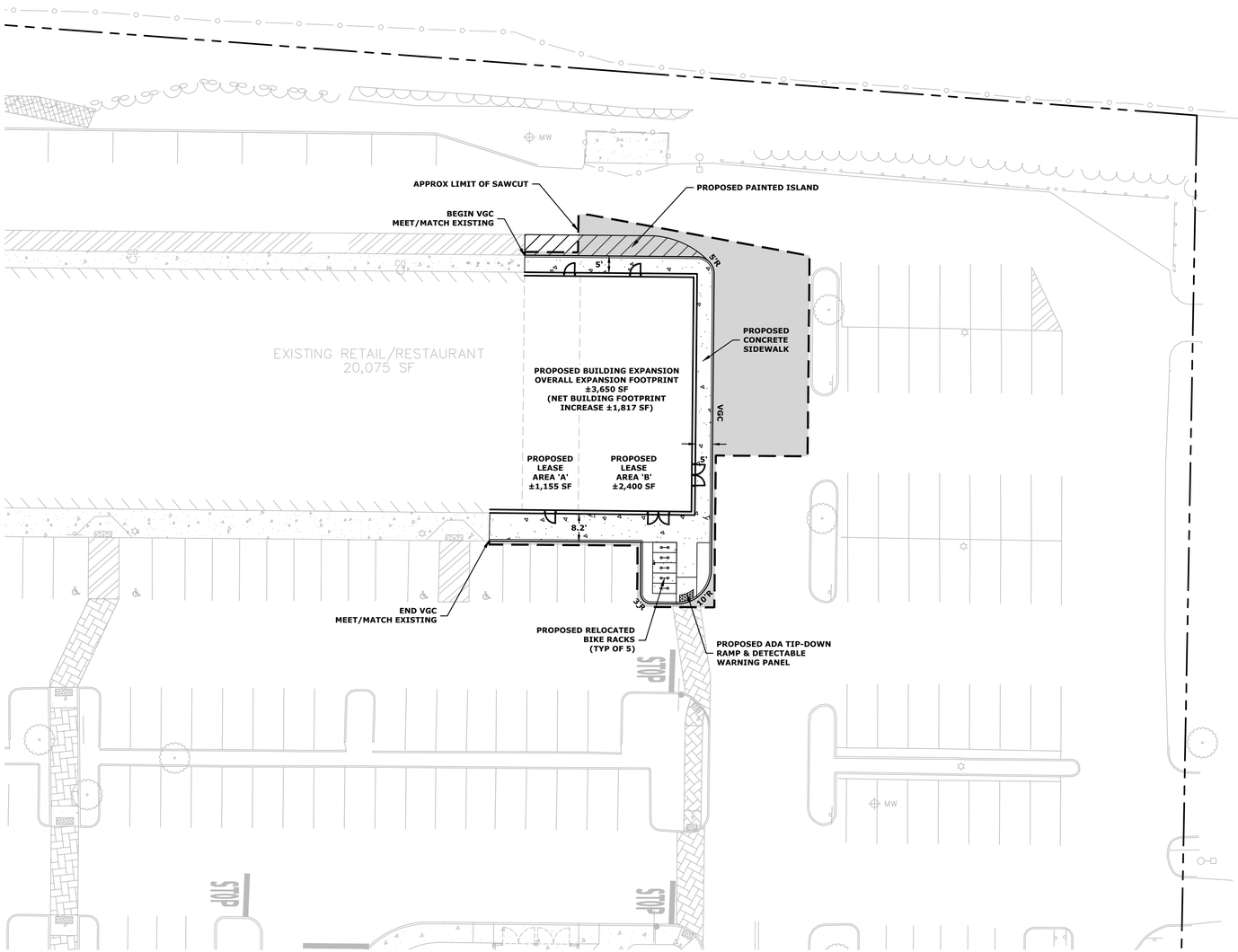

LEGEND

	PROPERTY LINE
	PROPOSED PROPERTY LINE
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	PROPOSED BUILDING
	PROPOSED PAVEMENT SECTION
	PROPOSED CONCRETE SIDEWALK
	PROPOSED BRICK SIDEWALK
•	PROPOSED BOLLARD
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
30'R	PROPOSED CURB RADIUS
VGC	PROPOSED VERTICAL GRANITE CURB
SGC	PROPOSED SLOPED GRANITE CURB

SITE NOTES:

1. ALL TRAFFIC PAINT 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. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
4. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
5. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
6. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
7. 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.
8. SEE ARCHITECTURAL/BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
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 PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
11. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
12. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
13. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
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. PROPERTY MANAGEMENT SHALL BE RESPONSIBLE FOR TIMELY SNOW REMOVAL FROM ALL PRIVATE SIDEWALKS, DRIVEWAYS, AND PARKING AREAS. SNOW SHALL BE HAULED OFF-SITE AND LEGALLY DISPOSED OF WHEN NECESSARY TO MAINTAIN ADEQUATE SNOW STORAGE AREAS.
16. THE APPLICANT SHALL PREPARE A CONSTRUCTION MANAGEMENT AND MITIGATION PLAN (CMMP) FOR REVIEW AND APPROVAL BY THE CITY'S LEGAL AND PLANNING DEPARTMENTS.

SITE RECORDING NOTES:

1. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
2. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
3. THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH.

Tighe&Bond

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STATE OF NEW HAMPSHIRE
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SITE PLAN

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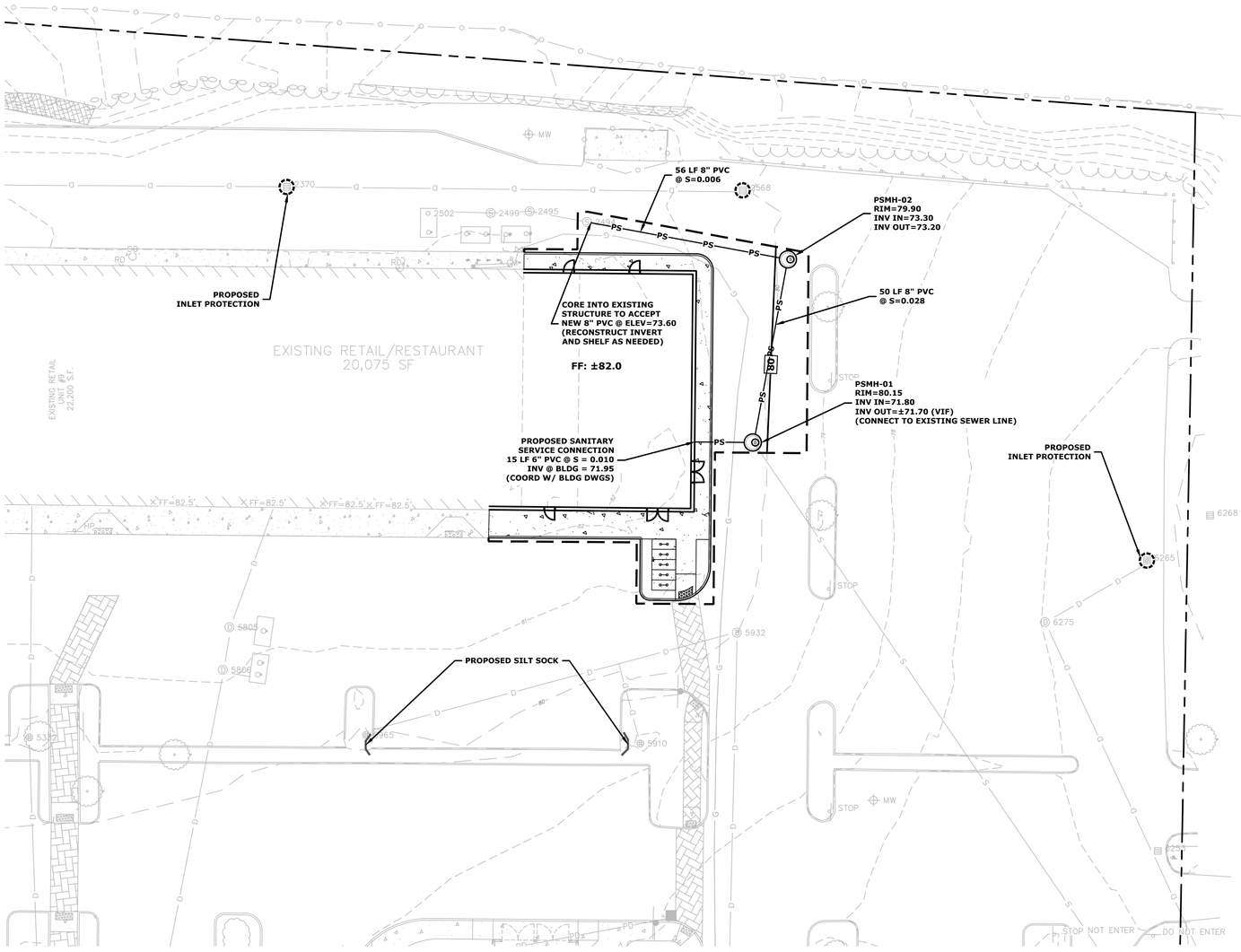
UTILITY NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR 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 AT NO ADDITIONAL COST TO THE OWNER.
2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
   - NATURAL GAS - UNITIL
   - WATER/SEWER - CITY OF PORTSMOUTH
   - ELECTRIC - EVERSOURCE
   - COMMUNICATIONS - COMCAST/FAIRPOINT/FIRST LIGHT
3. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
4. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
5. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
6. WATER, GAS, ELECTRIC AND TELECOMMUNICATIONS FOR BUILDING EXPANSION TO BE CONNECTED FROM EXISTING BUILDING. COORDINATE WITH BUILDING DRAWINGS.
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. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
11. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
12. 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.
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. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG-SAFE" NUMBER ON SITE AT ALL TIMES.
15. CONTRACTOR TO SUBMIT AS-BUILT PLANS ON REPRODUCIBLE MYLARS AND IN DIGITAL FORMAT (.DWG FILES) TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
16. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
17. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
18. ALL SEWER PIPE WITH LESS THAN 6' OF COVER IN PAVED AREAS OR LESS THAT 4' OF COVER IN UNPAVED AREAS SHALL BE INSULATED.
19. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK WITH POWER COMPANY.
20. CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS AND EXISTING BUILDING WITH THE UTILITY COMPANY AFFECTED ABUTTER, AND ADJACENT TENANTS.
21. THE NEW BUILDING EXPANSION SHALL INCLUDE A SEPARATE KNOX BOX. EACH NEW TENANT SHALL HAVE A SEPARATE FIRE ALARM SYSTEM AND SHALL COMPLY WITH ANY APPLICABLE NFPA CODES AND STANDARDS. KNOX BOX LOCATIONS AND FIRE ALARM SYSTEMS SHALL BE COORDINATED WITH THE CITY OF PORTSMOUTH FIRE DEPARTMENT.
22. SHOP DRAWINGS SUBMITTALS SHALL BE SENT TO ENGINEER OF RECORD AND TO 3RD PARTY INSPECTOR AND PORTSMOUTH DPW FOR REVIEW/APPROVAL. ENGINEER OF RECORD SHALL INDICATE CONFORMANCE TO PLANS OR NOTE THE DEVIATION PRIOR TO SENDING TO 3RD PARTY INSPECTOR AND DPW.



LEGEND

	PROPOSED MAJOR CONTOUR LINE
	PROPOSED MINOR CONTOUR LINE
	PROPOSED SILT SOCK
	INLET PROTECTION SILT SACK
S S	EXISTING SANITARY SEWER
T T	EXISTING UNDERGROUND TELECOMMUNICATION
W	EXISTING WATER
G	EXISTING GAS
E	EXISTING UNDERGROUND ELECTRIC
OHW	EXISTING OVERHEAD UTILITY
	EXISTING CATCHBASIN
	EXISTING DRAIN MANHOLE
	EXISTING SEWER MANHOLE
	EXISTING HYDRANT
	EXISTING WATER VALVE
	PROPOSED SEWER MANHOLE
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
VIF	VERIFY IN FIELD

GRADING AND DRAINAGE NOTES:

1. COMPACTION REQUIREMENTS:

BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%

   * ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.
2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL) OR RCP CLASS IV, UNLESS OTHERWISE SPECIFIED.
3. SEE UTILITY PLAN FOR ALL SITE UTILITY INFORMATION.
4. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN DEVELOPMENT LOT TO FINISH GRADE.
5. 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.
6. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS, MANHOLES, UNDERGROUND INFILTRATION BASINS AND DRAIN LINES, WITHIN THE DEVELOPMENT LOT, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION. CONTRACTOR TO PROVIDE A PHOTO AND DESCRIPTION LOG TO THE ENGINEER UPON COMPLETION OF WORK.
7. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
9. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
10. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS AND 4' SUMPS.
11. 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.
12. 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.
13. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.

EROSION CONTROL NOTES:

1. INSTALL EROSION CONTROL BARRIERS AS SHOWN AS FIRST ORDER OF WORK.
2. SEE GENERAL EROSION CONTROL NOTES ON "EROSION CONTROL NOTES & DETAILS SHEET".
3. PROVIDE INLET PROTECTION AROUND ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. MAINTAIN FOR THE DURATION OF THE PROJECT.
4. INSTALL STABILIZED CONSTRUCTION EXIT(S).
5. INSPECT INLET PROTECTION AND PERIMETER EROSION CONTROL MEASURES DAILY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
6. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER AND MULCH.
7. CONSTRUCT EROSION CONTROL BLANKET ON ALL SLOPES STEEPER THAN 3:1.
8. PRIOR TO ANY WORK OR SOIL DISTURBANCE COMMENCING ON THE SUBJECT PROPERTY, INCLUDING MOVING OF EARTH, THE APPLICANT SHALL INSTALL ALL EROSION AND SILTATION MITIGATION AND CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL PERMITS AND APPROVALS.
9. CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, SPRINKLING WATER ON UNSTABLE SOILS SUBJECT TO ARID CONDITIONS.
10. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
11. ALL CATCH BASIN SUMPS AND PIPING SHALL BE THOROUGHLY CLEANED TO REMOVE ALL SEDIMENT AND DEBRIS AFTER THE PROJECT HAS BEEN FULLY PAVED.
12. TEMPORARY SOIL STOCKPILE SHALL BE SURROUNDED WITH PERIMETER CONTROLS AND SHALL BE STABILIZED BY TEMPORARY EROSION CONTROL SEEDING. STOCKPILE AREAS TO BE LOCATED AS FAR AS POSSIBLE FROM THE DELINEATED EDGE OF WETLANDS.
13. SAFETY FENCING SHALL BE PROVIDED AROUND STOCKPILES OVER 10 FT.
14. CONCRETE TRUCKS WILL BE REQUIRED TO WASH OUT (IF NECESSARY) SHOOTS ONLY WITHIN AREAS WHERE CONCRETE HAS BEEN PLACED. NO OTHER WASH OUT WILL BE ALLOWED.

Tighe&Bond

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
3/22/22

STATE OF NEW HAMPSHIRE – NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER
3/22/22

SCALE IN FEET
0 20' 40'
GRAPHIC SCALE

Proposed Building Expansion

Waterstone Properties Group, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	3/22/2022	Amended Site Plan Review Submission

PROJECT NO:	W5008-008A
DATE:	3/22/2022
FILE:	W5008-008A_C-DSGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

GRADING, DRAINAGE, EROSION CONTROL & UTILITIES PLAN

SCALE: AS SHOWN

C-103

Last Save Date: March 22, 2022, 11:16 AM By: CML
Plot Date: Tuesday, March 22, 2022 11:16 AM By: Chris M. Langton
T&B File Location: J:\W\W5008 Waterstone Retail\008A - Portsmouth Green - Building 2 Expansion\Drawings, Figures\AutoCAD\Sheet\W5008-008A_C-DSGN.dwg Layout Tab: Grade-Util

GENERAL PROJECT INFORMATION

PROJECT OWNER: 2422 LAFAYETTE ROAD ASSOCIATES, LLC
C/O WATERSTONE RETAIL DEVELOPMENT
250 FIRST AVENUE, SUITE 202
NEEDHAM, MASSACHUSETTS 02494

PROJECT NAME: PORTSMOUTH GREEN - PROPOSED BUILDING EXPANSION

PROJECT ADDRESS: 2454 LAFAYETTE ROAD
PORTSMOUTH, NH 03801

PROJECT MAP / LOT: MAP 273 / LOT 3
PROJECT LATITUDE: 43.036120 N
PROJECT LONGITUDE: -70.784829 W

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF DEMOLITION OF A PORTION OF AN EXISTING BUILDING AND THE CONSTRUCTION OF A PROPOSED BUILDING EXPANSION.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 0.3 ACRES.

SOIL CHARACTERISTICS

BASED ON THE NRCS WEB SOIL SURVEY FOR ROCKINGHAM COUNTY - NEW HAMPSHIRE THE SOILS ON SITE CONSIST OF MOSTLY URBAN SOILS WHICH HAVE UNKNOWN DRAINAGE PROPERTIES.

NAME OF RECEIVING WATERS

THE STORMWATER RUNOFF WILL BE COLLECTED IN A CLOSED DRAINAGE SYSTEM WHICH ULTIMATELY DISCHARGES TO THE LITTLE HARBOR.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
   - NEW CONSTRUCTION
   - CONTROL OF DUST
   - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
   - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
2. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
3. CLEAR AND DISPOSE OF DEBRIS.
4. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
5. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
6. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
7. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
8. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
9. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
10. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:

1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
3. LIMIT THE LENGTH OF EXPOSURE OF UNSTABILIZED SOIL TO 45 DAYS OR LESS.

EROSION CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
2. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
3. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALE, SILT FENCES, MULCH BERMS, INLET PROTECTION AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
4. INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
5. PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
6. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
7. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
8. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
9. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

STABILIZATION:

1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
2. WINTER STABILIZATION PRACTICES:
   A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
   B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
   C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
   A. TEMPORARY SEEDING;
   B. MULCHING.
4. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
5. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY NOVEMBER 15.

DUST CONTROL:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

STOCKPILES:

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:

1. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

VEGETATION:

1. TEMPORARY GRASS COVER:
   A. SEEDBED PREPARATION:
      a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
   B. SEEDING:
      a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
      b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
      c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
   C. MAINTENANCE:
      a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
2. VEGETATIVE PRACTICE:
   A. FOR PERMANENT MEASURES AND PLANTINGS:
      a. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5;
      b. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20 FERTILIZER;
      c. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH;
      d. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH;
      e. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE;
      f. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED;
      g. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
      h. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE APPLIED AT THE INDICATED RATE:

SEED MIX	APPLICATION RATE
CREEPING RED FESCUE	20 LBS/ACRE
TALL FESCUE	20 LBS/ACRE
REDTOP	2 LBS/ACRE

   IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.
3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
   A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

CONCRETE WASHOUT AREA:

1. THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
   A. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FACILITY;
   B. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
   C. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
   D. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES:

1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:

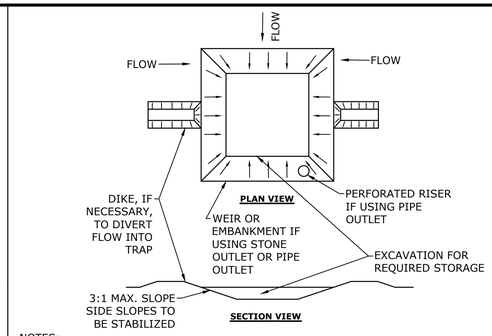
1. WASTE MATERIAL:
   A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE:
   A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE:
   A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION:

1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
   A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
      a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
      b. ALL MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE;
      c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
      d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
      e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
      f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
   B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
      g. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
      h. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
      i. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
   C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
      a. PETROLEUM PRODUCTS:
         a.1. ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
         a.2. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
      b. FERTILIZERS:
         b.1. FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
         b.2. ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
         b.3. STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
      c. PAINTS:
         c.1. ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
         c.2. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
         c.3. EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
   D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
      a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
      b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
      c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
      d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
      e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
      f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
   E. VEHICLE FUELING AND MAINTENANCE PRACTICE:
      a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPTMENT/VEHICAL FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
      b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
      c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
      d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
      e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
      f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

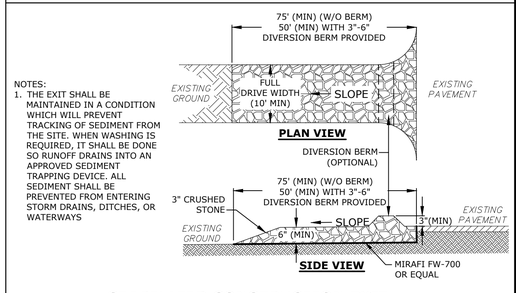
EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

1. THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
   A. OBSERVATIONS OF THE PROJECT SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
   B. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
   C. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF INSPECTION.



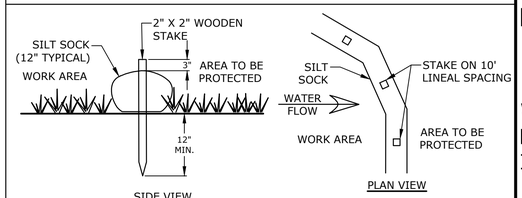
NOTES:
1. THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING AREA TO A SINGLE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. TRAP OUTLET SHALL BE MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP.
5. TRAP SHALL DISCHARGE TO A STABILIZED AREA.
6. TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.
8. SEDIMENT TRAPS MUST BE USED AS NEEDED TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.

SEDIMENT TRAP
NO SCALE



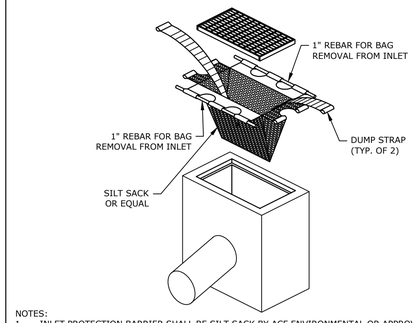
NOTES:
1. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS

STABILIZED CONSTRUCTION EXIT
NO SCALE



NOTES:
1. SILT SOCK SHALL BE SILT SOXX BY FILTREXX OR APPROVED EQUAL.
2. SILT SOCK SHALL BE FILLED WITH FILTERMEDIA BY FILTREXX OR APPROVED EQUAL.
3. WHERE TWO SILT SOCKS ARE JOINED, A MINIMUM OF 2 FEET OF OVERLAP SHALL BE MAINTAINED.
4. SILT SOCKS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. CONTRACTOR TO INSTALL SILT SOCK IN J-HOOK OR SMILE CONFIGURATION TO LIMIT CONCENTRATION OF STORMWATER RUNOFF AT A SINGLE DISCHARGE POINT.

SILT SOCK
NO SCALE



NOTES:
1. INLET PROTECTION BARRIER SHALL BE SILT SACK BY ACF ENVIRONMENTAL OR APPROVED EQUAL.
2. INLET PROTECTION BARRIER SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASINS LOCATED WITHIN THE LIMIT OF WORK.
3. SILT SACK SHALL BE INSPECTED REGULARLY AND MAINTAIN IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

INLET PROTECTION BARRIER
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
3/22/22

STATE OF NEW HAMPSHIRE – NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER
3/22/22

Proposed Building Expansion

Waterstone Properties Group, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	3/22/2022	Amended Site Plan Review Submission

PROJECT NO:	W5008-008A
DATE:	3/22/2022
FILE:	W5008-008A_C-DTLS.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

EROSION CONTROL, NOTES, & DETAILS SHEET

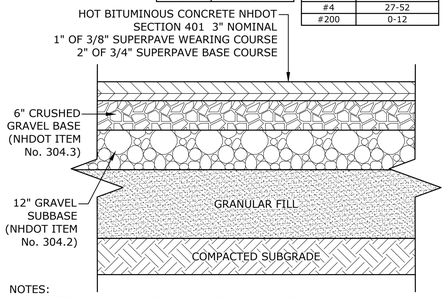
SCALE: AS SHOWN

C-501

Last Save Date: March 22, 2022 11:15 AM By: CML
Plot Date: March 22, 2022 11:16 AM By: Craig M. Langton
T&B File Location: J:\W\W5008 Waterstone Retail\008A - Portsmouth Green - Building 2 Expansion\Drawings_Figures\AutoCAD\Sheet\W5008-008A_C-DTLS.dwg Layout Tab: C-501

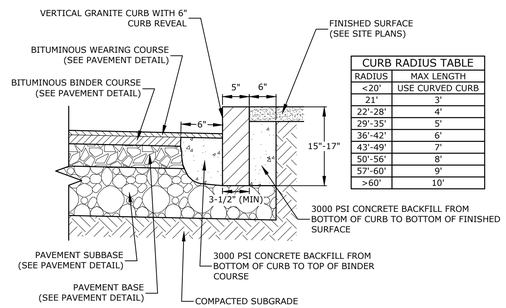
NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12

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:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
4. REFER TO CITY SPECIFICATIONS FOR ASPHALT MIX DESIGN.
5. CONTRACTOR SHALL CONFIRM THIS PAVEMENT SECTION WITH THE PROJECT'S GEOTECHINCAL ENGINEEER PRIOR TO CONSTRUCTION.

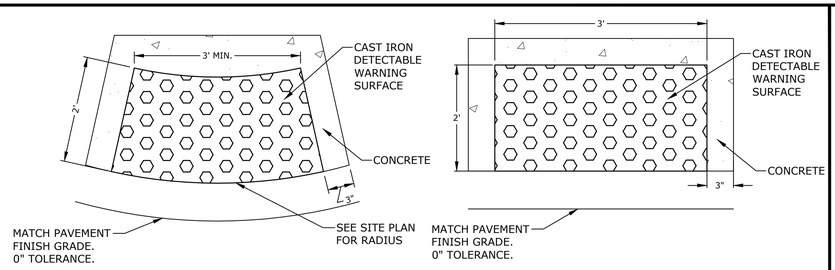
ON-SITE PAVEMENT SECTION
NO SCALE



CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<20'	USE CURVED CURB
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

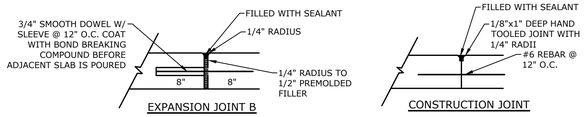
NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

VERTICAL GRANITE CURB
NO SCALE



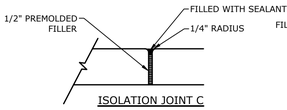
NOTES:
1. DETECTABLE WARNING SURFACE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

DETECTABLE WARNING SURFACE
NO SCALE

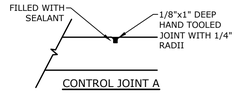


EXPANSION JOINT B

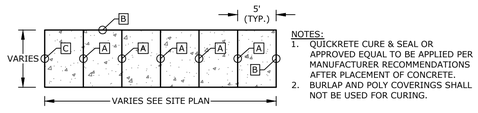
CONSTRUCTION JOINT



ISOLATION JOINT C

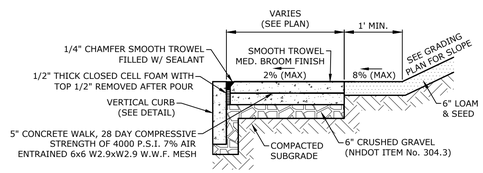


CONTROL JOINT A

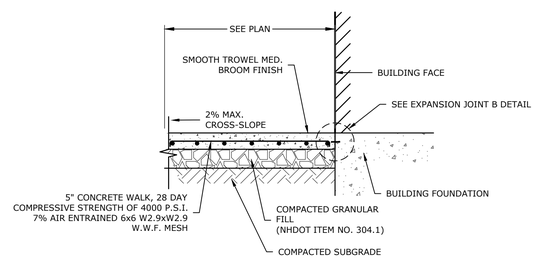


NOTES:
1. QUICKRETE CURE & SEAL OR APPROVED EQUAL TO BE APPLIED PER MANUFACTURER RECOMMENDATIONS AFTER PLACEMENT OF CONCRETE.
2. BURLAP AND POLY COVERINGS SHALL NOT BE USED FOR CURING.

PLAN VIEW

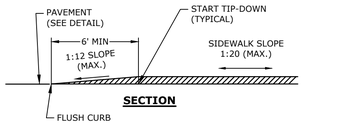


SECTION VIEW

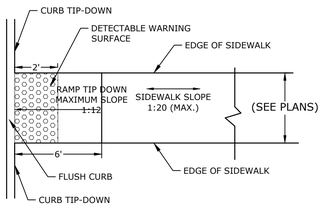


CONCRETE SIDEWALK SECTION VIEW @ BUILDING

CONCRETE SIDEWALK
NO SCALE



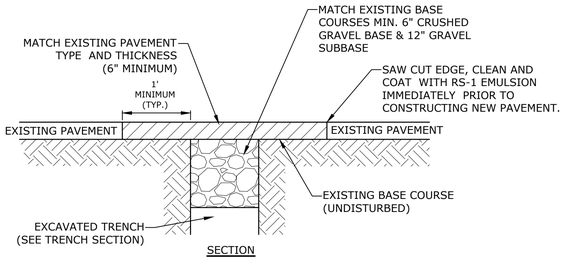
SECTION



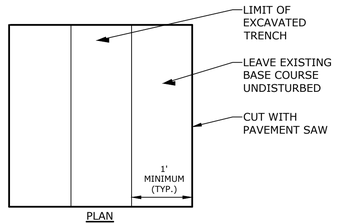
PLAN

NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. A 9" COMPACTED CRUSHED GRAVEL BASE (NHDOT ITEM No. 304.3) SHALL BE PROVIDED BENEATH RAMPS.
3. DETECTABLE WARNING PANEL SHALL BE CAST IRON WITH BLACK COATING

CONCRETE SIDEWALK TIP-DOWN RAMPS WITH DETECTABLE WARNING PANEL
NO SCALE



SECTION



PLAN

NOTE:
COORDINATE AND OBTAIN APPROVAL FOR ALL TRENCHING AND PATCHING WITHIN CITY RIGHT OF WAY WITH CITY OF PORTSMOUTH DPW PRIOR TO COMMENCING WORK.

ROADWAY TRENCH PATCH
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE — PATRICK CRIMMINS — No. 12378 — LICENSED PROFESSIONAL ENGINEER
3/22/22

STATE OF NEW HAMPSHIRE — NEIL A. HANSEN — No. 15227 — LICENSED PROFESSIONAL ENGINEER
3/22/22

Proposed Building Expansion

Waterstone Properties Group, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
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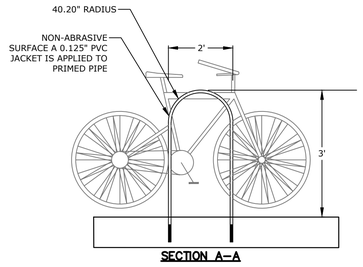
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

DETAILS SHEET

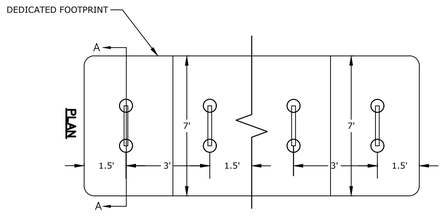
SCALE: AS SHOWN

C-502

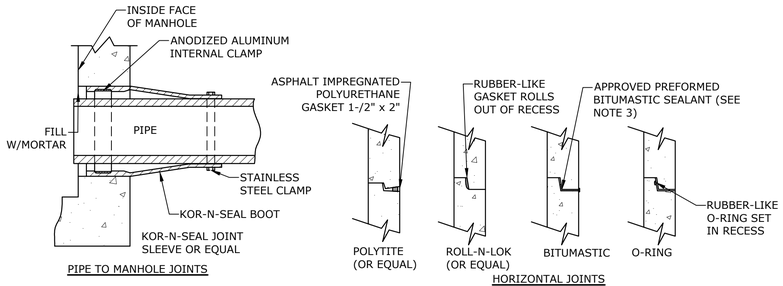
Last Save Date: March 22, 2022, 11:15 AM By: CML
Plot Date: Tuesday, March 22, 2022 Plotted By: Cindy M. Langton
T&B File Location: J:\W\W5008 Waterstone Retail\008A - Portsmouth Green - Building 2 Expansion\Drawings, Figures\AutoCAD\Sheet\W5008-008A_C-DTLS.dwg Layout Tab: C-502



SECTION A–A

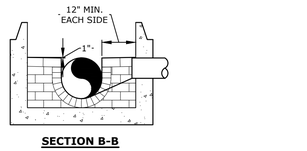


BIKE RACK
NO SCALE

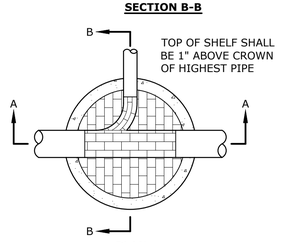


NOTES:
1. HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER CITY OF PORTSMOUTH DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.
3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY.
4. ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

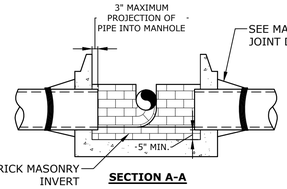
MANHOLE JOINTS
NO SCALE



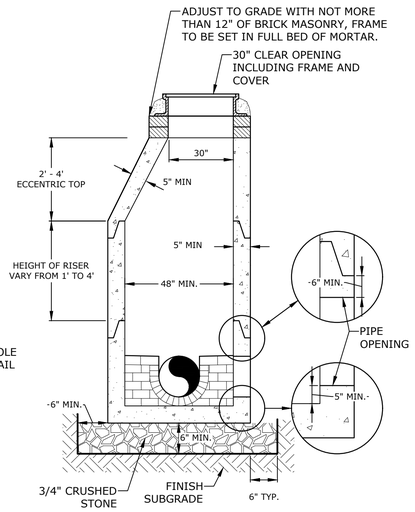
SECTION B-B



PLAN



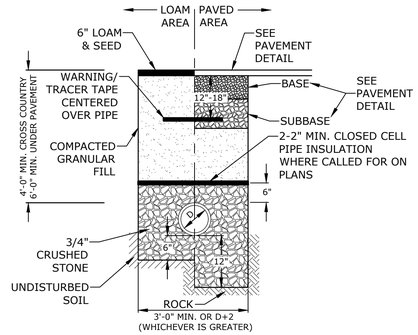
SECTION A-A



TYPICAL SECTION

NOTES:
1. INVERT AND SHELF TO BE PLACED AFTER EACH LEAKAGE TEST.
2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT.
3. INVERT BRICKS SHALL BE LAID ON EDGE.
4. TWO (2) COATS OF BITUMINOUS WATERPROOF COATING SHALL BE APPLIED TO ENTIRE EXTERIOR OF MANHOLE.
5. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WITHIN CITY RIGHT OF WAY SHALL BE CITY STANDARD HINGE COVERS MANUFACTURED BY EJ. FRAMES AND COVERS WILL BE PURCHASED FROM THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. ALL OTHER MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
6. HORIZONTAL JOINTS SHALL BE SEALED FOR WATER TIGHTNESS USING A DOUBLE ROW OF ELASTOMERIC OR MASTIC-LIKE SEALANT.
7. BARREL AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE DESIGNED FOR H20 LOADING, AND CONFORMING TO ASTM C478-06.

SEWER MANHOLE
NO SCALE



NOTE:
1. CRUSHED STONE BEDDING FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK. CRUSHED STONE SHALL ALSO COMPLETELY ENCASE THE PIPE AND COVER THE PIPE TO A GRADE 6" OVER THE TOP OF THE PIPE FOR THE ENTIRE WIDTH OF THE TRENCH.
2. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

SEWER SERVICE TRENCH
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 3/22/22

STATE OF NEW HAMPSHIRE – NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER – 3/22/22

Proposed Building Expansion

Waterstone Properties Group, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	3/22/2022	Amended Site Plan Review Submission

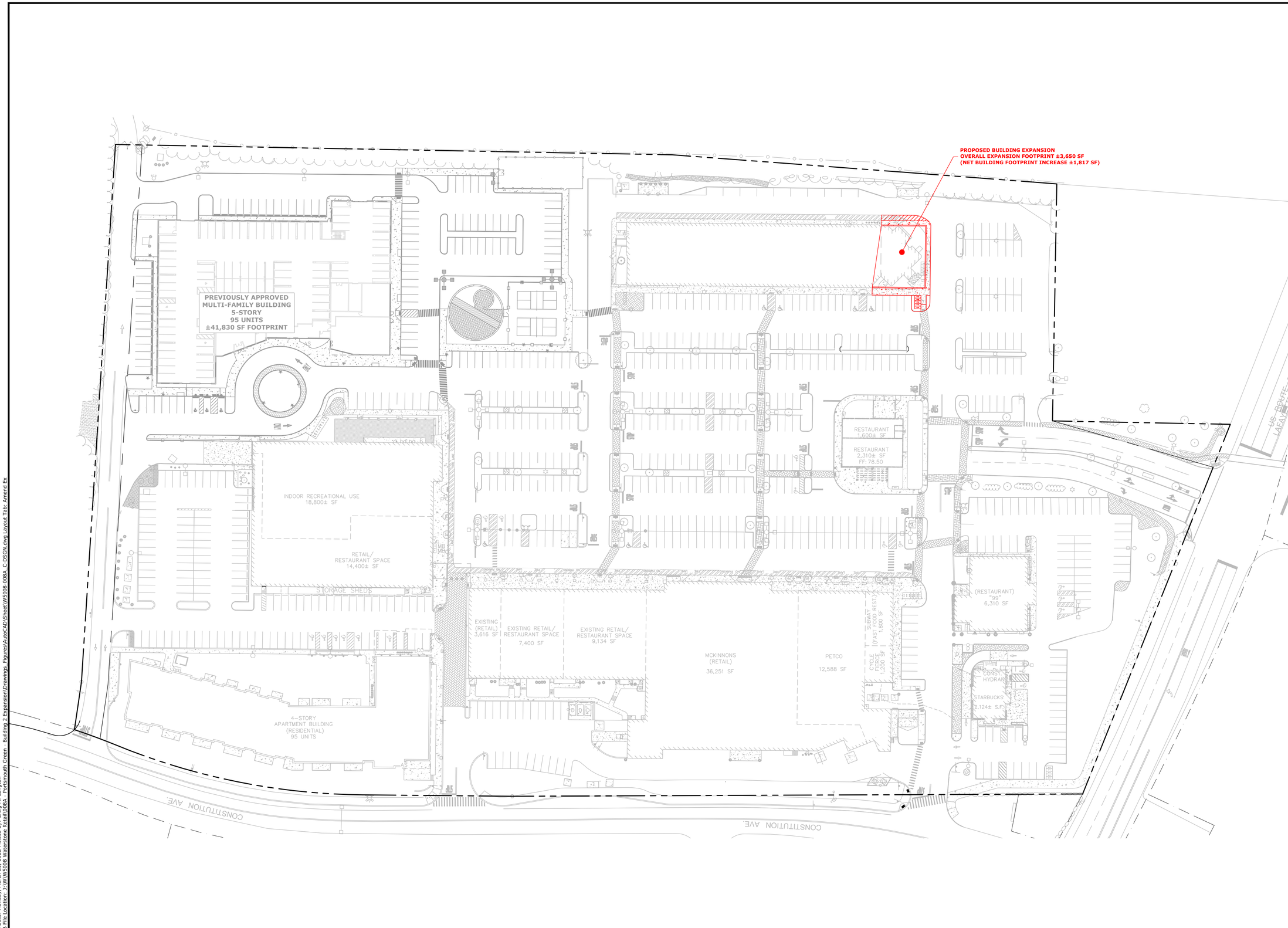
PROJECT NO:	W5008-008A
DATE:	3/22/2022
FILE:	W5008-008A_C-DTLS.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

DETAILS SHEET

SCALE: AS SHOWN

C-503

Last Save Date: March 22, 2022 11:15 AM By: CML
Plot Date/Time: March 22, 2022 11:15 AM By: Craig M. Langton
T&B File Location: J:\W\W5008 Waterstone Retail\008A - Portsmouth Green - Building 2 Expansion\Drawings_Figures\AutoCAD\Sheet\W5008-008A_C-DTLS.dwg Layout Tab: C-503



Tighe&Bond

N

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

Proposed Building Expansion

Waterstone Properties Group, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	3/22/2022	Amended Site Plan Review Submission

PROJECT NO:	W5008-008A
DATE:	3/22/2022
FILE:	W5008-008A_C-DSGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

AMENDED SITE PLAN
OVERLAY EXHIBIT

SCALE: AS SHOWN

1 OF 1

Last Save Date: March 21, 2022 11:26 AM By: CML
Plot Date: Monday, March 21, 2022 Plotted By: Craig M. Langton
T&B File Location: J:\W\W5008 Waterstone Retail\008A - Portsmouth Green - Building 2 Expansion\Drawings_Figures\AutoCAD\Sheet\W5008-008A_C-DSGN.dwg Layout Tab: Amend Ex



Portsmouth Fire Truck	
Overall Length	47.830ft
Overall Width	8.500ft
Overall Body Height	10.432ft
Min Body Ground Clearance	0.862ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	38.00°

LEGEND

VEHICLE OVERHANG

VEHICLE WHEEL BASE

SCALE IN FEET

0 30' 60'

GRAPHIC SCALE

Tighe&Bond

Proposed Building Expansion

Waterstone Properties Group, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
A	3/22/2022	Amended Site Plan Review Submission

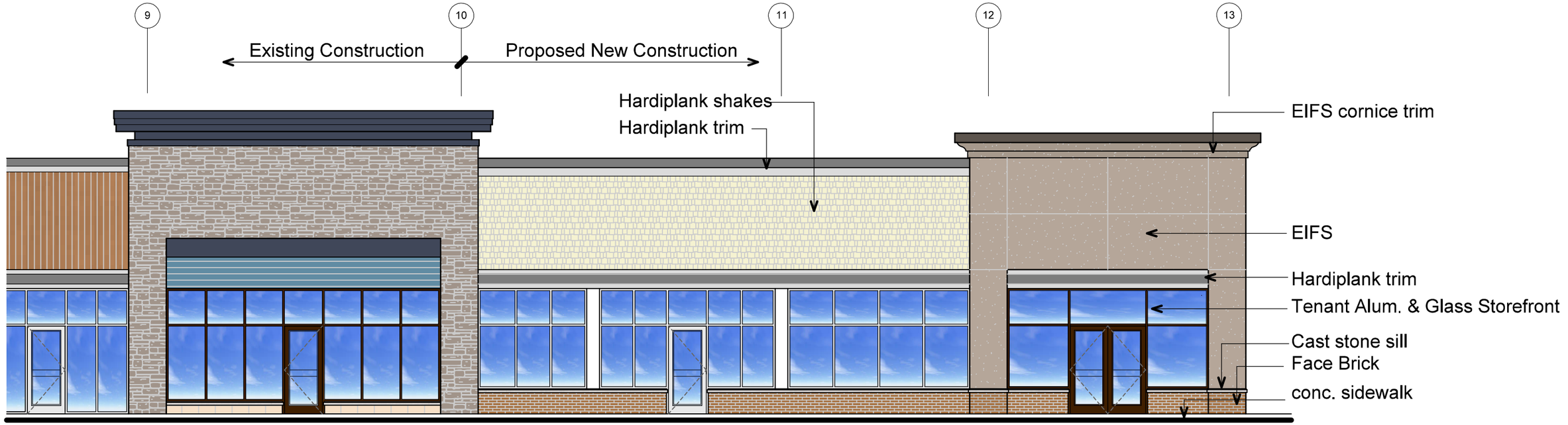
PROJECT NO:	W5008-008A
DATE:	3/22/2022
FILE:	W5008-008A_C-DSGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

FIRE TRUCK TURNING EXHIBIT

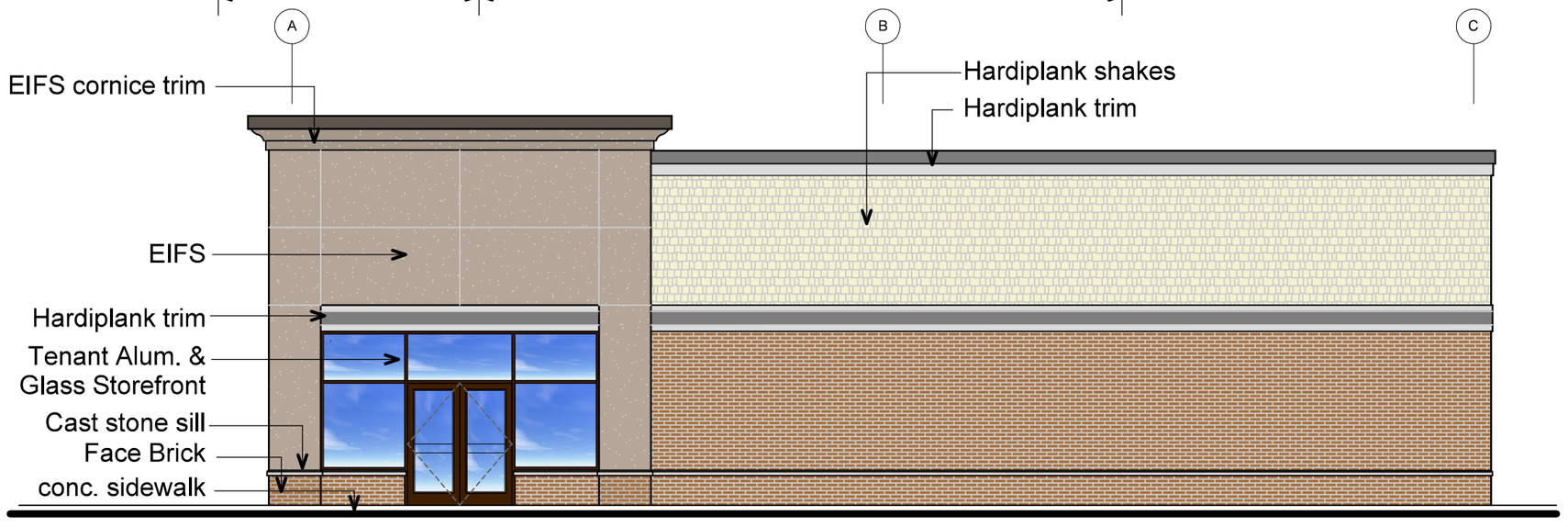
SCALE: AS SHOWN

1 OF 1

Last Save Date: March 21, 2022 3:51 PM By: CML
Plot Date: Monday, March 21, 2022 Plotted By: Craig M. Langton
T&B File Location: J:\W\W5008 Waterstone Retail\008A - Portsmouth Green - Building 2 Expansion\Drawings_Figures\AutoCAD\Sheet\W5008-008A_C-DSGN.dwg Layout Tab: Fire-Truck



Front Elevation



Side Elevation

WATERSTONE PROPERTIES

PORTSMOUTH GREEN

2454 Lafayette Road — Portsmouth, NH

03.21.2022 — 1/8"=1'-0"

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