City of Biddeford
Planning Board
December 07, 2022 6:00 PM City Hall
Council Chambers, & Zoom
https://biddeford.zoom.us/j/92661621260?pwd=SWhlMVdkSHN6NVl4Zk1uSnNQZzg3UT09
webinar ID #926 6162 1260 Passcode 959409

STATUS: Planning Board 12-7-22 6:00 in the Council Chambers & on Zoom

1. PLEDGE OF ALLEGIANCE

2. DECLARATION OF QUORUM/VOTING MEMBERS

3. ADJUSTMENTS TO THE AGENDA

4. PLANNER'S BUSINESS

5. CONSENT AGENDA

5.A. Consideration of Meeting Minutes from November 2, 2022; November 8, 2022 & November 16, 2022.
PB Minutes 110222-DRAFT.pdf
PB Minutes 110822-DRAFT.pdf
PB Minutes 111622-DRAFT.pdf

6. UNFINISHED BUSINESS

7. NEW BUSINESS

7.A. 2022.24 Public Hearing and take public comments regarding a revised Preliminary Site Plan approval for Devine Capital LLC. The project is to construct 216 residential units at 588 & 590 Alfred Street (Tax Map 2, Lots 6 & 12).
2022.24 Devine Capital Prelim Review 12-1-2022 FINAL.pdf
Biddeford Residential. written material.pdf
Biddeford Residential. Site Plans.pdf

7.B. 2021.42 Public Hearing and take comments for the 3rd preliminary request for Site Plan & Subdivision for South Street Village, LLC. The applicant intends to create a 195 Unit over 55 Manufactured Housing Park called Hidden Hills at 413 South Street, (Tax Map 7, Lot 8) in the SR1 & RF Zones with the MHP Overlay.
Hidden Hills PLANNING BOARD REPORT 12-1-2022 FINAL.pdf
Hidden Hills Submission Materials 11-16-2022.pdf
Hidden Hills Survey.pdf
Hidden Hills Plan Set - 11-16-2022.pdf

8. OTHER BUSINESS

9. ADJOURN

The Board reserves the right to halt official business at 9:30 p.m. Items not heard at tonight's meeting shall be rescheduled to the next meeting of the Board. All materials pertaining to items on the agenda are available for public review at the Biddeford Planning Department, second floor, Biddeford City Hall during normal business hours.

CITY OF BIDDEFORD

Planning and Development Department

205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

Planning Board
Meeting Minutes
DRAFT

Date: November 2, 2022
Time: 6:00 PM
Location: Council Chambers & Zoom

1. **Pledge of Allegiance**
2. **Declaration of Quorum/Voting Members**
   Quorum Present: Bill Southwick (Chair), Roch Angers, Sean Tarpey, Larry Patoine (Alternate) & Susan Deschambault (Alternate)
   Patoine & Deschambault voting this evening.
   Staff Present: Matt Grooms, Eric Freeman & Nan Whitten
   Chair Southwick opened the meeting at 6:00 PM
3. **Adjustments to the Agenda**
4. **Planner's Business**
5. **Consent Agenda**
   Consideration of Meeting Minutes from 10-5-22 & 10-19-22
   MOTIONS: 6:05 PM
   Patoine-Motion- Motion to approve the Consent Agenda as presented.
   Angers-Second
   Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Patoine & Deschambault)
6. **Unfinished Business**
7. **New Business**
   2022.41 Public Meeting and take comments to review a Sketch Plan for 24 Cutts St. LLC. This property is located at 24 Cutts Street (Tax Map 38, Lot 54) in the MSRD-2 Zone. The applicants would like to convert the three-unit building into a six-unit building utilizing the bonus density provision in the ordinance. This change will add three new living units to the city, within the existing building envelope. All 6 of the new units will be completely renovated to include new heat, hot water, interior finishes, kitchens, bathrooms and more. These units will be brand new one and two bedroom ranging in size from 674sf to 773sf. Additionally; this building will receive a full fire suppression system, as required by code that will make it safer for the residents.
   - **Mr. Freeman introduced the project**
   - **David Douglass represented himself as applicant beginning by thanking the Planning Board members.**
   - **He purchased the home 2 years ago.**

- **He has very long term tenants whom he intends to keep, even during the construction.**
- **He requested the Planning Board approve combining his Preliminary & Final Hearing into 1 meeting.**
- **Mr. Douglass mentioned there is not a lot of parking on Cutts Street but there is ample parking in the area.**
- **Andrew Ouellette of 24 Cutts Street spoke from the public**
- **These will be market rate apartments with the exception of 1 being 80% of FMR.**
  MOTIONS: 6:23PM
  Patoine-Motion- Motion to designate the application for a 3-unit expansion of 24 Cutts Street (Tax Map 38, Lot 54) as a Minor Subdivision
  Tarpey-Second
  Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Patoine & Deschambault)

7. B. 2022.17 Public Hearing & Take Comments to review a Preliminary Subdivision for Peter & Susan McPheeters. The property is located at 81 Guinea Road (Tax Map 76, Lot 37 & Map 77, Lot 35) in the SR1 & RF zones with the Shoreland Overlay. The applicants wish to subdivide their 20-acre parcel of land into four residential house lots. Access to the property is from a 50-foot strip of land requiring the construction of a private road. The property will be serviced by public water, underground utilities, and on-lot septic. The project is located in the SR-1 Zone requiring 100 foot of street frontage and a minimum lot size of 20,000 square feet.

- **Eric Freeman introduced the project, mentioning the stream protection; the portion of the land in the RF zone is not being developed. Mr. Freeman told the Board that the applicant would be filling approximately 9,400 sf.**
- **The applicant is requesting a waiver for the performance guarantee.**
- **Paul Gadbois represented the applicant**
- **He told the Board that the setbacks are more in line with IF&W's policies.**
- **There are no historic structures or Native American artifacts on the site.**
- **Speakers from the Public:**
  Matt Haas-36 Meetinghouse Road
  Richard Rhames-10 West Loop Road
- **Mr. Gadbois spoke to the Board in order to correct some statements made or clear up confusion:**
  The building envelopes show that the applicant is exceeding required setbacks.
  97 Guinea Road is NOT part of this subdivision.
  The developers/applicant is using "Smart Stream Crossing"
- **Mr. McPheeters spoke to confirm that 97 Guinea Road is not part of this project.**
  MOTIONS: 7:02PM
  Patoine-Motion- Motion to find the application 'complete' for review purposes.
  Deschambault-Second
  Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Patoine & Deschambault)

Patoine-Motion- Motion to approve the preliminary subdivision plan for a 4-lot residential subdivision at 81 Guinea Road (Tax Map 76, Lot AND Map 77/Lot 35).
Angers-Second
Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Patoine & Deschambault)

7. C. 2022.11 Public Hearing and take comments to review a preliminary subdivision application for Tom Watson & Co. The property is located at 10, 20 & 30 Upper Falls Way formerly known as Gooch Street (Tax Map 40, Lots 55, 55-3, & 56-1) in the MSRD-3 Zone and in the Shoreland Zone GD-1. The applicants propose to construct a 6-story building containing 55 residential units with a restaurant space on 10 Upper Falls Way, a 5-story, 16-unit residential building on 20 Upper Falls Way, 11 townhome units on 26 Upper Falls Way, and a partial demolition and redevelopment of the existing building located at 30 Upper Falls Way to accommodate a commercial use (potentially a brewery/taproom/restaurant). The project will include associated parking and landscaped areas.

- **Representing the Applicant:**
  John Laliberte-Tom Watson & Co.
  Mike Barton-Tom Watson & Co.
  Peter Heil-Acorn Engineering
  Ryan Senatore-Ryan Senatore Architects
- **Gooch Street has been renamed to Upper Falls Road**
- **Full utilities will be underground**
- **This project is dependent upon the Shoreland Zoning Ordinance being amended.**
- **T.Y. Lin is creating the Traffic reports.**
- **They are aware of the Traffic Impact Fee**
- **All buildings are at least 1 foot above the 100-year flood level.**
- **They will be reducing impervious surface and increasing green space.**
- **This project will include shoreland stabilization.**
- **No Public Comments**
- **The Board asked about the Amtrak Connection and if the City property used for off-street parking will be used for this development. The answer is yes.**
- **The planned restaurant(s) will have 45-49 seats.**
- **There are EV Charging Stations but anticipate adding more.**
- **The applicant is working with flood zone experts for the placement of structures.**
- **The apartments will be market rate.**
  MOTIONS: 8:10PM
  Patoine-Motion- Motion to determine the application is "complete" for review purposes.
  Angers-Second
  Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Patoine & Deschambault)
  Patoine-Motion-Motion to approve the Preliminary Subdivision and Site Plan application for the proposal at 10, 20, and 30 Upper Falls Way (Tax Map 40, Lots 55, 55-3, and 56-1) with conditions of approval as presented by staff.
  Angers-Second

Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Patoine & Deschambault)

7. D. 2022.02 Public Hearing and take comments regarding a Preliminary Subdivision Application for 3 Lincoln, LLC. The property is located at 3 Lincoln Street (Tax Map 71, Lot 2) in the MSRD-3 Zone and within the Shoreland Zone. The applicant proposes to formally subdivide the larger 3 Lincoln Street parcel into four (4) separate lots and construct three (3) buildings on Lot 3 including a residential/mixed use building (Building A) with approximately 85-units, a residential building (Building B) with approximately 129-units, and a commercial/restaurant building (Building C).

- **Mat Grooms introduced the project.**
- **He explained that it is lot 3 of the former MERC site; the stack is on lot 4.**
- **This project also depends on the amendments to the Shoreland Zoning Ordinance.**
- **The project is consistent is the MSRD 3 zone and triggers permits from the Saco River Corridor Commission, DEP, & MDOT.**
- **There will be a 3rd party review for the traffic movement permit.**
- **The applicant is requesting an off street-parking waiver.**
- **Representing the applicants:**
  Marika Thornman-Fathom
  Peter Heil-Acorn Engineering
- **Mr. Heil told the Board all utilities would be underground.**
- **The Saco River Corridor Commission approved new standards the previous week.**
- **There will be a reduction of impervious surface and an increase in green space.**
- **No Public Comments**
- **The Board asked about the restaurant(s) being a 290-seat capacity.**
- **They asked about acoustic testing due to their proximity to the tracks.**
- **The site is located outside of the 100-year flood zone.**
- **The 3rd party traffic review will include all of the new projects in the area.**
  MOTIONS: 9:17 PM
  Patoine-<u>Motion</u>- Motion to determine the application is "complete" for review purposes.
  Deschambault-<u>Second</u>
  Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Patoine & Deschambault).
  Patoine-<u>Motion</u>- Motion to approve the Preliminary Subdivision and Site Plan application for the proposal at 3 Lincoln Street (Tax Map 71, Lot 2) with conditions of approval as presented by staff.
  Angers-<u>Second</u>
  Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Patoine & Deschambault)

8. Other Business

9. Adjourn

Meeting adjourned at 9:22 PM

Planning Board Chair/Vice Chair **Date**

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CITY OF BIDDEFORD

Planning and Development Department

205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

Planning Board
Meeting Minutes
DRAFT

Date: November 8, 2022
Time: 4:00 PM
Location: Council Chambers & Zoom

1. **Pledge of Allegiance**
2. **Declaration of Quorum/Voting Members**
   Quorum Present: Bill Southwick (Chair), Roch Angers, Sean Tarpey, Alexa Plotkin & Larry Patoine (Alternate)
   Patoine is voting this evening.
   Staff Present: Matt Grooms, & Eric Freeman
   Chair Southwick opened the meeting at 4:00 PM
3. **Adjustments to the Agenda**
4. **Planner's Business**
5. **Unfinished Business**
6. **New Business**
   6. A. 2022.30 Public Hearing and take comments to review a Final Subdivision Plan for Shawn Brown to create a 5-lot subdivision in the Residential 2 Zone at 355 Pool Street (Tax Map 44, Lot 21).
   - **Matt Grooms introduced the project, stating that notes have been added to the plan explaining that lots 4 & 5 are unbuildable.**
   - **The litigation between the applicant and the abutter continues. The City Attorney has added a note to the file saying the Planning Board is within their rights to take action.**
   - **This project is technically a lot split but was obligated to get Planning Board approval.**
   - **Bill Thompson from BH2M represented the applicant.**
   - **Mr. Thompson reminded the Board that this is an Amendment to the Tarte Subdivision.**
   - **The applicant eliminated frontage on lots 4 & 5.**
   - **There were no public comments**
   - **An easement noted on the plan for a discharge pipe will be removed as the pipe has been removed.**
   - **There is an existing small structure on lot 2**
     MOTIONS: 4:10PM
     Angers: <u>Motion</u> to find the application 'complete' for review purposes
     Patoine-<u>Second</u>

Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Plotkin & Patoine)
Angers-Motion- To approve the Final Subdivision application for a 5-lot residential subdivision at 355 Pool Street (Tax Map 44, Lot 21) with conditions of approval as presented by staff.
Patoine-Second
Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Plotkin & Patoine)

6. B. 2022.43 Public Meeting and take comments to review a Shoreland Zoning Permit Application for The Engineering Department of the City of Biddeford to install an under soil drain filter. Property is located in the Industrial Zone and within the Shoreland Zone at 26 Morin Street (Tax Map 11, Lot 8).

- **Matt Grooms introduced the project**
- **Mr. Grooms explained that this is part 3 of a grant from 2019.**
- **Craig Chekan-City of Biddeford Engineer & Chris McDonald of BH2M represented the applicant.**
- **As Mr. Grooms said this is the third phase of a 3-phase grant in cleaning up Thatcher Brook, which has been declared an urban impaired stream.**
- **Phase I was to install a soil filter on Morin Street**
- **Phase II was to install soil filters in front of Sterling Rope & FMI**
- **Phase III is to install filters on Drapeau and Morin Streets.**
- **There were no public comments**
- **The Board talked about the project and impervious surfaces**

MOTIONS: 4:32PM
Angers-Motion- To waive full site plan review
Patoine-Second
Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Plotkin & Patoine)
Angers-Motion- To find the application 'complete' for review purposes
Patoine-Second
Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Plotkin & Patoine)
Angers-Motion- To approve the shoreland zone permit at 26 Morin Street (Tax Map 11, Lot 8) with conditions of approval as presented by staff.
Patoine-Second
Chair Southwick-roll call for vote-Motion Passed Unanimously (Angers, Tarpey, Plotkin & Patoine)

7. Other Business
8. Adjourn
Meeting adjourned at 4:34 PM

_____ _____
Planning Board Chair/Vice Chair **Date**

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CITY OF BIDDEFORD

Planning and Development Department

205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

Planning Board
Meeting Minutes
DRAFT

Date: November 16, 2022
Time: 6:00 PM
Location: Council Chambers & Zoom

1. **Pledge of Allegiance**
2. **Declaration of Quorum/Voting Members**
   Quorum Present: Bill Southwick (Chair), Roch Angers, Sean Tarpey (via Zoom), Alexa Plotkin & Michael Cantara
   Staff Present: Matt Grooms, Eric Freeman, Greg Mitchell & Nan Whitten
   Chair Southwick opened the meeting at 6:04 PM
3. **Adjustments to the Agenda**
4. **Planner's Business**
   Greg Mitchell gave an update of operation after the departure of Matt Grooms. The Planner position is open and has been advertised. In the meantime, there will be an interim Planner by the name of David C.M. Galbraith. Mr. Galbraith will be in the office beginning November 28, 2022 and will be attending the December 7th Planning Board Meeting. There will be no interruption in business of the Planning Department.
   Chair Southwick thanked Mr. Mitchell for his work with the Planning Board & the Planning Department.
5. **Consent Agenda**
   5. A. Consideration of Minutes of Site Walk of 11-2-22, South Street Village, Hidden Hills Subdivision.
   MOTIONS: 6:09 PM
   Angers-<u>Motion</u>-Approve Consent Agenda as presented
   Tarpey-<u>Second</u>
   Chair Southwick did a roll call for vote-Motion passed (Angers, Tarpey & Plotkin in favor, Cantara abstained)
6. **Old Business**
7. **New Business**
   7. A. 2022.32 Public Hearing, take comments, and make a recommendation to the City Council regarding a zoning amendment to revise the Shoreland Zoning Ordinance. This change would establish a new shoreland sub-district called the 'Waterfront Renaissance' District, under Maine DEP's special local condition designation process, for a portion of the Downtown between the Saco Industrial Railroad Bridge and Pearl Street, to allow for new mixed-use development within the shoreland zone.
   - **Mr. Grooms presented this proposed zone change.**

- **The staff has been working on these changes with DEP & local developers.**
- **There was 1 issue west of Route 1, which has been rectified and well received by DEP.**
- **These proposed amendments should move along quickly as they are crucial to the revitalization of the Mill District and future projects.**
- **There will be more green space. These changes are to mirror the GD1 zone.**
- **Pearl Point Park has not been parceled out yet and there is an area of Diamond Street that is in question, according to the proposed changes.**
- **The Board wants to make sure that these two areas are excluded so that there is no chance of these lands being sold for development down the road.**
- **The City does not have clean geography to make these exclusions yet. However, there is a JDA in place to make sure that there is green space at the end of Diamond Street.**
- **The Board proposes to exclude Pearl Point Park in these changes (in order to protect it) and keep the end of Diamond Street as green space as a Condition of Approval.**
- **The map of the Waterfront Renaissance District will be updated in order to present it to the Council.**

  MOTIONS: 6:26 PM

  Cantara-Motion-To recommend the zoning text and map amendment to Article XIV Shoreland Zoning Ordinance to the City Council as drafted with the slight change to exclude lot 4, Pearl Point Park and for the western end of Diamond Street to be subject to a conservation easement.

  Angers-Second

  During the discussion, Mr. Cantara withdrew his original motion.

  Cantara-Motion-To recommend the zoning text and map amendment to Article XIV Shoreland Zoning Ordinance to the City Council with the exclusion of Lot 4 and having a Conservation Easement of the end of Diamond Street as a Condition of Approval.

  Angers-Second

  Chair Southwick did a roll call for votes-the motion passed unanimously (Angers, Tarpey, Plotkin & Cantara)

8. Other Business

8. A. Comp Plan Workshop to discuss the Vision Statement & the Future Land Use Plan

- **Eric Freeman did a Power Point presentation on the Comp Plan Vision Statement**
- **He discussed the timeline for the Comp Plan. The timeline has been adjusted due to the departure of Matt Grooms but not significantly.**
- **His plan going forward is to provide less info and larger text on each slide for the ease of people watching the meeting through zoom or on live TV.**

9. Adjourn

Chair thanked Mr. Grooms on behalf of the Board for his work during his time in Biddeford.

Meeting adjourned at 6:50 PM

_____ _____

Planning Board Chair/Vice Chair **Date**

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CITY OF BIDDEFORD
PLANNING DEPARTMENT

David C.M. Galbraith
Interim Deputy Director/City Planner
205 Main Street
Biddeford, ME 04005
(207) 284-9115
David.Galbraith@Biddefordmaine.org

PLANNING BOARD REPORT

TO: William Southwick, Chair & Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, Interim Deputy Director / City Planner

DATE: November 30, 2022

RE: 2022.24 – Biddeford Residential (AKA Devine Capital) Preliminary Subdivision Approval for 216-unit multi-family development at 588 and 590 Alfred Street.

MEETING DATE: December 7, 2022

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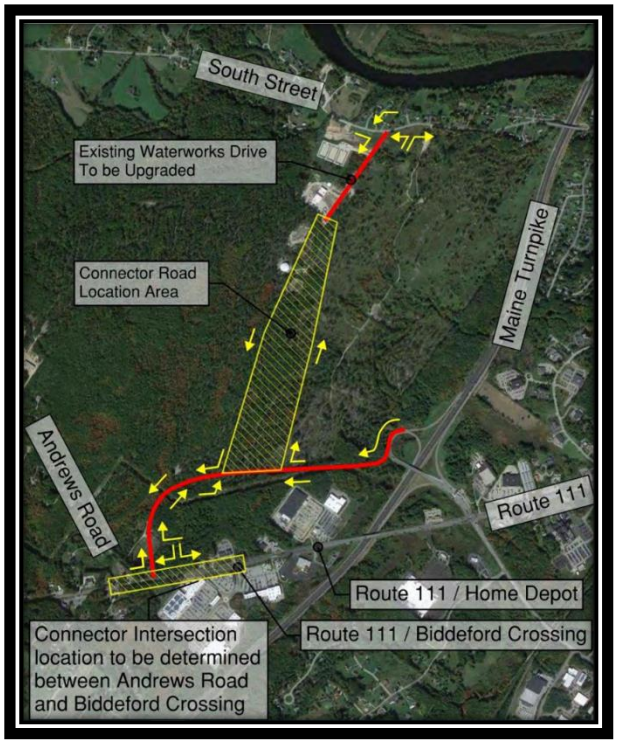
1. INTRODUCTION

This application returns to the Planning Board for a Subdivision and Site Plan Amendment for Preliminary Plan review for a proposed 216-unit multifamily housing development at 588 and 590 Alfred Street (Tax Map 2, Lots 6 and 12) named Biddeford Residential (AKA Devine Capital). The parcels are located in the B-2 zone, where residential uses are not permitted, so a Contract Zone is required for this project.



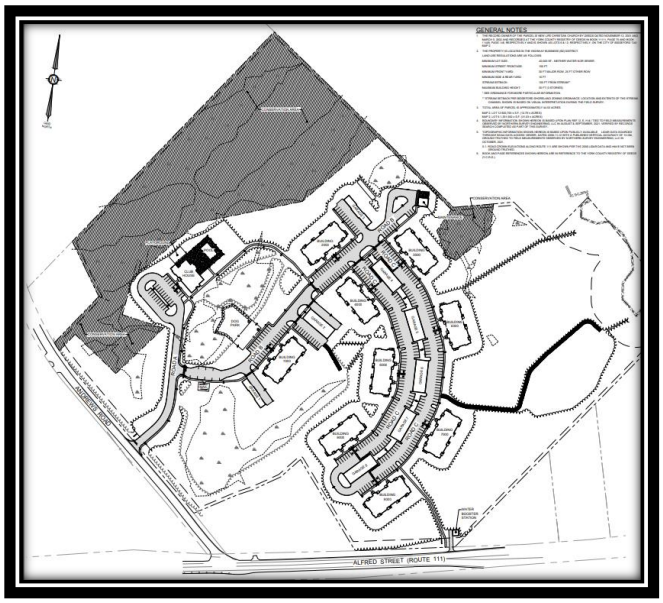
The Application was last before the Planning Board on October 5, 2022 where the Application was granted Preliminary Subdivision & Site Plan approval. Since the preliminary approval was granted the Applicant has been in contact with the Maine Turnpike Authority (MTA) who provided them a plan of their most recent Turnpike Connector location which arcs through the property to the north of the lot, and crosses through the property to the west and terminating at Alfred Street / Route 111 and Andrews Road. Once becoming aware of the MTA's proposed right-of-way (R.O.W) location, the Applicant modified their approved Subdivision and Site Plan to relocate buildings out of the proposed ROW location. The proposed Turnpike connector is illustrated in red on the conceptual plan which would cut through the Applicant's property and terminate at the Andrews Road and Route 111 intersection. Due to the MTA connector plans the Applicant has revised their Site Plan to avoid disturbance to their project, when the connector is constructed, and as a result, the project is required to receive Planning Board Preliminary Site Plan approval for the

modified plans. The project consists of 9 residential buildings, 6 garage structures, a maintenance building, a clubhouse, a pool, a dog park, and a community garden. Residential units will be a mixture of studio, 1, 2 and 3 bedrooms, as stipulated by the Joint Development Agreement (JDA), entered into by the applicant and City. When completed, the site would include, landscaped areas and on-site lighting. Each unit of the development is required to provide two (2) parking stalls per unit for a total required parking of 432 stalls. Total parking provided, with the revised plan, is 474 total parking stalls including 108 garage parking stalls. It should be noted that the approved plan had a total of 497 parking spaces (371 surface spaces and 126 garage spaces) and the Board had suggested lowering the proposed parking to be closer aligned with the City's parking standards. As proposed, the apartment mix consists of the following:

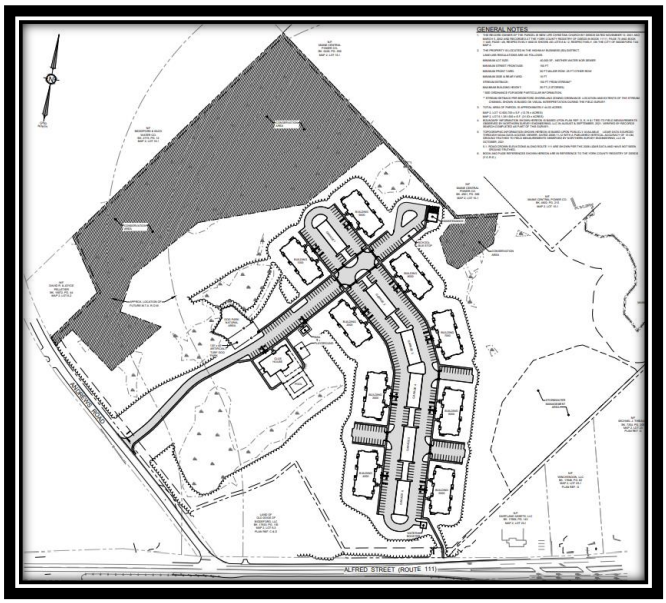
- 27 = studio apartments
- 18 = 1 bedroom apartments
- 36 = 1 bedroom apartments with den
- 108 = 2 bedroom apartments
- 27 = 3 bedroom apartments

Total 216

The necessary plan changes, to accommodate the MTA's future Exit 32 ramp extension project, are fairly minor in nature, but Applicant is before the Planning Board to discuss the necessary site plan changes and is seeking preliminary site and subdivision plan approval of the revised plans.



Approved Site Plan



Revised Site Plan

Illustrated left above, is site plan that was before the Planning Board at their October 5, 2022 meeting where the Application was granted Preliminary Subdivision & Site Plan approval. Illustrated on the right (above) is the revised site plan illustrating the location of the one-hundred (100') foot wide Maine Turnpike Authority (MTA) easement area of their most recent Turnpike Connector location which arcs through the property to the north of the lot, and crosses through the property to the west and terminating at Alfred Street / Route 111 and Andrews Road.

2022.24 – Biddeford Residential (AKA Devine Capital) Preliminary Subdivision Approval for 216-unit multi-family development at 588 and 590 Alfred Street.

The modifications to the plans include the relocation of the Club House, from the north side of the main access drive to the south side of the, now straightened driveway. The Applicant further modified the plans so that the parking and apartment buildings were relocated slightly to the east. The plans also include the addition of three (3) small parking areas located between building 3000 and 4000, 5000 and 6000, and 6000 and 7000. This surface parking allows the Fire Department to have direct access on two (2) sides of each building of the development. The Applicant has been meeting and working with City Staff on the revised site design and we, collectively believe the revised plan is a better and more functional design while allowing for the future MTA turnpike exit / connector and opportunities for a future connector roadway to South Street via Waterworks Drive.

The redesign also reduces the sidewalk length from the development to Route 111, which helps address the security / safety concerns of the Board and the Applicant will provide security lighting along this pathway. The application includes elevations of the apartment structures in addition to building elevations of the Clubhouse, covered garage buildings, maintenance building and the gang mail boxes and package building.

Apartment Building Elevations (Front)

Apartment Building Elevations (Sides)

2. PROJECT DATA/INFORMATION

	SUBJECT	***DATA/INFORMATION***
1.	Applicant:	Devine Capital, LLC 30 Milk Street, 3rd Floor Portland, ME 04101
2.	Owner of Property:	New Life Christian Fellowship 551 Alfred Street Biddeford, ME 04005
3.	Agent:	Roz Anton 40 Main Street, Suite 13-404 Biddeford, ME 04005
4.	Engineer/Surveyor:	Richard Meek, P.E., Terradyn Consultants 41 Campus Drive, Suite 301 New Gloucester, ME 04260
5.	Project Location:	588 & 590 Alfred Street
6.	Project Tax Map #/Lot #:	Tax Map 2, Lots 6 & 12
7.	Existing Zoning:	B-2 – Contract Zone required
8.	Overlay Zoning:	None.
9.	Existing Use:	Vacant property
10.	Proposed Use:	216 Unit Multifamily Residential Subdivision
11.	Approvals Required:	Site Plan, Subdivision, Site Location (Local)
12.	Uses in the Vicinity:	Residential, Commercial, Retail
13.	Parcel Size:	44.53 acres
14.	Limits of Disturbance:	17.77 acres
15.	Drainage Watershed:	Thatcher Brook
16.	Water Supply:	Maine Water
17.	Sewerage Disposal:	City of Biddeford
18.	Solid Waste Disposal:	Private Hauler
19.	Fire Protection:	City of Biddeford
20.	Other Non-City Permits Required:	Maine Site Law, Maine Stormwater, DOT Traffic Movement Permit
21.	LDR Attachment A: Fess Paid:	All Required Fees Paid

3. Project Updates:

A. ***Contract Zone***: The contract zone required for this project has been endorsed by the City Council through execution of the JDA. Additionally, Subdivision Approval, and Site Plan approval, are required from the Planning Board. The Planning Board, through its review, must also develop Contract Zone language to be forwarded back to the City Council for final action. Staff continues to work with the Applicant on the Contract Zone specifics which will need to be finalized and endorsed by the Planning Board prior to Final Site Plan and Subdivision approval and will become a Condition of Approval.

B. ***MTA***: City Staff and the Applicant continue to coordinate with the Maine Turnpike Authority around the Exit 32 ramp extension project and the Applicant has revised their plans to accommodate the extension project.

C. ***State Permitting***: The applicant has submitted applications to Maine DEP, the Army Corps of Engineers, and DOT for outside agency approvals required to move the project forward. The applicant has also submitted a Maine DEP Site Location of Development (SLOD) application, and is requesting that the City of Biddeford, designated as having 'capacity' to review certain SLOD applications by Maine DEP, review this application. This application is included as part of the submission materials. Staff are seeking clarification from Maine DEP as to whether the City has delegated review authority for this project.

D. ***Pedestrian Access***: The Applicant continues to work with the City to identify opportunities to extend pedestrian access to the existing extent of sidewalk along Route 111. (This may be addressed as part of the applicant's Traffic Movement Permit). Staff recommend that the applicant either construct or contribute a fee in lieu of building out sidewalk infrastructure, to enhance connections between the development site toward Biddeford Crossing.

E. ***Conservation Areas***: Potential conservation areas have been identified on the plans, though staff are requesting additional information regarding future use, and whether such conservation areas would be accessible for recreational use. Staff remains acutely aware of the Maine Turnpike Authority Exit 32 Ramp Extension Project and the preservation of said land for that future use. Staff recommends that the revised application be referred to the Biddeford Conservation Commission, for formal input on the plan.

4. STAFF REVIEW

A. **APPLICATION COMPLETENESS:** The applicant has submitted a complete application, featuring all required elements as specified under Section 66-35 (Required Information for Preliminary Plan Submissions). As part of the staff's review comments, we've identified aspects of the plan submission to be revised or clarified, which we suggest being made a condition of approval.

B. **ZONING:** The proposed use (Multi-family) is not permitted within the B-2 Business Zone, and therefore, a contract zone is required to facilitate this development.

C. **REVIEW STANDARDS:** Preliminary Plan Review Standards – The applicant has provided a detailed narrative describing project compliance with the City's applicable subdivision. While there is significant overlap between the City's subdivision and site plan standards, the applicant, as part of any future submission, should also detail compliance with the City's site plan standards. Staff and the Applicant continue to resolve these minor changes. In general, staff found the application to satisfy City subdivision and site plan requirements and have identified a number of technical plan elements to be addressed in a future submission.

D. **WAIVERS SAUGHT**: None

5. NEXT STEPS/SUGGESTED ACTIONS

The applicant will need to submit a Final Subdivision/Site Plan Review Application in order to move the project forward. Accompanying this submittal needs to be an agreed

upon DRAFT Contract Zone Agreement. Since this is a Contract Zone proposal, a Public Hearing must be held by the Planning Board.

6. STAFF RECOMMENDATION

As outlined above, the modifications to the approved Preliminary Site Plan were made to specifically accommodate the future MTA Exit 32 extension work but the changes resulted in a better project design. At this time Staff recommends that the Planning Board grant preliminary plan approval.

7. SAMPLE MOTION:

Motion to grant Preliminary Subdivision and Site Plan Approval for the proposal located at 588, 590 Alfred Street (Tax Map 2, Lots 6 and 12) conditioned on a Final Application and Plan Set shall not be submitted to the Planning Board until:

A. The 3rd Party Engineer and City Staff have completed their reviews of the Preliminary Plan Submission package. This includes providing all comments to the Applicant and the applicant responding to Staff satisfactorily.

B. A DRAFT Contract Zone Agreement has been agreed to between the Applicant and Staff, including the completion of a legal review by the City Attorney.

Devine Capital LLC

November 16, 2022

City of Biddeford Planning Board
c/o Mr. Matthew Grooms, City Planner / Deputy Director
City of Biddeford
205 Main Street, P.O. Box 586
Biddeford, Maine 04005

Re: Updated Site Plan – Devine Capital, LLC
Project: 216 Unit Multi-Family Apartment Complex Project
Property: 588 & 590 Alfred Street (Tax Map 2, Lots 6 & 12)
Zoning District: B2: Highway Business Zone

To Whom It May Concern:

We have revised the project site plan for the above-referenced project to accommodate the feedback we recently received from the Maine Turnpike Authority as it relates to the MTA's current Exit 32 proposal. We have enclosed eight (8) copies of this updated site plan, together with a supplemental letter from the project engineering firm, Terradyn Consultants, LLC, for review at the Planning Board meeting on December 7, 2022.

Please note that the enclosed site plan layout reflects recent feedback, and as a result, the additional grading and utility design work to accommodate these plan changes is ongoing.

We look forward to presenting an update on this exciting project to you at the Planning Board meeting on December 7th.

Very truly yours,

John D. Devine
Vice President

WMF/jfp

Enclosures

cc: Greg Mitchell, Planning Director, City of Biddeford
(via email: Gregory.Mitchell@BiddefordMaine.org)
Justin Sweeney, Lead Paster, New Life Church
(via email: justin.sweeney@newlifemaine.org)
Bernard M. Devine, Jr., President, Devine Capital
(via email: bmd300@gmail.com)

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

Portland
565 Congress Street, Suite 201
Portland, ME 04101

November 16, 2022 21-49

Mr. Matthew Grooms, City Planner
P.O. Box 586
Biddeford, ME 04005

Planning Board Application, Major Subdivision/Site Plan - Devine Capital, LLC
216 Unit Multi-Family Apartment Complex (Biddeford Residential)
588 & 590 Alfred Street (Tax Map 2, Lots 6 & 12)

Dear Matthew,

The following information is provided as a supplement to Devine Capital's cover letter and is intended to describe the technical changes to the site layout. Since the decision to modify the site layout to accommodate the proposed Maine Turnpike Authority Exit 32 proposal (MTA R.O.W.) was made recently, details of the proposed grading, utility services, photometrics, landscaping and stomwater management have not been sufficiently modified to include at this time.

Site Plan Modifications:

- Primary access to the development will remain at Andrews Road. However, the alignment has been modified such that a future connection to the MTA R.O.W. will accommodate a 90° intersection. The proposed profile of the access drive has been modified to addresss peer review comments received previously.
- The former proposed Clubhouse location is impacted by the MTA R.O.W. As such, the clubhouse, pool, playground and associated parking have been relocated to the former Building 1000 location.
- The proposed school bus stop has been relocated to near the maintenance building. Suitable turning area is available near the maintenance building.
- The mail kiosk has been relocated to be adjacent to the clubhouse. The proposed parking has been modified from parallel parking to head-in parking and an A.D.A. parking space has been incorporated.
- The total number of units (216), total number of buildings (nine), and unit mix will remain as originally proposed. However, the spacing and configuration of the buildings have been modified to accommodate the displaced Building 1000 (current location of Clubhouse and mail kiosk).
- The proposed water booster station has been relocated away from Alfred St and is now proposed adjacent to Building 5000.
- Two single sided garages (former garage 1 and garage 3) have been eliminated. The total number of double sided garages will remain at six. As such the total number of garage parking has been reduced from 126 spaces to 108 spaces. The total number of surface parking spaces has been reduced from 371

spaces to 366 spaces. As such, the total number of parking spaces has been reduced from 497 spaces to 474 spaces.

- Some of the proposed surface parking has been moved in between buildings in order to address Fire Department comments regarding ladder truck access to 50% of each building. Pavement/curb radii at intersections has been increased to 25 feet to accommodate ladder truck maneuverability.

Stormwater Management, Environmental Impact and Overall Development Modifications:

- One stormwater management BMP (formerly located behind building 1000) will be eliminated and all stormwater runoff will be accommodated in one BMP located behind building 6000. The management area will be larger than previously proposed.
- Due to the proposed site configuration modifications and elimination of one stormwater BMP, the proposed wetland impact has been reduced from 7,013 square feet to less than 1,000 square feet.
- It is anticipated that the total impervious area for the site will be reduced from 8.06 acres to approximately 7.6 acres. Furthermore, it is anticipated that the total developed area will be reduced from 17.77 acres to approximately 17.3 acres.

We are in receipt of an ability to serve letter from Maine Water Company, attached herein. Communication and coordination with Public Works (sewer capacity), the Fire Department and Police Department (E911 addressing) is ongoing.

Please let me know if you have any questions or require additional information regarding this project. Thank you for your consideration.

Sincerely,
TERRADYN CONSULTANTS, LLC

STATE OF MAINE
RICHARD L. MEEK
No. 10668
LICENSED
PROFESSIONAL ENGINEER

Richard Meek, P.E.
Sr. Project Engineer

Enc.
cc: Devine Capital, LLC

Attachment 1	Maine Water Company – Ability to Serve letter

The Maine Water Company
93 Industrial Park Road
Saco, ME 04072

T: 207.282.1543
www.mainewater.com

November 9th, 2022

Terradyn Consultants, LLC
Pineland – Cumberland Hall
41 Campus Drive, Suite 301
New Gloucester, ME 04260

Re: Ability to Serve - 588-590 Alfred Street Biddeford Maine – 216 Apartment Development

Greetings,

The Maine Water Company (MWC) has received your request for an Ability to Serve Determination on behalf of your client, Devine Capital, LLC, for the above referenced project. The request indicates a plan to construct a 9-building, 216-unit apartment complex with a clubhouse and a maintenance building. The proposed domestic demand has been presented as approximately 43,121 gallons per day or 152 gallons per minute estimate based on a hydraulic review from Tata & Howard consulting firm. The fire sprinkler demand is not yet available and will be presented to MWC once available. MWC does have adequate capacity in the area from the existing 16-inch ductile iron main on Alfred Street. The static pressure in the area is approximately 35-40psi. Additional infrastructure improvements may be required at the expense of the developer to meet the overall needs of this project.

Conditions of Service

- The water service will be served from the 16-inch public main on Alfred Street.
- One single 8-inch private service will feed a proposed booster station and the multi-building complex. Fire and domestic services must each be individually tapped from the 8-inch boosted service line into each separate building with appropriate isolation valves per MWC Specification.
- Additional plan approval, paperwork and fees associated with services for this project will require additional coordination with MWC.
- The fire service demand through the booster pump must not reduce the local pressure on Alfred Street below 20psi.
- The local fire authority must also accept the proposed fire flow availability based on the booster station design capabilities.
- A hydrant flow test at the nearest available hydrant will need to be conducted and analyzed by the sprinkler designer to ensure that adequate flows can be met during a peak fire demand event.

Should a Customer Agreement for service not be executed within one year of the date of this letter, MWC reserves the right to reevaluate its ability to serve this project.

All work must be completed in accordance with Maine Water Company material and installation specifications. All appropriate paperwork must be completed and the deposit paid prior to the start of construction. Please forward all design plan revisions as the project develops to prevent construction delays.

Water service will be provided in accordance with our standard terms and conditions as well as Maine Public Utilities Commission rules. If you have any additional questions, please do not hesitate to contact our office at 1-800-287-1643 or my email at Marcus.Knipp@mainewater.com. We look forward to working with you throughout design and construction.

Sincerely,
The Maine Water Company

Marcus Knipp, E.I.
Engineer

BIDDEFORD RESIDENTIAL

ANDREWS ROAD

BIDDEFORD, MAINE

CONSULTANTS:

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

ARCHITECT:
GATE 17 ARCHITECTURE, LLC
2045 ROUTE 35
WALL, NJ 07719

SURVEYOR:
NORTHERN SURVEY ENGINEERING
41 CHURCH ROAD
BRUNSWICK, ME 04011

WETLAND IDENTIFICATION AND MAPPING:
MARK CENCI GEOLOGIC, INC.
93 MILL ROAD
NORTH YARMOUTH, ME 04097

SOIL SURVEY
MARK HAMPTON ASSOCIATES, INC.
P.O. BOX 1931
PORTLAND, ME 04104

APPLICANT:

DEVINE CAPITAL, LLC
30 MILK STREET, THIRD FLOOR
PORTLAND, MAINE 04101

OWNER:

NEW LIFE CHRISTIAN FELLOWSHIP
551 ALFRED STREET
BIDDEFORD, MAINE 04005-9474

PROJECT PARCEL SITE

CITY OF BIDDEFORD TAX ASSESSOR'S MAP & LOT NUMBER

MAP	LOT
2	6 & 12

LOCATION MAP
1" = 200'

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- PROPOSED SETBACK LINE
- EXISTING SETBACK LINE
- EXISTING EASEMENT
- PROPOSED EASEMENT
- ROAD CENTERLINE
- 124 EXISTING MINOR CONTOUR
- 124 EXISTING MAJOR CONTOUR
- 124 PROPOSED CONTOUR
- SD EXISTING STORMDRAIN
- SD PROPOSED STORMDRAIN
- OHE EXISTING OVERHEAD ELECTRIC & TELEPHONE
- OHE PROPOSED OVERHEAD ELECTRIC & TELEPHONE
- UGE EXISTING UNDERGROUND ELECTRIC & TELEPHONE
- UGE PROPOSED UNDERGROUND ELECTRIC & TELEPHONE
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- PROPOSED EDGE OF GRAVEL
- EXISTING TREE LINE
- PROPOSED TREE LINE
- CHAIN LINK FENCE
- PROPOSED FENCE
- EXISTING GUARDRAIL
- PROPOSED GUARDRAIL
- SF SILT FENCE
- T PROPOSED TRANSFORMER
- PROPOSED LIGHT POLE
- EXISTING UTILITY POLE
- PROPOSED CATCH BASIN
- 30.20 EXISTING SPOT GRADE
- 30.20 PROPOSED SPOT GRADE
- EXISTING SIGN
- PROPOSED SIGN
- EXISTING BUILDING
- PROPOSED BUILDING
- WETLAND AREA
- PROPOSED PAVEMENT
- RIPRAP

SHEET INDEX

SHT NO.	SHEET TITLE
C-0.0	COVER SHEET AND LOCATION MAP
C-1.0	OVERALL SITE PLAN
C-1.1	SITE PLAN - 1
C-1.2	SITE PLAN - 2
C-1.3	SITE PLAN - 3
C-1.4	SITE PLAN - 4

APPROVED: CITY OF BIDDEFORD
PLANNING BOARD

DATE

STATE OF MAINE
RICHARD L. MEEK
No. 10668
LICENSED PROFESSIONAL ENGINEER

DATE: 10-18-2022
P.E.: RICHARD L. MEEK, P.E. 10668

NO.	DATE	REVISIONS	APP'D BY
J	10-18-2022	REVISED IN RESPONSE TO REVIEW COMMENTS	RLM
I	09-13-2022	SUBMIT SITE/SUBDIVISION APPLICATION TO CITY	
H	08-17-2022	SUBMIT STORMWATER APPLICATION TO D.E.P.	

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE SUITE 301 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: BIDDEFORD RESIDENTIAL
ANDREWS ROAD, BIDDEFORD, MAINE
SHEET: COVER SHEET AND LOCATION MAP
CLIENT: DEVINE CAPITAL, LLC
30 MILK STREET, THIRD FLOOR
PORTLAND, MAINE 04101

DATE:	10-18-2022
SCALE:	1" = 200'
DESIGNED:	RLM
JOB NO:	2149
FILE:	2149.C
SHEET	C-0.0

GENERAL NOTES

1. THE RECORD OWNER OF THE PARCEL IS NEW LIFE CHRISTIAN CHURCH BY DEEDS DATED NOVEMBER 13, 2001 AND MARCH 5, 2002 AND RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN BOOK 11111, PAGE 70 AND BOOK 11449, PAGE 148, RESPECTIVELY AND IS SHOWN AS LOTS 6 & 12, RESPECTIVELY, ON THE CITY OF BIDDEFORD TAX MAP 2.
2. THE PROPERTY IS LOCATED IN THE HIGHWAY BUSINESS (B2) DISTRICT.

   LAND USE REGULATIONS ARE AS FOLLOWS:

MINIMUM LOT SIZE:	40,000 SF - NEITHER WATER NOR SEWER
MINIMUM STREET FRONTAGE:	150 FT
MINIMUM FRONT YARD:	30 FT MAJOR ROW. 25 FT OTHER ROW
MINIMUM SIDE & REAR YARD:	10 FT
STREAM SETBACK:	100 FT FROM STREAM**
MAXIMUM BUILDING HEIGHT:	35 FT (3 STORIES)

   * SEE ORDINANCE FOR MORE PARTICULAR INFORMATION.

   ** STREAM SETBACK PER BIDDEFORD SHORELAND ZONING ORDINANCE. LOCATION AND EXTENTS OF THE STREAM CHANNEL SHOWN IS BASED ON VISUAL INTERPRETATION DURING THE FIELD SURVEY.
3. TOTAL AREA OF PARCEL IS APPROXIMATELY 44.53 ACRES.

   MAP 2, LOT 12 600,700 ± S.F. (13.79 ± ACRES)
   MAP 2, LOT 6 1,351,500 ± S.F. (31.03 ± ACRES)
4. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON PLAN REF. D, E, H & I TIED TO FIELD MEASUREMENTS OBSERVED BY NORTHERN SURVEY ENGINEERING, LLC IN AUGUST & SEPTEMBER, 2021. VERIFIED BY RECORDS SEARCH COMPLETED AS PART OF THIS SURVEY..
5. TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON PUBLICLY AVAILABLE LIDAR DATA SOURCED THROUGH NOAA DATA ACCESS VIEWER, DATED 2008-11-12 WITH A PUBLISHED VERTICAL ACCURACY OF 15 CM, GROUND TRUTHED TO FIELD MEASUREMENTS OBSERVED BY NORTHERN SURVEY ENGINEERING, LLC IN OCTOBER, 2021.

   5.1. ROAD CROWN ELEVATIONS ALONG ROUTE 111 ARE SHOWN PER THE 2008 LIDAR DATA AND HAVE NOT BEEN GROUND TRUTHED.
6. BOOK AND PAGE REFERENCES SHOWN HEREON ARE IN REFERENCE TO THE YORK COUNTY REGISTRY OF DEEDS (Y.C.R.D.).
7. PLAN REFERENCES:
   A. "ALTA/ACSM LAND TITLE SURVEY, ROUTE 111, ALFRED ROAD, BIDDEFORD, MAINE MADE FOR GORRILL-PALMER CONSULTING ENGINEERING, INC. PROPERTY OF BERNARD NADEAU & JABENA LTD" BY TITCOMB ASSOCIATES, DATED 2/22/00. RECORDED IN PLAN BOOK 255, PAGE 12.
   B. "PLAN SHOWING A BOUNDARY SURVEY FOR MAURICE GUAY" BY JOHN D. BUCKLER, DATED MAR. 2 1988. RECORDED IN PLAN BOOK 164, PAGE 46.
   C. "PROPOSED CONVEYANCE, FOR OLD DOGS, LLC ON ALFRED AND ANDREWS ROAD, BIDDEFORD, MAINE" BY JOHN E. PERRY, JR. PLS #2127, DATED 06/14/18. RECORDED IN PLAN BOOK 397, PAGE 11.
   D. "PROPOSED CONVEYANCE, FOR OLD DOGS, LLC ON ALFRED AND ANDREWS ROAD, BIDDEFORD, MAINE" BY JOHN E. PERRY, JR. PLS #2127, DATED 06/14/18. RECORDED IN PLAN BOOK 398, PAGE 36.
   E. "RIGHT OF WAY MAP, STATE HIGHWAY "U" NORTH KENNEBUNKPORT-BIDDEFORD, FEDERAL AID PROJECT NO. F 360(1)" BY MAINE STATE HIGHWAY COMMISSION, DATED JUNE 1948. S.H.C. FILE NO. 16-69.
   F. "PHASE 2, OVERALL SITE LAYOUT PLAN PROPOSED CHURCH/SCHOOL FACILITY, NEW LIFE CHRISTIAN FELLOWSHIP" BY GORRILL-PALMER CONSULTING ENGINEERS, INC., DATED JAN 2003. PROVIDED BY BIDDEFORD CITY ENGINEERS OFFICE (TD-1656).
   G. "BOUNDARY SURVEY AT 580 ALFRED ROAD - ROUTE 111, BIDDEFORD, MAINE MADE FOR DELUCA HOFFMAN ASSOCIATES" BY OWEN HASKELL, INC. DATED JAN 15, 2007. UNRECORDED.
   H. "PLAN OF PROPERTY, ALFRED ROAD & ANDREWS ROAD, BIDDEFORD, MAINE MADE FOR NEW LIFE CHRISTIAN FELLOWSHIP" BY TITCOMB ASSOCIATES. DATED FEBRUARY 1, 2002. UNRECORDED.
   I. "STANDARD BOUNDARY SURVEY, LAND OF EMILY AND LILLINA VERVILLE, 583 ALFRED ST, BIDDEFORD, MAINE" BY BH2M, DATED OCT. 1999. UNRECORDED.
   J. "AMENDED SUBDIVISION PLAN FOR THE SHOPS AT BIDDEFORD CROSSING, ALFRED ROAD, ROUTE 111" BY TITCOMB ASSOCIATES, DATED FEB. 25, 2005 REVISED THROUGH 9/13/05. RECORDED IN PLAN BOOK 304, PAGE 45.
8. BEARINGS SHOWN HEREON ARE IN REFERENCE TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83. ELEVATIONS DEPICTED HEREON ARE IN REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED GPS OBSERVATIONS.
9. THE LOCUS PROPERTY AS DEPICTED HEREON DOES NOT FALL WITHIN A SPECIAL FLOOD HAZARD AREA AS DELINEATED ON THE FLOOD INSURANCE RATE MAP FOR CITY OF BIDDEFORD, MAINE, YORK COUNTY, COMMUNITY-PANEL NUMBER 230145 0008 B. HAVING AN EFFECTIVE DATE OF MAY 15, 1984. THE LOCUS FALLS WITHIN AN AREA IDENTIFIED AS ZONE C, AREAS OF MINIMAL FLOODING.
10. A WETLAND DELINEATION WAS PERFORMED ON THIS PROJECT SITE IN AUGUST, 2021 BY MARK CENCI. MARK CENCI GEOLOGIC, INC. AND LOCATED BY NORTHERN SURVEY ENGINEERING AND MARK CENCI GEOLOGIC, INC. THIS DELINEATION CONFORMS TO THE STANDARDS AND METHODS OUTLINED IN THE 1987 WETLANDS DELINEATION MANUAL AND NORTHEAST REGIONAL SUPPLEMENT AUTHORED AND PUBLISHED BY THE U.S. ARMY CORPS OF ENGINEERS.

    10.1.SPECIFIC WETLAND FLAGS WERE SURVEY LOCATED BY NORTHERN SURVEY ENGINEERING, LLC THE REMAINDER WHERE PROVIDED BY TERRADYN CONSULTANTS, LLC - SEE LEGEND.
11. BOUNDARY NOTES:

    11.1.ANDREWS ROAD:THREE RODS WIDE (49.5') ACCEPTED BY THE CITY OF BIDDEFORD, VOLUME 4, PAGE 114, DATED NOVEMBER 7, 1836. EXISTING MONUMENTATION HELD FOR RIGHT OF WAY.

    11.2.ROUTE 111 R.O.W. WAS ESTABLISHED BY MAINE D.O.T. (SEE PLAN REF. E DATED JUNE 1948). THE R.O.W. IS SHOWN HERE BY A BEST FIT OF FOUND HIGHWAY MONUMENTS TO THE RECORDED PLAN. THE R.O.W. FOR ROUTE 111 ON PLAN REF. I & H CONFLICTS WITH THIS LOCATION AS SHOWN. WHEN THE 1948 R.O.W. FOR ROUTE 111 WAS ESTABLISHED AN EASEMENT WAS GRANTED BY THE FORMER OWNER OF MAP 2, LOT 12, VITO MININNI, TO THE STATE OF MAINE, SEE BOOK 1150, PAGE 94 DATED JANUARY 12, 1950. THE LIMITS OF THE EASEMENT ARE SHOWN ON PLAN REF. E AS THE EDGE OF THE R.O.W. OF ROUTE 111 AND WERE HELD FOR THE CURRENT R.O.W. OF ROUTE 111.
12. PARKING SUMMARY:

MINIMUM REQUIRED:	
(216) DWELLING UNITS x 2 SPACES PER DWELLING UNIT	= 432 SPACES
PROPOSED:	
STANDARD SURFACE SPACES NEAR RESIDENTIAL BUILDINGS	= 305 SPACES
A.D.A. SURFACE SPACES NEAR RESIDENTIAL BUILDINGS	= 18 SPACES
SURFACE SPACES NEAR CLUBHOUSE AND MAIL KIOSK (INCLUDING A.D.A)	= 27 SPACES
SURFACE SPACES NEAR DOG PARK	= 13 SPACES
GARAGE SPACES (INCLUDING A.D.A. SPACES)	= 108 SPACES
STANDARD SURFACE SPACES NEAR MAINTENANCE BUILDING	= 3 SPACES
TOTAL PROPOSED PARKING	= 474 SPACES

LEGEND

(TYP., SHEETS C1.0 - C1.4)

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- PROPOSED SETBACK LINE
- EXISTING SETBACK LINE
- EXISTING EASEMENT
- PROPOSED EASEMENT
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- PROPOSED EDGE OF GRAVEL
- EXISTING CURB
- PROPOSED CURB
- EXISTING TREE LINE
- PROPOSED TREE LINE
- PROPOSED FENCE
- PROPOSED SIGN
- PROPOSED BUILDING
- WETLAND AREA
- PROPOSED PAVEMENT

GRAPHIC SCALE

80 0 40 80 160

(IN FEET)
1 INCH = 80 FT.

STATE OF MAINE
RICHARD L. MEEK
No. 10668
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: RICHARD L. MEEK, P.E. 10668

NO.	DATE	REVISIONS	APP'D BY
J	11-16-2022	REVISED TO ACCOMODATE FUTURE M.T.A. RIGHT-OF-WAY	RLM
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TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE SUITE 201 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: BIDDEFORD RESIDENTIAL
ANDREWS ROAD, BIDDEFORD, MAINE

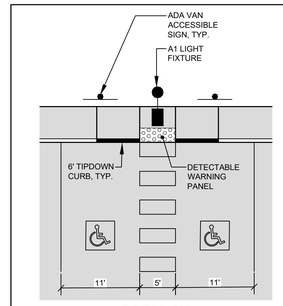
SHEET: OVERALL SITE PLAN

CLIENT: DEVINE CAPITAL, LLC
30 MILK STREET, THIRD FLOOR
PORTLAND, MAINE 04101

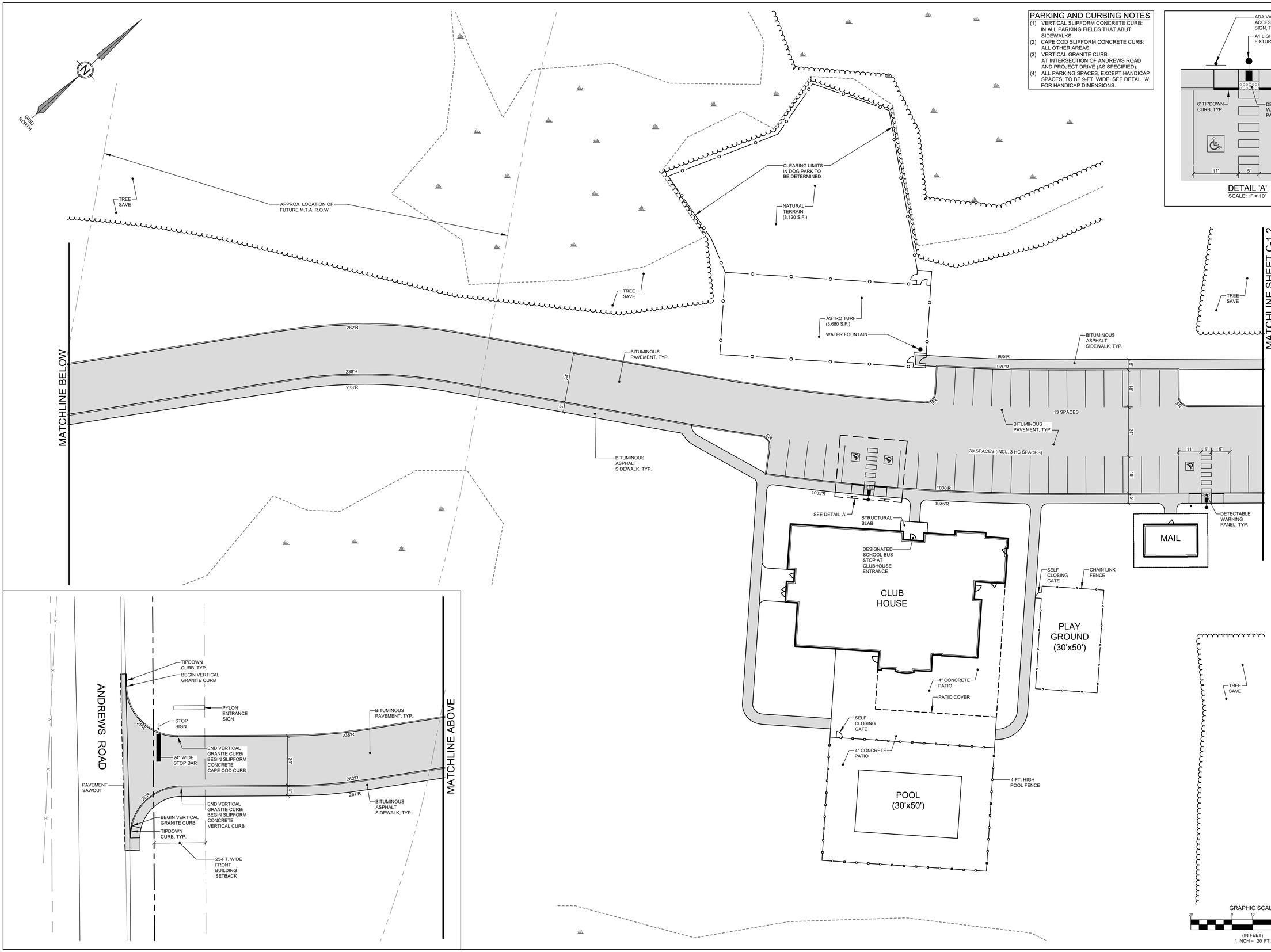
DATE:	10-18-2022
SCALE:	1" = 80'
DESIGNED:	RLM
JOB NO:	2149
FILE:	2149.S
SHEET	C-1.0

PARKING AND CURBING NOTES

(1) VERTICAL SLIPFORM CONCRETE CURB: IN ALL PARKING FIELDS THAT ABUT SIDEWALKS.
(2) CAPE COD SLIPFORM CONCRETE CURB: ALL OTHER AREAS.
(3) VERTICAL GRANITE CURB: AT INTERSECTION OF ANDREWS ROAD AND PROJECT DRIVE (AS SPECIFIED).
(4) ALL PARKING SPACES, EXCEPT HANDICAP SPACES, TO BE 9-FT. WIDE. SEE DETAIL 'A' FOR HANDICAP DIMENSIONS.



DETAIL 'A'
SCALE: 1" = 10'



STATE OF MAINE
RICHARD L. MEEK
No. 10668
LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: RICHARD L. MEEK, P.E. 10668

NO.	DATE	REVISIONS	APP'D BY
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TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting
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565 CONGRESS STREET SUITE 200 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: BIDDEFORD RESIDENTIAL
ANDREWS ROAD, BIDDEFORD, MAINE

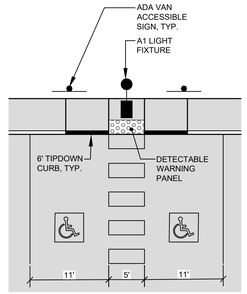
SHEET: SITE PLAN - 1

CLIENT: DEVINE CAPITAL, LLC
30 MILK STREET, THIRD FLOOR
PORTLAND, MAINE 04101

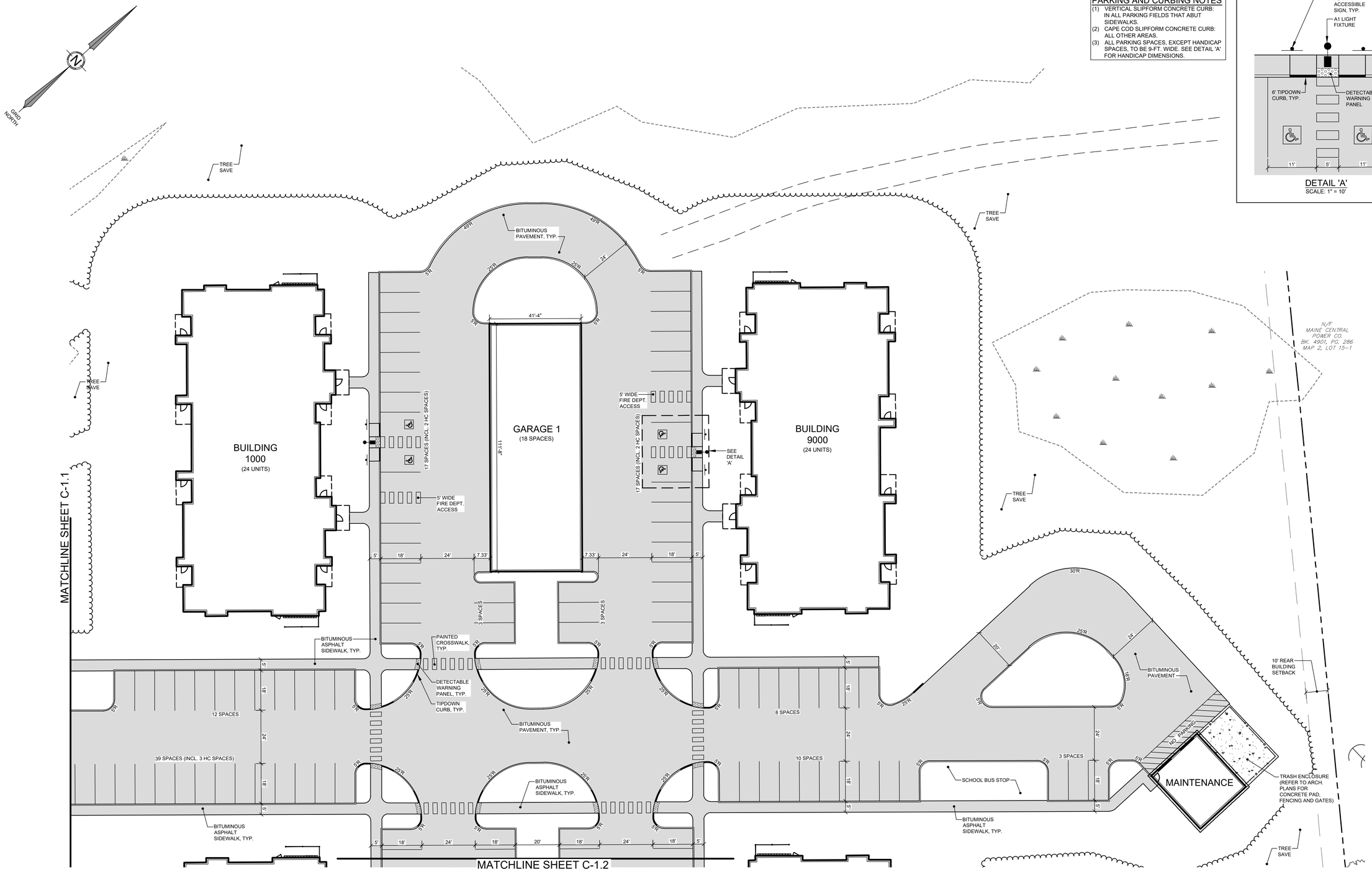
DATE:	10-18-2022
SCALE:	1" = 20'
DESIGNED:	RLM
JOB NO:	2149
FILE:	2149.S
SHEET	C-1.1

PARKING AND CURBING NOTES

(1) VERTICAL SLIPFORM CONCRETE CURB: IN ALL PARKING FIELDS THAT ABUT SIDEWALKS.
(2) CAPE COD SLIPFORM CONCRETE CURB: ALL OTHER AREAS.
(3) ALL PARKING SPACES, EXCEPT HANDICAP SPACES, TO BE 9-FT. WIDE. SEE DETAIL 'A' FOR HANDICAP DIMENSIONS.



DETAIL 'A'
SCALE: 1" = 10'



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

STATE OF MAINE
RICHARD L. MEEK
No. 10668
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: RICHARD L. MEEK, P.E. 10668

NO.	DATE	REVISIONS	APP'D BY
J	11-16-2022	REVISED TO ACCOMODATE FUTURE M.T.A. RIGHT-OF-WAY	RLM
I	09-13-2022	SUBMIT SITE/SUBDIVISION APPLICATION TO CITY	
H	08-17-2022	SUBMIT STORMWATER APPLICATION TO D.E.P.	

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE SUITE 103 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

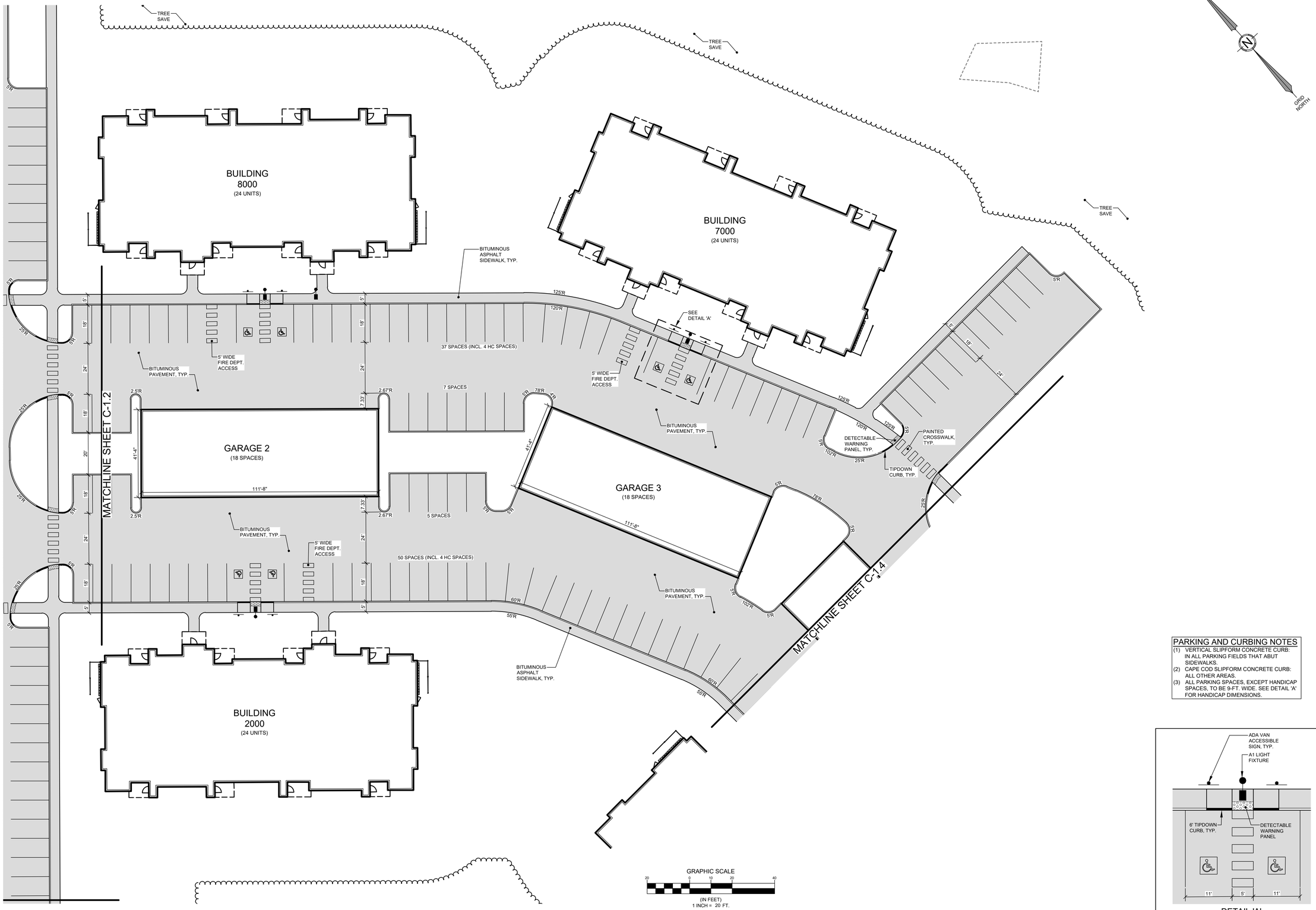
PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
BIDDEFORD RESIDENTIAL
ANDREWS ROAD, BIDDEFORD, MAINE

SHEET:
SITE PLAN - 2

CLIENT:
DEVINE CAPITAL, LLC
30 MILK STREET, THIRD FLOOR
PORTLAND, MAINE 04101

DATE:	10-18-2022
SCALE:	1" = 20'
DESIGNED:	RLM
JOB NO:	2149
FILE:	2149.S
SHEET	C-1.2



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DETAIL 'A'
SCALE: 1" = 10'

STATE OF MAINE
RICHARD L. MEEK
No. 10668
LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: RICHARD L. MEEK, P.E. 10668

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www.terradynconsultants.com

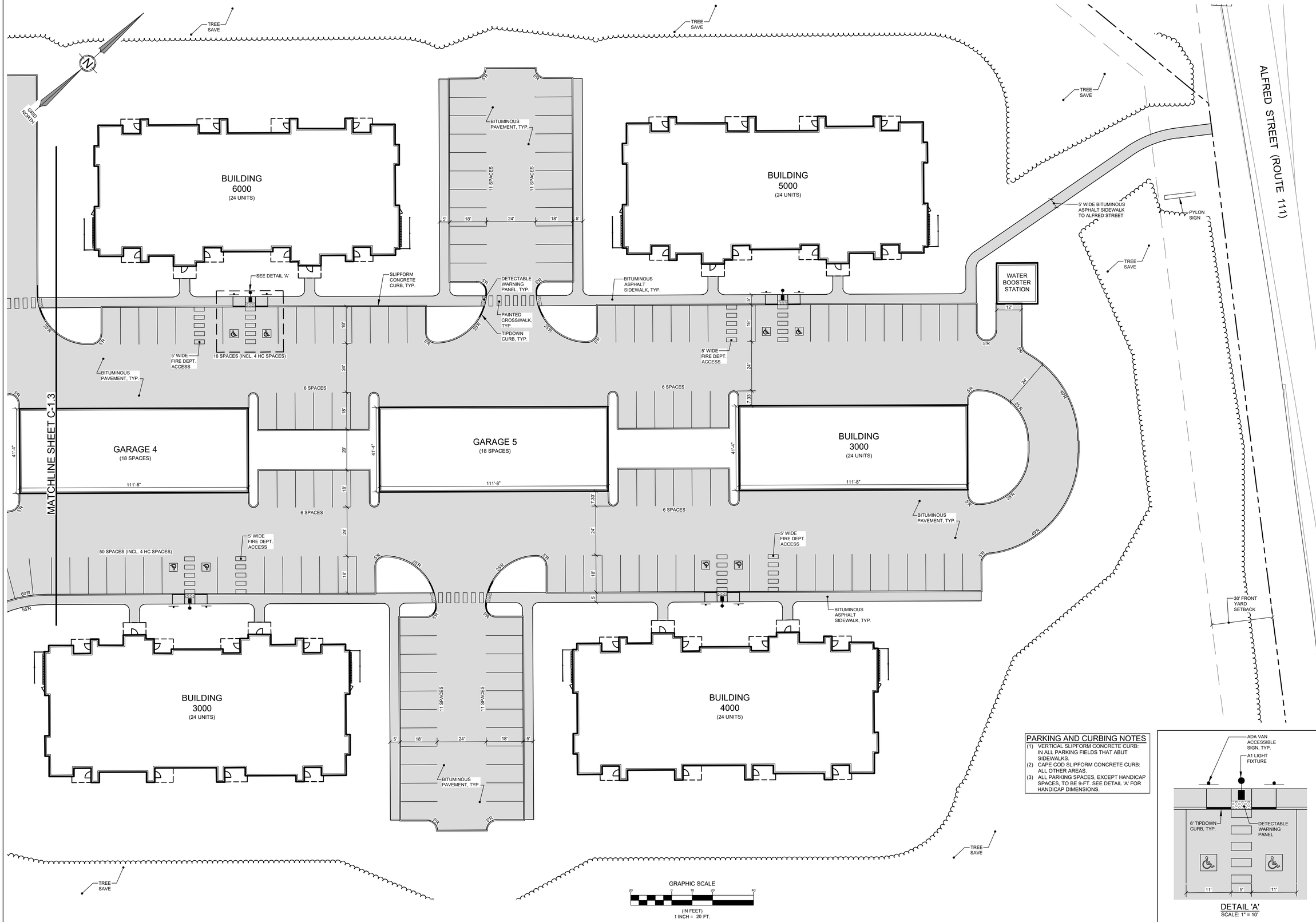
PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: BIDDEFORD RESIDENTIAL
ANDREWS ROAD, BIDDEFORD, MAINE

SHEET: SITE PLAN - 3

CLIENT: DEVINE CAPITAL, LLC
30 MILK STREET, THIRD FLOOR
PORTLAND, MAINE 04101

DATE:	10-18-2022
SCALE:	1" = 20'
DESIGNED:	RLM
JOB NO:	2149
FILE:	2149.S
SHEET	C-1.3



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DETAIL 'A'
SCALE: 1" = 10'

STATE OF MAINE
RICHARD L. MEEK
No. 10668
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: RICHARD L. MEEK, P.E. 10668

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PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: BIDDEFORD RESIDENTIAL
ANDREWS ROAD, BIDDEFORD, MAINE

SHEET: SITE PLAN - 4

CLIENT: DEVINE CAPITAL, LLC
30 MILK STREET, THIRD FLOOR
PORTLAND, MAINE 04101

DATE:	10-18-2022
SCALE:	1" = 20'
DESIGNED:	RLM
JOB NO:	2149
FILE:	2149.S
SHEET	C-1.4

CITY OF BIDDEFORD

PLANNING DEPARTMENT

David C.M. Galbraith
Interim Deputy Director/City Planner
205 Main Street
Biddeford, ME 04005
(207) 284-9115
David.Galbraith@Biddefordmaine.org

PLANNING BOARD REPORT

TO: William Southwick, Chair & Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, Interim Deputy Director / City Planner

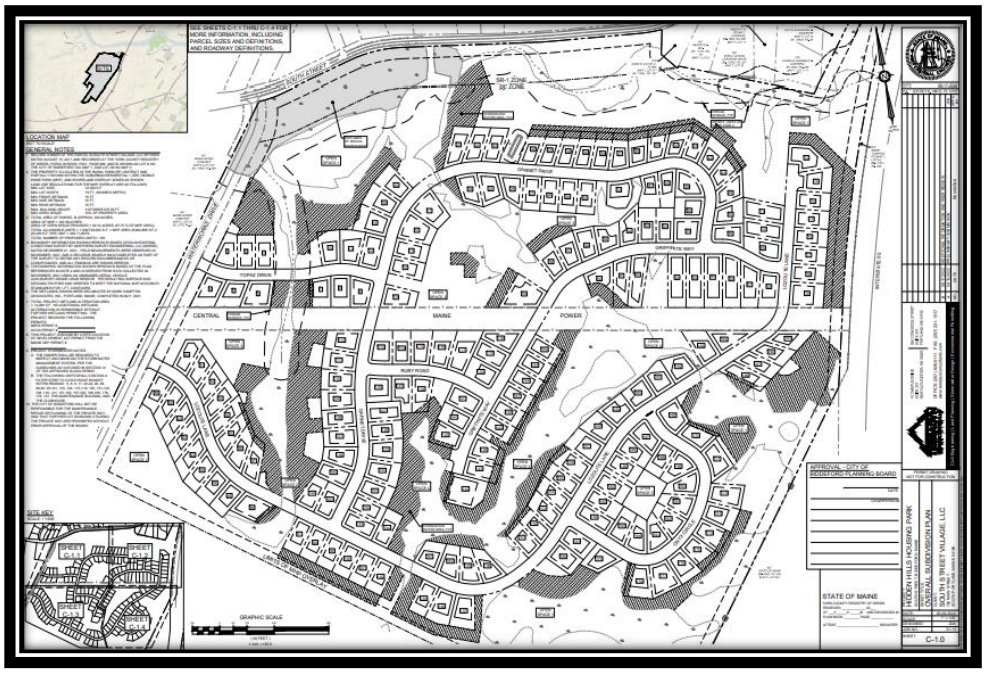
DATE: December 1, 2022

RE: Case # 2021.42: Hidden Hills Housing Park - Preliminary Plan Review for 195-unit manufactured housing park subdivision at 413 South Street (Tax Map 7/Lot 8) in the RF, SR-1 zones and MHP overlay zone.

MEETING DATE: December 7, 2022

I. INTRODUCTION:

South Street Village, LLC has requested preliminary site plan/subdivision review of a 195 unit manufactured housing park on a 312 +/- acre parcel located in the Rural Farm (RF) and Suburban Residential (SR-1) zone with Mobile Home Parks (MHP) overlay zone. The site includes a large freshwater wetland among open field and woods and is traversed by Thatcher Brook. The Planning Board previously reviewed a sketch plan for this proposal in September 2021, and considered the preliminary site plan and subdivision application in May of 2022, where the Board voted to postpone consideration of the application until certain concerns had been addressed. The focus of this review memo is to discuss the modifications to the Site Plan since the Board's last review of the project.



Case # 2021.42: Hidden Hills Housing Park - Preliminary Plan Review for 195-unit manufactured housing park subdivision at 413 South Street (Tax Map 7/Lot 8) in the RF, SR-1 zones and MHP overlay zone.

Planning Board Meeting date: December 7, 2022

The site plan has been slightly redesigned with the most important change being the single point of access relocation from South Street to two (2) proposed vehicle access points connecting to Waterworks Drive, which is currently a private road, owned by and located on the Applicant's property. The Applicant has also worked with the City's E-911 Coordinator (Joanne Fisk, Deputy Fire Chief) to verify that the proposed street names are acceptable. The roadway names shown on the revised plans have been changed, since the earlier reviews, to names acceptable to E-911. The applicant has decided to age restrict the development to residents 55 and older. This change, as described in the applicant's cover letter, significantly reduces the amount of traffic generated by the development and eliminates the need for a dedicated school bus turnaround.

II. PROJECT INFORMATION SUBJECT INFORMATION

1. Applicant/Property Owner South Street Village, LLC 762 Main Street South Portland, ME 04106 2. Agent/Engineer Jeff Amos, P.E. Terradyn Consultants, LLC 41 Campus Drive, Suite 301 New Gloucester, ME 04260.
2. Planning Board Report 2 2021-42 Hidden Hills Development
3. Project Location: 413 South Street
4. Map/Lot: Tax Map 7/Lot 8
5. City Approvals Required: Major Subdivision/Site Plan
6. Existing Zoning: Rural Farm (RF) and Suburban Residential (SR-1)
7. Overlay Zoning: Manufactured Park Overlay (MHP)
8. Existing Use: Undeveloped property. Forest, fields and wetlands.
9. Proposed Use: 195 unit manufactured housing park
10. Uses in the vicinity: Residential
11. Parcel Size: 312.1 acres
12. Water Supply by Maine Water
13. Sewerage Disposal Centralized subsurface septic systems
14. Solid Waste Disposal: Private Hauler
15. Fire Protection: City of Biddeford
16. Parking Spaces Required 2 spaces/dwelling unit
17. Parking Spaces Provided 418 parking spaces (28 for maintenance garage and community center)
18. Ownership of Road Private Streets
19. Estimated Site Development Costs Undisclosed
20. Financial Capacity Letter: Letter received from Evergreen Credit Union confirming financial capacity.
21. Waivers Needed/Requested: None requested
22. Waivers Granted N/A
23. Additional Approvals/Permits Needed: Site Location of Development Review, DEP Stormwater Review
24. Fees Paid (LDR Attachment A): All application fees paid
25. Planning Board Review History September 2021, May 2022, and December 7, 2022.

III. COMPLETENESS REVIEW: The application is before the Planning Board as required by Article XI (Site Plan Review) of the Land Development Regulations and Chapter 66 (Subdivisions) subject to Subdivision review and approval. With regards to the subdivision reviews, all applications have a three-tier approval process beginning with a Sketch Plan review, that was reviewed at the Planning Board's September 29, 2021 meeting. The applicant has submitted an updated preliminary plan application with additional information as requested by the Planning Board. The content requirements for a preliminary subdivision application are

outlined in Sec.66-35 and, and requirements specific to a manufactured housing park are listed in Article VI. Section 45 of the Land Development Regulations. Staff consider the application to be generally complete. The following items were identified by Staff as being outstanding or requiring clarification. Below is an update on the status of these items.

1. Sec. 66-35(a)(15). Reserved Fire Lanes. The Application identified reserved fire lanes as being not applicable. In general, the proposed right-of-way widths and anticipated low volumes of traffic, likely do not necessitate reserved fire lanes. The applicant has confirmed this with the Fire Department and no designated fire lanes have been provided. It should be noted that the site redesign includes areas on two sides of every building where the Fire Department can utilize in emergency situations.

2. Sec. 66-35(a)(16). Mark Hampton Associates completed an evaluation of two hand dug test pits for the proposed stormwater treatment system in July. The plans have been updated to include the location of soil test pits for all proposed lots, see Attachment #10 (Septic System Test Pits). The proposed septic systems will be shared by 2-3 lots each, and the use and placement of the systems have been discussed with the Code Office and are sufficient for the proposed use.

3. Sec. 66-35(a)(18). Sec. 66-35(d)(10). The applicant has provided review or utility capacity letters from required entities, including the power company, City Engineering, Police and Fire Departments. These letters have been provided in the revised Application within Attachment 7 (Water, Power, City Engineering, Fire & Police Review).

4. Article VI, Sec.45.(Div.2)D.4. Names of abutting owners of properties and the nature of present use of abutting property. A revised abutter list has been included with the revised application which conforms with the City's definition of 'abutter'.

5. Article VI, Sec.45 (Div.2)D.4. Open Space Management Plan. This plan has not been provided. As part of the applicant's May submission, they detailed that this information would be provided as part of the final subdivision application.

6. Article VI, Sec.45. (Div.2)D.13. Park Management Plan. A draft Park Management Plan, dated May 1, 2022 was provided as part of the applicant's earlier preliminary plan submission and will be finalized and presented at Final Subdivision Review.

7. Article VI, Sec. 45. (Div.2)E.6. Groundwater Impacts. The applicant has supplied a Hydrological Assessment of the proposal, prepared by Mark Cengi Geologic, Inc, dated August 9, 2022.

V. REVIEW PROCESS: After determining if the application is complete for substantive review, an item for discussion and action is to determine if the application, prior to review and approval of the preliminary or final plan will require any studies for the Board's consideration. This is outlined in Sec. 66-38. The preliminary plan review application includes narratives that address how the application conforms to the various applicable standards required by Chapter 66 and by the Land Development Regulations, including Article VI, Sec. 45 Manufactured housing/mobile home parks and determine if additional information is needed to make a positive finding on the approval criteria.

VI. AREAS OF REVIEW: The proposed development is subject to the following areas of review.

A. Zoning: The property is predominantly zoned Rural Farm (RF) with a Manufactured Housing Park (MHP) overlay. A narrow strip of the property immediately along South Street is zoned Suburban

Residential (SR-1), though that portion of the property is not being developed. The development is proposed to occur entirely within the portion of the site that is zoned MHP overlay, with the remaining portion of the site remaining undisturbed. The MHP overlay permits the development of a manufactured housing park subject to the City's subdivision requirements, and regulations stated under Article VI, Section 45. Park design requirements and limitations are based upon the type of wastewater infrastructure being proposed, with applicable standards as follows: Minimum Lot Area Minimum Street Frontage Public Sewer 6,500 SF 50 Feet Central Subsurface Wastewater System 12,000 SF 75 Feet Individual Wastewater Systems 20,000 SF 100 Feet The applicant is requesting use of central subsurface wastewater systems, servicing between two and three individual lots, with minimum lot size of 12,000 square feet and minimum street frontage of 75 feet. The required setback for individual home sites is a minimum of 15 feet.

B. Subdivision: The City's subdivision ordinance specifies that the subdivision of property into five or more lots which include roadway and/or utility improvements is considered a major subdivision. A major subdivision requires a minimum of three public meetings; sketch plan, preliminary plan, and final plan review, with varying submittal requirements for each plan type. Sketch Plan and the initial review of the Preliminary Plan occurred in September, 2021 and May, 2022 respectively. Content requirements for a final subdivision plan are outlined in Section 66-52 of the Biddeford Code of Ordinances. The following are comments that the Board should consider:

1. Both the subdivision ordinance (Sec. 66-79) and manufactured housing park performance standards (Sec. 45, Div.2 E.3) require buffering of residential development from adjacent public rights-of-way. These requirements, at 75 feet and 50 feet respectively, are met, given the proposed distances between South Street and areas of proposed development. However, the site landscaping plans do not depict any plantings within this buffer zone. The revise plans include photographs of the site from various vantage points illustrating existing vegetation being used as a natural buffer to surrounding property owners.

2. Net Density Calculation. As previously requested by the Planning Board, the City has requested a formal determination from the City Attorney to determine whether this requirement is applicable due to the state statute (MRS Title 30-A §4358) on manufactured housing. The City has received a legal opinion from Harry B. Center, II Esq., dated October 4, 2022 stating that "it is our opinion that the net density calculations required by the Biddeford Land Development regulations would not apply to the Hidden Hills manufactured Housing Park".

3. As indicated in the May 12th staff report, the application does not detail the proposed future condition of the land immediately to the south of the project site, outside of the MHP overlay zone. The subdivision plan should clarify whether this portion of the property is to be included as part of the project's designated open space area, or whether it will be parceled off for future development.

4. Open Space: Staff previously commented that the applicant did not adequately address the open space requirements for a manufactured housing park, detailed in Article VI, Sec. 34, Div.2 E.3. As part of the applicant's prior submittal, draft language regarding management of park open space was provided for staff and Board consideration, to be included as part of the overall Park Management Plan. This information indicates that open space areas are to utilized for recreational purposes, and that generally, open space areas are to be maintained in their natural state, with the exception of low

impact trails, constructed of bark mulch or other low-impact materials. The agreement would restrict trail locations to areas outside of designated forested buffers and identified wetlands. Staff is supportive of this approach for on-site open space, though would recommend the provision of trails or walkways to better connect residents with the centrally location community building and common community amenities.

5. Manufactured housing parks expected to generate more than 200 daily trips are required to have a minimum of two entrance/exits on a public street. The plan depicts both property entrances off of Waterworks Drive, which is a private street owned by the Applicant, which directly connects to South Street, so this requirement is being met. It is anticipated that this street will be improved to City standards and will be accepted as a public street, which would satisfy this requirement.

6. Environmentally Sensitive Areas: Staff previously requested that the wetlands report utilized in delineating wetlands for the property be provided as part of the packet materials, and that the applicant should also address the discrepancy between the 2020 vernal pool assessment and 2021 Existing Conditions Plan which depicts vernal pools. Staff is asking that this be addressed as part of any future plan submission.

7. Impacts to Existing Plant and Wildlife Communities: In May, staff requested that the applicant coordinate with Basswood Environmental, the Maine Natural Areas Program (MNAP), and the Maine Department of Inland Fisheries and Wildlife (MDIFW) to comment on the potential impacts of this development on existing plant and wildlife communities. The Applicant has reached out to these entities for review and comment. It is also understood that this project will undergo site law review, given the acreage disturbed and scope of the project. The applicant should address this review comment and provide an update on the status of the project's site law review with Maine DEP.

8. Wetland Disturbance: Staff recommend that the Park Management Plan include language prohibiting disturbance of wetland areas without formal review and permitting.

9. Per section 51.D.1., Monumentation should be provided in accordance with section 62-87. Monumentation will be provided per ordinance requirements on the Waterworks Drive right of way and no waiver is necessary. The code requires granite monumentation of the roadways, and it appears if that is not the plan for monumentation of the new roads, a waiver will be required.

10. Hydrogeologic Assessment: DEP will review the Hydrogeologic Assessment as part of the SLODA review. If for some reason the project does not now require a SLODA permit, the city should consider having this information peer reviewed.

11. Peer Review Traffic Engineering Comments Based upon the scope of the project, the anticipated number of trips, and the potential for significant traffic impacts to South Street, the City has retained a separate third-party traffic engineer, Diane Morabito, P.E., PTOE, with Sewall Engineering, to provide a third party review of the traffic analysis prepared for this application. That review is provided under separate cover as an attachment to this report.

VII. CONCLUSION: The submitted application provides some additional materials as requested by the Planning Board. The Planning Board should determine if there is sufficient information to begin its substantive review of the application. If so, it should determine if there is information that is needed prior to preliminary approval, as it related to Sec. 66-39(b). If the application is not complete, it can be tabled until such time the outstanding information is provided. The Board may also consider conditioning a preliminary approval on those items needed to be addressed to satisfy the intent of Sec. 66-39(b). The latter should be detailed and clear on expectations.

City Staff and Peer Review Consultants continue to work with the Applicant on the fine details of the project, including sidewalk assessments. However, Staff believes that the Application provides enough information for the Planning Board to grant Preliminary Subdivision and Site Plan Approval by the Planning Board.

Recommended Motion: Motion to approve the Preliminary Subdivision and Site Plan for 416 South Street, Hidden Hills Manufactured Housing Park, a 195-unit manufactured housing park (Tax Map 7/Lot 8) in the Rural Farm (RF) and Suburban Residential (SR-1) zones and Manufactured Housing Park (MHP) overlay zone.

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

Portland
565 Congress Street, Suite 201
Portland, ME 04101

November 16, 2022
21-13

Matthew Grooms
City Planner
Biddeford City Hall
P.O. Box 586
Biddeford, ME 04005

Consolidated Preliminary Subdivision Application
Hidden Hills – An Age Restricted, Manufactured Housing Park
413 South Street, Biddeford

Matthew,

On behalf of South Street Village LLC and by request from the Planning Board, we are pleased to submit this consolidated preliminary subdivision application. This submission compiles all previously submitted relevant supporting documentation in one place. Additionally, changes & updates to the submission materials are outlined in this letter after the project description.

EXISTING PROJECT SITE

The development parcel is located at 413 South Street and has access directly to South Street and Waterworks Drive. The property is situated on the southerly side of South Street in the area between the Maine Turnpike and Waterworks Drive. The parcel is shown as lot 8 on the City of Biddeford Tax Map 7. The 312.1-acre property is located within both the Suburban Residential (SR1) District and the Rural Farm (RF) District and also contains a Mobile Home Park (MHP) Overlay Zone. The portion of the property that is located within the MHP is approximately 160 acres. The allowable density for any park served by community subsurface wastewater disposal systems is 1 unit per 20,000 SF. The net residential area calculation shows that the property can support approximately 348 manufactured homes within the MHP overlay zone. The Planning Board asked the City Attorney for a legal opinion on the allowable density. That opinion can be found in Attachment 18.

PROJECT DESCRIPTION

South Street Village LLC, aims to create an age restricted manufactured housing park. The Hidden Hills Manufactures Housing Park features 195 manufactured home lots, a community center, recreation areas as and an assortment of other amenities.

Lots

Each of the proposed 195 lots contains at least 12,000 SF and is generally 80' by 150' deep. The City ordinance stipulates that lots served by a central subsurface wastewater disposal system must be at least 12,000 sf and 75' wide.

Access

The development will connect to Waterworks Drive in two locations. Waterworks Drive has been constructed to City of Biddeford standards and will offered to the City Council for acceptance to the prior to final approval. The internal road system will create a large loop through the site. Additional internal roads will cross through the site. Altogether, approximately 12,000' of new private road is proposed to be developed. All proposed lots will be accessed via the new internal roads; driveway locations are shown within the attached plan set.

The Manufactured Housing Park standards allow for 20' wide roads to be located within a 23' wide right of way. The applicants are proposing a 50' wide right-of-way to allow room for the various utility mains to be constructed within the right of way. The 20 roadway is proposed to be lined with slipform concrete curbing and will feature a 5' sidewalk along one side behind a 9' esplanade.

A Traffic Analysis was prepared by Barton & Loguidice and is located within Attachment 12. The traffic analysis shows that the Maine DOT will not require improvements to South Street as a result of this project. The applicant has offered to pay an impact fee of $1,000 per lot (to be paid upon building permit application for each respective lot). The fee would be for the purpose of paying for pedestrian improvements along the project frontage on South Street. The applicant explored the possibility of connecting a walkway to South Street just west of the bridge that crosses over the Turnpike. This would have required crossing a small piece of land owned by the MTA. The MTA denied the applicant's request for a pedestrian easement. See Attachment 23 for correspondence.

Utilities

The development will be served by public water and above-ground power. A new 8" watermain will be installed within the proposed roadway system with 1" induvial services stubbed to each of the lots. Fire hydrants will be installed along the internal roadway system.

Shared septic systems will be located throughout the project. The systems are generally sized to handle two to three units.

Buffering, Open Space & Landscaping

Hidden Hills will be surrounded by a vegetated buffer that in general far exceeds the ordinance minimum of 50'. Along the South Street frontage, the backs of the lots will be approximately 400' away from the road at the closest point. That buffer increases to more than 700' near the intersection with Waterworks Drive. The buffer width varies along the turnpike frontage but will be a minimum of 100' deep.

The proposed plan features more than 92 acres of common open space. That means more than 57% of the MHP overlay will be preserved. This amount is well in excess of the 10% required open space, as stipulated by the ordinance.

Barry Hosmer, RLA prepared the landscaping plan. The plan features a significant amount of landscaping along the entire roadway system with a mix of Ornamental and Canopy trees. Fully cut-off, architectural light fixtures will be used throughout the project.

Stormwater Management

The project is required to meet the MDEP water quality and quantity standards: two large gravel wetlands and a series of level spreaders and buffer combinations for stormwater treatment. The project will teat over 95% of the newly created impervious area and over 80% of the entire developed area of the project site. A full stormwater report is attached.

The project will also require a Tier 1 MDEP Natural Resource Protection Act Permit for filling approximately 14,000 SF of wetlands. Copies of permit approvals will be forwarded to the City upon receipt.

Waste Disposal

Trash will be removed weekly via curbside pickup for future residents.

Phasing

The applicants intend to construct the development in multiple phases. A phasing plan can be found in Attachment 21.

Natural Resources Mapping

Basswood Environmental performed a rare plant habitat assessment of the property in response to concerns raised by the Conservation Commission. That report can be found in Appendix 13. They also provided additional comment based on requests made by the Conservation Commission. See Appendix 22 for that response.

Mark Hampton Associates performed a vernal pool assessment in the spring of 2020 and found no vernal pools within the manufactured housing park overlay zone. A letter can be found in Appendix 15.

Technical Capacity of Ownership Group

South Street Village, LLC is comprised of Matthew Chamberlain, Paul Vose and Richard Potvin, II. They are all experienced developers. They've hired a team of experienced design professionals, surveyors, wetland scientists and natural resource professionals to assist them with the preparation of the plans, calculations and studies necessary to design and permit a project of this nature.

The project team is listed below:

Civil Engineer	Jeffery Amos, P.E. Terradyn Consultants, LLC 41 Campus Drive, Suite 301 New Gloucester, ME 04260 (207) 926-5111
Surveyor	Jim Courbron, P.L.S. Terradyn Consultants, LLC 41 Campus Drive, Suite 301 New Gloucester, ME 04260 (207) 926-5111
Landscape Architect	Barry J. Hosmer P.L.A., A.S.L.A. 196 Whitney Avenue Portland, ME 04102 (207) 874-0248
Wetland Scientist and Soil Scientist	Mark Hampton C.S.S., L.S.E. Mark Hampton Associates, Inc P.O. Box 1931 Portland, ME 04104
Traffic Study	William Bray, P.E. Barton & Loguidice, LLC 383 US Route 1, Suite 2A Scarborough, ME 04074
Hydrogeological Assessment	Mark Cenci, LG Mark Cenci Geologic, Inc. 93 Mill Road North Yarmouth, ME 04097

Age Restricted Benefits

Prior to the last planning board meeting, the applicants decided to change the development to an age restricted community. This change was done in response to concerns that were brought up by the board and area residents. This age restriction will:

- Dramatically reduce the number of people that will be living at the park.
- Reduce the expected water usage
- Reduce the size of the septic systems
- Cut the expected traffic volume in half.
- It also changes the nature of the daily volume since many residents won't be going to work everyday.
- This change will have no impact on the Biddeford school system. There is no longer a need for a school bus shelter or bus turnaround.

The drop in the expected number of residents and the corresponding drop in both the amount of traffic and the different usage pattern meant that a turning lane was no longer necessary. The development is well below the threshold for a traffic movement permit.

CHANGES SINCE PREVIOUS SUBMISSIONS

Several small changes have been made to the plans and associated materials since the previous meeting. Those changes are outlined below:

1. Lot lines length labels are now shown in both feet and meters on the subdivision plans.

2. All abutters (including those across South Street) are now shown on the subdivision plan.

3. The roads have been re-named.

4. The limits of the deer wintering area are shown on the subdivision plans.

5. The open space management plan has been modified to state that an arborist, botanist or other quailitied individual will be hired every other year to determine the existence of invasive species. If any are found a plan will be formulated on how to properly deal with it. This was a change suggested by members of the conservation commission during the Maine DEP Public Informational Meeting as well as the recent site walk.

6. We have provided responses to the City 3rd Party Review Engineer's comments. Those comments can be found in Attachment 24.

WAIVER REQUESTS

The applicant requests a waiver from 66-76(b) that states:

As much as practicable, mature trees of twenty-four-inch caliper, or more, shall be indicated on plans. Trees to be cut shall be indicated on the plan. In cases where this is impractical, the limits of tree cutting will be indicated.

The site has largely been harvested. Very few large trees remain within the development area. Most of the remaining trees are located within front buffer area along South Street. This area of the property was not disturbed during the harvesting. The project makes widespread use of forested buffers and preserves large wetland systems. The project streetscape will be lined with trees on both sides.

CLOSING

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

Terradyn Consultants, LLC

Jeffrey D. Amos, P.E.

LIST OF ATTACHMENTS

Attachment 1	Subdivision Application
Attachment 2	Checklist
Attachment 3	Standards Compliance Narrative
Attachment 4	Property Deed
Attachment 5	Abutter List
Attachment 6	Financial Capacity
Attachment 7	Review by water, power, City Engineering, Police & Fire Department
Attachment 8	Stormwater Report including Urban Impaired Stream Regulations
Attachment 9	High Intensity Soil Survey
Attachment 10	Septic Test Pit Logs
Attachment 11	Hydrogeologic Assessment
Attachment 12	Traffic Impact Analysis
Attachment 13	Habitat Assessment
Attachment 14	MDIF&W and Unusual Natural Areas Correspondence
Attachment 15	Vernal Pool Letter
Attachment 16	Open Space Management Plan
Attachment 17	Park Management Plan
Attachment 18	Legal Opinion
Attachment 19	Exhibit of View from South Street
Attachment 20	Photos of Anticipated Unit Typles
Attachment 21	Phasing Plan
Attachment 22	Basswood Environmental Response
Attachment 23	MTA Easement Denial
Attachment 24	Engineering Comment Responses

Attachment 1

Application Form

CITY OF BIDDEFORD, MAINE
PLANNING BOARD

P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

APPLICATION FORM

Type of Application:

☐ Shoreland Zoning Permit ☐ Site Plan Review ☐ Extraction
☐ Conditional Use Permit ☒ Subdivision ☐ Private Way
☐ Other: _____

Applicant Information:

Applicant's Name: South Street Village, LLC
Applicant's Mailing Address: 762 Main Street South Portland ME 04106
Applicant's Telephone: (207) 450-7653
What is Applicant's legal interest in the property?
☒ Owner ☐ Potential Buyer with Contract ☐ Lease/Rental Agreement

Owner's Name: Same As applicant
Owner's Address: _____
Owner's Telephone: _____

Agent's Name: _____
Agent's Address: _____
Telephone: _____

Engineer/Surveyor: Terradyn Consultants, LLC c/o Jeff Amos P.E.
Engineer/Surveyor's Address: 41 Campus Drive, Suite 301 New Gloucester, ME 04260
Telephone: 207-926-5111

Project Location and Lot Information:

Street Address: 413 South Street
Tax Map: 7 Lot: 8
Current Zoning: SR1, RF & MHP Overlay Shoreland Zoning: no

Size of lot: 312.1 [x] acres [ ] s.f. Lot Frontage: _____
(160 in overlay)

Existing Use of Property: Vacant Land

Property currently serviced by:

- [x] City Road
- [ ] Public Sewer
- [x] Public Water
- [ ] Public Trash
- [x] Private Road
- [ ] Septic System
- [ ] Private Well
- [ ] Private Hauler

Slope Conditions in Area of Construction (if applicable):

[x] Flat (0-3 % slope) [x] Rolling (3-8% slope) [x] Hilly (8-15% slope) [ ] Steep (15% + slope)

Are there any wetlands or waterbodies on the site? [x] Yes [ ] No If yes, attach information

Do you plan to bring fill onto the lot? [x] Yes [ ] No If yes, attach information

Description of proposed use of property:

Project/Proposed Use Description: 195 unit manufactured housing park please see attached cover letter

Property to be serviced by:

- [ ] City Road
- [ ] Public Sewer
- [x] Public Water
- [x] Public Trash
- [x] Private Road
- [x] Septic System
- [ ] Private Well
- [x] Private Hauler

Is this project part of a larger project? [ ] Yes [x] No

☐ If in a Shoreland Zone:

Percent of residential lot coverage (Max. 20%): _____

Percent of structure expansion (Max. 30%): _____

☒ If Subdivision Review, number of lots proposed: 195

☒ If a Private Way is proposed, number of lots served: 195

☐ **If Site Plan Review, you must provide the following information:**

Total new square feet footprint of structures: _____

Total new square feet paving/parking: _____

Waiver Requests (attach details):

1. _____
2. _____
3. _____
4. _____
5. _____

Attachments:

A. Letters of Approval

☐ Fire Department - Contact Chief or Deputy Chief - 282-9986

☒ Ability to Serve for Water Service – Maine Water - 282-1543

☐ Ability to Serve for Sewer Service- Engineering Dept (Sewer) - Tom Milligan 284-9118

☐ Police Department - E-911 Road Name Designation - Contact Joanne Fisk - 282-5127

B. Letter to Planning Board describing project, waiver requests, proposed improvements, addressing permit requirements, etc.

C. Photographs of site.

D. Architectural renderings/drawings of proposed buildings, as required.

E. Engineered Plans, as required.

Fees (due at time of application):

Refer to "Attachment A Fees and Charges" of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

Required Signatures:

By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and it's attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting this application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

[x] Project proposed to have 1 acre or more of site disturbance:

-Project may need to apply for a Maine Construction General Permit and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.

Signature of applicant: Matthew Chamberlain Date: 4/13/2022

Signature of owner of property: Matthew Chamberlain Date: 4/13/2022

IF PLAN APPROVAL IS ANTICIPATED, PROVIDE 2 FULL SIZE MYLARS & 2 FULL SIZE PAPER COPIES FOR BOARD SIGNATURE (AS APPLICABLE). CHECK WITH PLANNING STAFF FOR CLARIFICATION.

Attachment 2

Checklist

66 Attachment 2

City of Biddeford

Appendix B
Required Information Checklist
[Ord. of 6-20-1995]

In order for any application to be considered complete the following information must be provided at least two weeks prior to the Planning Board meeting. All plans for subdivisions shall contain the following information:

	Yes	No	N/A	Remarks
(1) Name of subdivision, owner and engineer or surveyor	x			
(2) Graphic scale, date, drawn, North point and its date, and whether it is true or magnetic	x			
(3) Boundaries of the tract	x			
(4) Existing zoning	x			
(5) Ownership and location of abutting properties	x			
(6) Name, location, width, profile, cross-section, radius of curves, angles of change in direction and center line length of all angles of change in direction and center line length of all proposed streets; other public ways, building lines and easements in the subdivision; intersection of existing streets	x			
(7) Type, location, profile and cross-section of all existing and/or proposed surface water drainage	x			
(8) Location of all existing and/or proposed utilities	x			
(9) Location of all existing and/or proposed sanitary sewers showing size, profile, and cross-section, or description, plan, location of other means of sewage disposal with evidence of successful soil evaluation	x			
(10) Topography at two-foot contour intervals, unless otherwise prescribed by the Board. In addition the location of existing natural or man-made features influencing the layout of the proposed subdivision shall be shown.	x			

	Yes	No	N/A	Remarks
(11) Lot lines and approximate dimensions	x			
(12) Proposed uses of property	x			
(13) Proposed public areas, if any	x			
(14) Copy of deed, or option for purchase, for land being subdivided	x			
(15) Reserved fire lane areas	x			None Required
(16) Location of soil evaluation test pits for each lot on plan	x			
(17) Location of well or water supply for each lot	x			
(18) Aesthetics; trees, berms, shrubs, green strips, parks, etc.	x			
(19) Location and details for sedimentation and erosion control measures	x			
The preliminary of a subdivision shall be drawn at a scale no smaller than 100 feet (1 cm = 12 m) to the inch	x			
A preliminary plan shall include a location map insert, showing the relationship of the proposed subdivision to adjacent properties and public access, and drawn at no smaller scale than 2,000 feet (1 cm = 240 m) to the inch. It is suggested that reduced sections of City maps be used for this purpose.	x			

In addition to the above plat information, the Subdivider shall provide the following documents:

	Yes	No	N/A	Remarks
Valid deed or option indicating an interest held by the subdivider in the parcel of land	x			
Completed application form	x			
Narrative of the proposed project briefly describing the general nature of the project i.e., type of project; residential or commercial; number of lots intended to create	x			
Draft covenants and deeds for each lot proposed			x	
Easement documents for proposed rights-of-way for utilities, drainage ways, roadways and other	x			

	Yes	No	N/A	Remarks
travelways or public amenities				
Statement of financial capability of subdivider to undertake the proposed project	x			
Statement identifying principals involved in the project	x			
Statement demonstrating that the subdividers have the technical capability to complete the proposed project as presented	x			
Copies of such covenants or deed restrictions as are intended to all or part of the tracts			x	
Review by water company, power company and City Engineering, Police and Fire Departments	x			

Attachment 3

Standards Compliance

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

Portland
565 Congress Street, Suite 201
Portland, ME 04101

November 2022 Project# 21-13

COMPLIANCE WITH THE CITY OF BIDDEFORD ZONING AND LAND-USE CODE

Hidden Hills, Biddeford, Maine

The following information describes how the proposed project, located at 413 South Street in Biddeford, Maine, complies with the Subdivision Review Criteria and the Manufactured housing/mobile home park standards of the City of Zoning Ordinance.

Subdivision Review Criteria

1. *The project will not result in undue water or air pollution. In making this determination, the board shall consider:*
    a. *The elevation of land, and its relation to floodplains;*
    b. *The nature of the soils and subsoils;*
    c. *The ability to adequately support waste disposal;*
    d. *The slope of the land and its affects on effluents;*
    e. *The ability of streams for the disposal of effluents;*
    f. *The applicable state and local health and water resources regulations*

    The proposed project will not result in any undue water or air pollution. Consider the following:

    - This project requires a Maine DEP Site Location of Development Act Permit. Maine DEP reviewed the project specifically in regard to its impact to water and air pollution.
    - The Stormwater Report and Erosion & Sedimentation Plan was also reviewed by the City's 3rd party engineer.
    - A FEMA Floodplain is associated with Thatcher Brook as well as the portion of an unnamed stream that is closest to northeast corner of the property. No activity is proposed within the floodplain area.
    - The soils within the development are suitable for development. See attached High Intensity Soil Survey.
    - Passing septic test pits were found for each lot. Test pits are shown on the plan and the test pit logs are attached. Additionally, a hydrogeologic analysis was prepared and reviewed by the Maine DEP.

2. *The project has sufficient water available for the reasonably foreseeable needs of the subdivision.*

   Please see the attached letter from Maine Water stating that they have the capacity to serve the proposed project.

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

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

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

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

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

   The project will not cause unreasonable highway or public congestion or unsafe conditions; Barton & Loguidice has prepared a Traffic study for the proposed development attached to this section.

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

   The proposed development will be serviced by shared septic systems; the location of these systems is shown on the attached plan set. Test pit logs and a Hydrogeologic Analysis are attached.

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

The Applicant will contract with a private waste hauler to dispose of solid waste at a licensed facility. The hauler will provide curbside pickup for future residents.

8. *Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas, or public rights for physical or visual access to the shoreline;*

   The proposed development will not have an adverse effect on the scenic or natural beauty of the area. The project maintains a significant natural buffer between South Street and the closest point of development. There are no historic sites or irreplaceable natural areas in the location of the proposed development. A landscape plan has additionally been prepared for the proposed project.

9. *In conformance with a duly adopted subdivision regulation or ordinance, comprehensive plan, development plan, or land use plan, In making this determination the board is authorized to interpret these ordinances and plans;*

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

10. *The subdivider has adequate financial and technical capacity to meet the above state standards;*

    Please see the attached funds requests for the applicants demonstrating the financial capacity to construct the project.

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

CONSULTANT TEAM

Civil Engineer	Jeffery Amos, P.E. Terradyn Consultants, LLC 41 Campus Drive, Suite 301 New Gloucester, ME 04260 (207) 926-5111
Surveyor	Jim Courbron, P.L.S. Terradyn Consultants, LLC 41 Campus Drive, Suite 301 New Gloucester, ME 04260 (207) 926-5111
Landscape Architect	Barry J. Hosmer P.L.A., A.S.L.A.

	196 Whitney Avenue Portland, ME 04102 (207) 874-0248
Wetland Scientist and Soil Scientist	Mark Hampton C.S.S., L.S.E. Mark Hampton Associates, Inc P.O. Box 1931 Portland, ME 04104
Traffic Study	William Bray, P.E. Barton & Loguidice, LLC 383 US Route 1, Suite 2A Scarborough, ME 04074
Hydrogeological Assessment	Mark Cenci, LG Mark Cenci Geologic, Inc. 93 Mill Road North Yarmouth, ME 04097

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

11. *Whenever situated, in whole or in part, within 250 feet of any lake, pond, river, or tidal waters, the project will not adversely affect the quality of that body of water, or unreasonably affect the shoreline of that body of water; as indicated on the City of Biddeford's Official Zoning Map and referenced in the City's Comprehensive Plan;*

    The proposed development is not located within 250 feet of a lake, pond, river or tidal waters.

12. *The project will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater;*

    The proposed project will not adversely affect the quality or quantity of groundwater. The proposed lots will be serviced by public water; septic systems will be designed in accordance with all State of Maine Subsurface regulations. Erosion and sediment controls are shown on the attached plans, and a stormwater management report has been prepared to demonstrate that post-development runoff will not exceed predevelopment conditions

13. *The subdivider will provide information, based on FEMA flood boundary, floodway, and flood insurance maps, whether or not the project is in a flood-prone area :*

The proposed property is partially located within a FEMA flood boundary; however, no portion of the project site is located within the FEMA flood boundary. Figures showing the location of the FEMA flood boundaries are within the Stormwater Management Report within Attachment 8.

14. *The project will not unreasonably obstruct abutting properties or structures access to direct sunlight;*

The proposed project will not unreasonably obstruct abutting properties or structures access to direct sunlight. The proposed development is surrounded by a vegetated buffer which helps to separate the project from abutting properties.

Attachment 4

Current Deed

DEBRA L. ANDERSON, REGISTER OF DEEDS
Bk 17541 PG 869
Instr # 2017034594
08/21/2017 10:56:14 AM
Pages 8 YORK CO

Maine R E Transfer Tax Paid

Barns Greenfield 361 US Rte 1 Falmouth ME 04105

SHORT FORM WARRANTY DEED

CLAIR'S INCORPORATED, a Maine Corporation, FOR CONSIDERATION PAID, grants to SOUTH STREET VILLAGE, LLC, a Maine Limited Liability Company, with a mailing address of 762 Main Street, South Portland, Maine 04106, with WARRANTY COVENANTS, certain lots or parcels of land, with any buildings and improvements thereon, and all rights and easements appurtenant thereto, located in the City of Biddeford, County of York, and State of Maine, all as more particularly described in Exhibit A attached hereto and made a part hereof by specific reference.

IN WITNESS WHEREOF, Clair's Incorporated has caused this instrument to be executed by James C. Jones, its President, thereunto duly authorized, this 15th day of August, 2017.

WITNESS:

Name: MARGARITA SAKHAROVA

Clair's Incorporated

By: James C. Jones
James C. Jones
Its: President

Commonwealth of Massachusetts
County of Dukes, ss.

August 15, 2017

Then personally appeared the above-named James C. Jones, President of Clair's Incorporated, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said corporation.

Before me,

JANELLE D. AGIN
Notary Public, Commonwealth of Massachusetts
My Commission Expires January 25 2024

Notary Public

Janelle D. Agin
Print Name

January 25, 2024
My commission expires

P:\Corporations\Clair's Incorporated\2017 Sale of 416 South Street\Corporate Warranty(Biddeford).docx

8p

EXHIBIT A

Grantor: Clair's Incorporated
Grantee: South Street Village, LLC
Date: August 15, 2017
Instrument: Short Form Warranty Deed

Parcel 1 – 413 South Street Parcel

A certain lot or parcel of land, together with any improvements thereon, situated on the southwesterly side of South Street, so-called, in the City of Biddeford, County of York and State of Maine, being more specifically bounded and described as follows;

Commencing at an iron pin situated in the apparent southwesterly sideline of said South Street, which pin is located at the northerly corner of a parcel of land conveyed by Richard B. Topham, et. al. to Walter H. Kay, et. al. by deed dated June 7, 1984, and recorded in the York County Registry of Deeds, Book 3309, Page 283; thence running westerly by said apparent sideline of said South Street to an iron pin situated in the easterly corner of a parcel of land now or formerly of one Payette, a tie line between said last two iron pins bearing North 75° 22' 37" West a distance of 1,995.40 feet; thence South 52° 03' 53" West by land formerly of said Payette and land formerly of one Hooper, 2,665.62 feet to an iron pin; thence South 38° 56' 25" East, 600 feet to an iron pin; thence South 51° 13' 35" West, 600 feet to an iron pin; thence North 38° 56' 25" West, 600 feet to an iron pin (the last three courses running by land now or formerly of Biddeford-Saco Water Company); thence South 51° 13' 35" West, 692 feet to a point at the northerly corner of land now or formerly of one Dubois; thence South 38° 01' 55" East by said land of said Dubois and by land now or formerly of one Spang, 1,072.31 feet to a point; thence North 51° 57' 33" East, 451 feet to a point; thence South 38° 01' 55" East, 508.05 feet to a point; thence South 51° 57' 33" West, 2,249 feet to a point (the last three courses running by said land of said Spang); thence South 38° 01' 55" East, 601.42 feet to a point at land now or formerly of the Maine Turnpike Authority; thence North 51° 57' 33" East by said land of said Authority and land now or formerly of Diamond National, Inc., 2,405.84 feet to a point; thence South 38° 01' 55" East, by said land of said Diamond National, Inc., 653.41 feet to a point; thence North 51° 53' 12" East, 3,436.56 feet to a point at land now or formerly of said Maine Turnpike Authority; thence North 28° 39' 21" East, 323.77 feet to a point; thence continuing northeasterly on a line with an arc distance of 1,346.00 feet to a point; thence North 41° 46' 21" East, 100.90 feet to said apparent sideline of said South Street (the last three courses all running by said land of said Maine Turnpike Authority); thence North 56° 35' 39" West, by said sideline of said South Street, 138.75 feet to land now or formerly of one Corbeil; thence South 51° 56' 52" West by said land of said Corbeil and land now or formerly of one Walker, 618.64 feet to a point; thence North 53° 04' 50" West by said land of said Walker, land now or formerly of one Lariviere, land now or formerly of one Giguere and said land of Kay, 608.56 feet to a point at the westerly corner of said Kay land; thence North 51° 06' 10" East, by said Kay land, to the point and place of beginning, containing 314 acres, more or less.

EXCEPTING AND RESERVING from the above - described premises, however, the following described lot or parcel of land as conveyed to the Maine Water Company:

EXHIBIT A

Grantor: Clair's Incorporated
Grantee: South Street Village, LLC
Instrument: Short Form Warranty Deed

A certain parcel of land situated southerly of but not contiguous with South Street, so called, in the City of Biddeford, County of York and State of Maine, being more particularly bounded and described as follows, to wit:

COMMENCING at a certain iron pipe set on or near the southerly right of way line of South Street and the easterly corner of land now or formerly of Cecile Payette and Mederick S. Payette, Jr. as described in the deed recorded in the York County Registry of Deeds in Book 3069, Page 272, said point of commencement also being the northwest corner of land formerly of Clair's Incorporated in common with the aforesaid Payette as described in the deed recorded in said registry in Book 3518, Page 279;

Thence S 36°-14'-20" W along the southerly boundary of said Payette and continuing on same course along the land of Biddeford & Saco Water Company, now known as The Maine Water Company, as described in the deed recorded in Book 2775, Page 9 for a distance of 2665.75 feet to an iron pipe in the northerly corner of the original reservoir lot of Biddeford & Saco Water Company, now known as The Maine Water Company, as described in the deed recorded in said registry in Book 402, Page 84;

Thence S 35°-23'-20" W along the westerly line of the original reservoir lot of Biddeford & Saco Water Company, now known as The Maine Water Company, and easterly bound of the land of Biddeford & Saco Water Company, now known as The Maine Water Company, as described in Book 2775, Page 9 for a distance of 600.2 feet to an iron pipe set in the westerly corner of the reservoir lot and northerly corner of the parcel hereby described and conveyed and POINT OF BEGINNING herein;

Thence S 35°-36'-49" W along the easterly bound of the land of Biddeford & Saco Water Company, now known as The Maine Water Company, as described in Book 2775, Page 9 for a distance of 691.69 feet to a steel rebar with plastic cap stamped "STI" and northerly corner of land now or formerly of Jared P. Boyle as described in the deed recorded in Book 15184, Page 508 and Lindsay P. Boyle as described in the deed recorded in Book 15487, Page 621;

Thence S 53°-39'-49" E along the land of said Boyle for a distance of 597.28 feet to a steel rebar and cap inscribed, "JAI" set in the northerly corner of land now or formerly of Daniel L. Spang as described in the deed recorded in said registry in Book 2964, Page 230;

Thence N 35°-49'-00" E along the remaining land of Maine Water Company as described in the deed recorded in said registry in Book 17160, Page 177 for a distance of 701.70 feet to an iron

pipe at the southerly corner of the original reservoir lot standing approximately one foot above grade and situated about a foot westerly of a taller metal post;

Thence N 54°-37'-18" W along the southwest side of the original reservoir lot for a distance of 599.73 feet to the iron pipe at the hereby described and conveyed parcel's northerly corner and POINT OF BEGINNING herein, encompassing an area of 9.57 acres, more or less.

Being the same parcel conveyed in a corrective deed from Maine Water Company to the Grantor herein dated August 1, 2017, and recorded in the York County Registry of Deeds in Book 17534, Page 135.

EXCEPTING AND RESERVING the following rights and easements, which rights and easements shall be for the benefit of, and appurtenant to, (a) the property formerly of the Biddeford & Saco Water Company, now known as The Maine Water Company, described in a deed from Mary Hooper, Guardian of the heirs of Obed Hooper, to the Biddeford & Saco Water Company, dated July 22, 1884, and recorded in the York County Registry of Deeds in Book 402, Page 84, (b) the property formerly of the Biddeford & Saco Water Company, now known as The Maine Water Company, described in a deed from Armand B. Lapointe and Lena M. Lapointe to the Biddeford & Saco Water Company dated April 13, 1981, and recorded in the York County Registry of Deeds in Book 2775, Page 9, (c) the lot or parcel of land excepted and reserved in the deed from Maine Water Company to Clair's Incorporated as described above, and (d) any other property formerly of the Biddeford & Saco Water Company, now known as The Maine Water Company, situated southerly of South Street, easterly of Swan Pond Brook, westerly of Interstate Highway 95 and northerly of the Alfred Road, a/k/a Route 111, in Biddeford, York County, Maine:

A. Right of way granted to Biddeford & Saco Water Company by deed of Mary C. Hooper, Guardian of the heirs of Obed Hooper, dated July 22, 1884, and recorded in the York County Registry of Deeds in Book 402, Page 84, verbatim as follows, and subject to any terms and conditions with respect thereto set forth in said Deed, which are incorporated herein by reference to the extent not otherwise set forth below:

" . . . together with a right of way suitable in width for teams to pass and repass from the highway known as Hollis Road through the pasture & woodlot of the grantor to said parcel of land above granted and described and herein expressly excepting and reserving to the grantor their heirs and assigns a right of way across said granted parcel in the valley about ninety feet from the land of said D.O.S. Hooper of suitable width for teams to pass both of said ways granted or reserved to be subject to gates and bars."

EXHIBIT A

Grantor: Clair's Incorporated
Grantee: South Street Village, LLC
Instrument: Short Form Warranty Deed

B. Waterline rights granted to Biddeford & Saco Water Company by D.O.S. Hooper in an Agreement dated September 23, 1884, and recorded in the York County Registry of Deeds in Book 439, Page 142, verbatim as follows, and subject to any terms and conditions with respect thereto set forth in said Agreement, which are incorporated herein by reference to the extent not otherwise set forth below:

" . . . the right of laying down, repairing and perpetually maintaining its (20) inch main pipes, one leading from Pumping Station to the Reservoir a distance of about twelve hundred (1200) feet and the other from a connection with said pipe toward the City of Biddeford, nearly at right angles with first pipe, along the line of said Highway a distance of about three hundred feet as per sketch attached hereto, through the mowing field of said Hooper in said Biddeford between the Highway known as the old Hollis Road, and the pasture land of Mary C. Hooper et als."

C. Waterline rights granted to Biddeford & Saco Water Company by Mary C. Hooper in an Agreement dated July 14, 1884, and recorded in the York County Registry of Deeds in Book 439, Page 145, verbatim as follows, and subject to any terms and conditions with respect thereto set forth in said Agreement, which are incorporated herein by reference to the extent not otherwise set forth below:

" . . . the right of laying, repairing and perpetually maintaining its twenty (20) inch main pipe through the pasture of said Hoopers in said Biddeford, between the land of D.O.S. Hooper and the land owned by this Company, on which is located said Company's Reservoir."

D. Waterline rights granted to Biddeford & Saco Water Company by deed of Gideon Roberge acknowledged May 12, 1913, and recorded in the York County Registry of Deeds in Book 617, Page 156, verbatim as follows, and subject to any terms and conditions with respect thereto set forth in said Deed, which are incorporated herein by reference to the extent not otherwise set forth below:

". . . the right to lay down, repair and perpetually maintain a sixteen inch water main in and through the following described premises situate in said Biddeford and belonging to me, the same to be done in a workmanlike manner and to the satisfaction of the grantor, viz: Over my land lying between the Alfred Road, so called, and the stone reservoir of said Water Company, a distance of eight hundred forty-two feet, running in a northerly direction, forty-two degrees and forty-five minutes West and bounded on the northerly side of land of Etienne Perreault and on the southerly side by land of First National Bank, as delineated on the plan of location of said water main drawn by William T. Allen dated February 20, 1913 and now indicated on my said land by stakes driven for the purpose of location."

EXHIBIT A

Grantor: Clair's Incorporated
Grantee: South Street Village, LLC
Instrument: Short Form Warranty Deed

E. Waterline rights granted to Biddeford & Saco Water Company by deed of Zepherin Deschambault dated April 1, 1913, and recorded in the York County Registry of Deeds in Book 617, Page 157, verbatim as follows, and subject to any terms and conditions with respect thereto set forth in said Deed, which are incorporated herein by reference to the extent not otherwise set forth below:

"... the right to lay down, repair and perpetually maintain a sixteen inch water main in and through the following described premises situate in said Biddeford and belonging to me, the same to be done in a workmanlike manner and to the satisfaction of the grantor, viz: Over my land lying between the Alfred Road, so called, and the stone reservoir of said Water Company, a distance of five hundred eight feet, running in a northerly direction forty-two degrees and forty-five minutes West, and bounded on the northerly side by land of Deering Brothers and on the southerly side by land of John Harper and Mary G. Harper, as delineated on the plan of location of said water main drawn by William T. Allen dated February 20 and now indicated on my said land by stakes driven for the purpose of location."

F. Waterline rights granted to Biddeford & Saco Water Company by deed of John M. Deering and Gilman N. Deering dated May 26, 1913, and recorded in the York County Registry of Deeds in Book 617, Page 158, verbatim as follows, and subject to any terms and conditions with respect thereto set forth in said Deed, which are incorporated herein by reference to the extent not otherwise set forth below:

"... the right to lay down, repair and perpetually maintain a sixteen inch water main in and through the following described premises situate in said Biddeford and belonging to us, the same to be done in a workmanlike manner and to the satisfaction of the grantor, viz: Over our land lying between the Alfred Road, so called, and the stone reservoir of said Water Company, a distance of four hundred seventy-two feet, running in a northerly direction forty-two degrees and forty-five minutes West, and bounded on the northerly side by land of Biddeford & Saco Water Company and on the southerly side by land of Zepherin Deschambault, as delineated on the plans of location of said water main drawn by William T. Allen dated February 20, 1913 and now indicated on our said land by stakes driven for the purpose of location."

G. Utility easement granted to Biddeford and Saco Water Company by deed of Georges Levesque and Blanche J. Levesque dated January 9, 1969, and recorded in the York County Registry of Deeds in Book 1830, Page 146, verbatim as follows, and subject to any terms and conditions with respect thereto set forth in said Deed, which are incorporated herein by reference to the extent not otherwise set forth below:

EXHIBIT A

Grantor: Clair's Incorporated
Grantee: South Street Village, LLC
Instrument: Short Form Warranty Deed

" . . . an easement over a strip of land situated in Biddeford for the purpose of installation, use, maintenance, repair and replacement of a line of telephone and power poles, with all necessary guys, wires and appurtenances. Said strip of land shall be fifteen (15) feet in width throughout and run southwesterly from South Street, adjacent to and southeasterly of the present access road running from South Street to the reservoir of grantee until said strip reaches the water main easement already owned by Grantee, and thereafter shall continue southwesterly within the limits of said water main easement area to said reservoir."

H. Waterline rights granted to Biddeford and Saco Water Company by Blanche J. Levesque in an Agreement dated September 8, 1978, and recorded in the York County Registry of Deeds in Book 2417, Page 257, verbatim as follows, and subject to any terms and conditions with respect thereto set forth in said Agreement, which are incorporated herein by reference to the extent not otherwise set forth below:

"The perpetual right and easement to enter upon land of Grantor hereinafter described, by Grantee's agents, employees, or independent contractors, with men, vehicles and mechanical appliances, to construct and install under the surface of the land a water main twenty inches (20") or larger in diameter, and to maintain, operate, alter, repair, rebuild, inspect and replace in the same or different sizes, and to operate, patrol and remove those water mains, conduits, or pipe lines already existing, as well as said twenty inch (20") or larger water main to be constructed, for the purpose of transporting water, together with all necessary fixtures, equipment and appurtenances over and across Grantor's land located in said Biddeford. The land over which said easement is granted is more particularly defined as "a strip of land fifty feet (50') in width the center line of which is the center of the existing sixteen inch (16") water main, which existing water main runs southeasterly from land of Grantee adjacent to its reservoir across land of Grantor and land now or formerly of L. Cote, and other to the Alfred Road, so-called. The within easement runs two thousand, two hundred fifty feet (2,250'), more or less, across said land of Grantor from said land of Grantee to said land now or formerly of Cote.

It is covenanted and agreed by and between the parties hereto that neither will erect or maintain any building upon the parcel of land hereinabove described, and that neither will plant any trees or shrubs upon said parcel. It is understood by the parties hereto that the buried water main herein referred to must remain below the frost line. Therefore, Grantor covenants and agrees that she shall not change the grade of, or remove or cause to be removed any appreciable amount of soil from, the parcel herein described without prior consent of Grantee.

EXHIBIT A

Grantor: Clair's Incorporated
Grantee: South Street Village, LLC
Instrument: Short Form Warranty Deed

Grantee further covenants and agrees that the laying, removing or repairing of any of its lines or conduits in said parcel, it will thereafter grade the surface of the ground and return it as nearly as possible to the condition in which found, except that it shall not replace trees or brush cut and removed.

Grantor further covenants and agrees that Grantor, her heirs and assigns, shall have the right to receive service from the existing sixteen inch (16") water main when the new twenty inch (20") water main is put into service, all in accordance with regulations of Grantee as approved by the Maine Public Utilities Commission.

Grantor further covenants and agrees to make reasonable efforts to provide Grantor with present service from said existing sixteen inch (16") water main, provided that adequate pressure and water supply for both the existing use and the additional use by Grantor, her heirs and assigns."

I. FURTHER EXCEPTING AND RESERVING the right to use any roads or ways extending from South Street to the premises of The Maine Water Company described in (a), (b), (c) and (d) above for vehicular and pedestrian access to and from said premises and South Street.

Parcel 2 – 475 South Street Parcel

A certain lot or parcel of land with the any buildings and improvements thereon, located in the City of Biddeford, County or York and State of Maine, bounded and described as follows:

Beginning at the Southerly corner of land formerly of Kerme Folsom; thence Southwesterly by land formerly of Everett F. Meserve sixty four (64) rods; thence Northwesterly by said Meserve's land forty (40) rods to land formerly owned by the heirs of Jesse Page; thence Northeasterly by land formerly of Page heirs to Cutts brook, so-called; thence by said brook to the firms mentioned bounds, containing sixteen (16) acres, more or less.

The herein conveyed lot is now subject to taxation under the provisions of the Tree Growth Tax Law (36 MRSA 571 et seq.), and said lot is conveyed subject to such tax classification. The Grantee herein shall be liable for the payment of any penalty assessed for the withdrawal of any of the herein conveyed premises from taxation under the Tree Growth Taxation Law on or after the date hereof.

Being the same premises conveyed to Clair's Incorporated by deed of James E. Clair, Sr., dated August 3, 1992, and recorded in the York County Registry of Deeds in Book 6411, Page 179.

Attachment 5

Abutter List

MBLU	Location	Owner Name	Co-Owner Name	Address 1	Address 2	City, State, Zip
2/ 15/ 1/ /	30 ANDREWS RD	CENTRAL MAINE POWER CO	C/O AVANGRID MANAGEMENT CO - LOCAL TAX	ONE CITY CENTER 5TH FLOOR		PORTLAND, ME 04101
2/ 17/ / /	ANDREWS RD (OFF OF)	BOYLE, JAMES P, CONSERVATOR OF ESTATE	BOYLE, JARED P & LINDSAY P	25 DUNDEE RD		GORHAM, ME 04038
2/ 17/ 2/ /	437 SOUTH ST	THE MAINE WATER COMPANY		93 INDUSTRIAL PARK RD		SACO, ME 04072
2/ 18/ / /	475 SOUTH ST	THE MAINE WATER COMPANY		93 INDUSTRIAL PARK RD		SACO, ME 04072
2/ 19/ / /	439 SOUTH ST	THE MAINE WATER COMPANY		93 INDUSTRIAL PARK RD		SACO, ME 04072
2/ 21/ / /	ALFRED ST (OFF OF)	SPANG, DANIEL L		8 CRANBERRY LN		KENNEBUNKPORT, ME 04046
2/ 22/ / /	ALFRED ST (OFF OF)	SPANG 3 LLC		PO BOX 7543		PORTLAND, ME 04112
2/ 37/ / /	50 BIDDEFORD GATEWAY PLAZA	HD DEVELOPMENT OF MARYLAND INC	C/O HOME DEPOT USA PROP TAX DEPT 2405	PO BOX 105842		ATLANTA, GA 30348-5842
2/ 37/ 1/ /	ALFRED ST (OFF OF)	STATE OF MAINE	STATE HOUSE	STATION #16 D.E.P.		AUGUSTA , ME 04330
2/ 38/ / /	475 SOUTH ST	SOUTH STREET VILLAGE, LLC		762 MAIN ST		SOUTH PORTLAND, ME 04106
2/ 39/ / /	ALFRED ST (OFF OF)	CITY OF BIDDEFORD		PO BOX 586		BIDDEFORD, ME 04005-0586
2/ 39/ 1/ /	ALFRED ST (OFF OF)	STATE OF MAINE	STATE HOUSE	STATION #16 D.E.P.		AUGUSTA , ME 04330
2/ 41/ 6/ /	11 FOX HOLLOW DR	PHILLIPS, RICHARD E & WENDY J		2 GLENVIEW DR		BIDDEFORD, ME 04005
2/ 41/ 7/ /	436 SOUTH ST	DUCHESNE, ROGER P		436 SOUTH ST		BIDDEFORD, ME 04005-9314
2/ 41/ 8/ /	438 SOUTH ST	LAKEMPER, THOMAS J & TAMMY		2418 CASONA LN #7201		MELBOURNE, FL 32940
2/ 41/ 9/ /	440 SOUTH ST	ROSS, ZACHARY D	ROBERTSON, TIA R	440 SOUTH ST		BIDDEFORD, ME 04005
7/ 1/ / /	1 GLENVIEW DR	PARSONS, RITA C		1 GLENVIEW DR		BIDDEFORD, ME 04005
7/ 2/ / /	2 GLENVIEW DR	PHILLIPS, RICHARD E & WENDY J		2 GLENVIEW DR		BIDDEFORD, ME 04005-3113
7/ 3/ / /	428 SOUTH ST	SAUCIER, ALLEN H		426 SOUTH ST		BIDDEFORD, ME 04005-9313
7/ 4/ / /	426 SOUTH ST	SAUCIER, ALLEN H & MARGARET A		426 SOUTH ST		BIDDEFORD, ME 04005-9313
7/ 5/ / /	424 SOUTH ST	MARTINOLICH, BONNIE L		424 SOUTH ST		BIDDEFORD, ME 04005
7/ 6/ / /	422 SOUTH ST	THIBODEAU, ROBERT SCOTT		422 SOUTH ST		BIDDEFORD, ME 04005
7/ 7/ / /	420 SOUTH ST	NEVERS, JOEL E	BROWN, LINDA S	420 SOUTH ST		BIDDEFORD, ME 04005
7/ 7/ 1/ /	398 SOUTH ST	HAZEN, MARK	HAZEN, SANDY L	398 SOUTH ST		BIDDEFORD, ME 04005
7/ 7/ 2/ /	5 OLD HOLLIS RD	LEVESQUE, CLAUDETTE		5 OLD HOLLIS RD		BIDDEFORD, ME 04005-9318
7/ 8/ / /	413 SOUTH ST	SOUTH STREET VILLAGE, LLC		37 A ST		SOUTH PORTLAND, ME 04106
7/ 9/ / /	387 SOUTH ST	BRODEUR, ROBERT J	BRODEUR, ELIZABETH S	387 SOUTH ST		BIDDEFORD, ME 04005
7/ 10/ / /	385 SOUTH ST	WHITE, ERIN C & EVAN-CHRISTIAAN D		385 SOUTH ST		BIDDEFORD, ME 04005
7/ 11/ / /	383 SOUTH ST	LARIVIERE, RALPH P & CELINE L		383 SOUTH ST		BIDDEFORD, ME 04005-9345
7/ 11/ 1/ /	381 SOUTH ST	MCVICAR, CLAIRE A &	CUSTEAU, DONALD P	381 SOUTH ST		BIDDEFORD, ME 04005-9345
7/ 11/ 2/ /	379 SOUTH ST	HOULE, STEVEN C & DEBRA A		379 SOUTH ST		BIDDEFORD, ME 04005
7/ 12/ / /	377 SOUTH ST	PAQUETTE, GUY R & SUZANNE C		377 SOUTH ST		BIDDEFORD, ME 04005
31/ 5/ / /	2-4 OLD HOLLIS RD	DORNEY, CATHERINE		4 OLD HOLLIS RD		BIDDEFORD, ME 04005-9318
31/ 5/ 1/ /	6 OLD HOLLIS RD	GRAY, STEPHEN		6 OLD HOLLIS RD		BIDDEFORD, ME 04005
7/ 7/ 8/ /	SOUTH ST	BROWN, LINDA S		420 SOUTH ST		BIDDEFORD, ME 04005
7/ 7/ 3/ /	26 OLD HOLLIS RD	DARGIE, NICHOLAS STEVEN	CROSSMAN, RORI J.	978 KING ST		OXFORD, ME 04270
7/ 8/ 2/ /	SOUTH ST	MAINE TURNPIKE AUTHORITY		2360 CONGRESS ST		PORTLAND, ME 04102

Attachment 6

Financial Capacity

Financial Capacity

South Street Village, LLC is proposing to develop Hidden Hills Manufactured Housing Park – a 192-unit housing park to be located on the southerly side of South Street, just west of the Maine Turnpike at 413 South Street, Biddeford, ME.

The applicant owns the development parcel described as lot 8 on the City of Biddeford Tax Map #7. The project will be constructed in multiple phases. A phasing plan is attached. Future phases wont be begun until the infrastructure for the previous phase has been completed. A phasing plan is attached.

We prepared an engineer's estimate for the first phase and it is attached. According to our calculations, the infrastructure for the first phase (Station 0+00-12+50 of Lozolite Lane) will cost approximately $650,000. This figure is in line with estimates that the applicant has received from bidding contractors. This figure is well below the financial capacity of the applicants. We've attached correspondence from Evergreen Credit Union and W.M. Ely Associates, Inc. that that outline $2,000,000 in immediate capacity.

April 8, 2022

To Whom It May Concern:

RE: Matthew Chamberlain Financial Information Request

This letter will confirm and verify that Matthew Chamberlain has accounts at Evergreen Credit Union. Matthew's accounts are in good standing and have balances in the excess of $850,000.00. Matthew also has the availability of excess of $150,000.00 in open lines of credit. Matthew also has ownership in South Street Villages.

If additional information is needed, please do not hesitate to contact our offices.

Sincerely,

Justin Collett

Justin Collett
AVP/Branch Manager | NMLS# 1492899
Evergreen Credit Union
225 Riverside Street
Portland, ME 04103
(O) 207-221-5000 Ext. 232
(F) 207-221-5017
egcu.org

We're here for you.

W.M. Ely Associates, Inc.

Certified Public Accountants
37 A Street
South Portland, ME 04106
Ph: (207) 799-8811
Fax: (207) 799-8722
E-mail: rec@wmelyassociates.com

April 13, 2022

Biddeford Planning Board:

I have been asked to provide a statement of liquid assets for Paul Vose with regard to the South Street Village LLC approval of a permit for a mobile home park. We have provided Mr. Vose with tax services for more than a decade and I can verify that his liquid assets exceed $1,000,000.

Sincerely,

Rosanne E. Curneil

Rosanne E. Curneil
Certified Public Accountant

Cost Estimate Worksheet

PROJECT NAME: Hidden Hills 55+ Community - Phase 1

DEVELOPER: South Street Village, LLC

GENERAL CONTRACTOR:

SITE CONTRACTOR:

DATE: 8/17/2022

BASIS OF FINANCIAL GUARANTEE

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
SITE PREPARATION				
CLEARING AND GRUBBING	ACRES	9	$ 5,300	$ 47,700.00
EROSION CONTROL	LUMP SUM	1	$ 12,000	$ 12,000.00
EARTHWORK				
EXCAVATE AND FILL TO SUBGRADE	CY	1950	$ 7.00	$ 13,650.00
LEDGE REMOVAL	CY	0	N/A	$ -
PAVEMENT SECTION				
BITUMINOUS SURFACE PAVEMENT	TON	240	$ 100	$ 24,000.00
BITUMINOUS BINDER PAVEMENT	TON	380	$ 90	$ 34,200.00
BASE GRAVEL	CY	321	$ 27	$ 8,667.00
SUBBASE GRAVEL	CY	1754	$ 18	$ 31,572.00
CURB	LF	2005	$ 12	$ 24,060.00
SIDEWALK	CY	250	$ 25	$ 6,250.00
DRIVEWAY TO MAINTENANCE	LF	60	$ 420	$ 25,200.00
STORM DRAIN SYSTEM				
CATCH BASINS	EACH	9	$ 5,000	$ 45,000.00
RAIN GUARD	EACH	2	$ 5,000	$ 10,000.00
6" DIAMETER STORM DRAIN	LF	750	$ 20	$ 15,000.00
12" DIAMETER STORM DRAIN	LF	0	$ 30	$ -
15" DIAMETER STORM DRAIN	LF	691	$ 50	$ 34,550.00
18" DIAMETER STORM DRAIN	LF	0	$ 65	$ -
24" DIAMETER STORM DRAIN	LF	0	$ 80	$ -
48" DIAMETER STORM DRAIN	LF	54	$ 150	$ 8,100.00
VEGETATED SWALE	LF	250	$ 100	$ 25,000.00
LEVEL SPREADER	LF	175	$ 150	$ 26,250.00
STORMWATER MANAGEMENT POND	EACH	0	$ 50,000	$ -
MISCELLANEOUS	LUMP SUM	0		
SANITARY SEWER SYSTEM				
MANHOLE W/ TERMINAL FLUSHING VALVE	EACH	0	$ 3,340	$ -
2" PRIVATE FORCE MAIN	LF	0	$ 15	$ -
MISCELLANEOUS	LUMP SUM	0		
WATER MAIN SYSTEM				
DOMESTIC SERVICES	LF	920	35	$ 32,200.00
WATER MAIN PIPE	LF	1300	80	$ 104,000.00
HYDRANTS	EACH	1	5000	$ 5,000.00

VALVES	EACH	3	2500	$ 7,500.00
UNDERGROUND UTILITIES				
ELEC.\TEL. ABOVE GROUND	LF	1950	$ 20	$ 39,000.00
TRANSFORMER BASES	EACH	0	$ 1,000	$ -
SITE LIGHTING (INCL. BASES)	EACH	0	$ 600	$ -
SURFACE RESTORATION				
LOAM AND SEED	SY	2890	$ 6	$ 17,340.00
RIPRAP	CY	135	$ 35	$ 4,725.00
MULCH BERM	LF	10	$ 1,500	$ 15,000.00
LANDSCAPE PLANTINGS	LUMP SUM	1	$ 15,000	$ 15,000.00
CLEANUP	LUMP SUM	1	$ 5,000	$ 5,000.00

	SUBTOTAL COST	$ 635,964.00
	PROJECT CLOSEOUT FUNDS	$ 15,000.00
	TOTAL COST	$ 650,964.00

PROJECT CLOSEOUT FUNDS HAVE BEEN ESTABLISHED AS A SEPARATE (FIXED) LINE ITEM FOR COMPLETION OF VARIOUS ITEMS, SUCH AS TESTING, "AS-BUILTS" DRAWINGS AND FINAL PUNCH LIST, ETC.

Attachment 7

Water, Power & City Engineering, Fire & Police Review

August 10th, 2021

Regency Realty Group
Matthew Chamberlain
762 Main Street
South Portland, ME 04106

Re: Ability to Serve – 413 South Street – South Street Development LLC – Biddeford, Maine

Dear Mr. Chamberlain,

The Maine Water Company (MWC) has received your request for an Ability to Serve Determination for the property located at 413 South Street, Biddeford, Maine for the above referenced project. The request indicates a preliminary plan for a mobile home park with approximately 196 single family lots. The complex is proposed to be served with public water and accessed from the Maine Water Company access road where there is an 8-inch stub available for this development. The static pressure in the area is approximately **40 psi**. Based on the criteria that has been presented, MWC does have sufficient capacity in the area from the existing 20-inch ductile iron main on the Maine Water Company Access drive to serve this project. Additional infrastructure improvements are required at the expense of the developer to meet the overall needs of this project.

Conditions of Service

- A hydrant flow test must be conducted at the expense of the developer at the nearest hydrant and analyzed by Maine Water and the local Fire Department to ensure adequate public fire protection is available at the expense of the developer.
- Proposed fire hydrants located in the Public Right of Way must be accepted by the local Authority. Private Hydrants that are required inside of the complex must be maintained at the expense of the property owner.
- An easement for access and operation of all water service valves on this property must be signed, notarized and registered with the county registry before activation. MWC will draft and supply this document to be executed by the owner.
- If private fire protection is required, either hydrants or sprinkler systems, the developer must review appropriate capacity relative to the proposed demand at the developer's time and expense.
- Additional coordination with MWC is required before construction. Maine Water requires upfront payment for inspection and paperwork to be fully completed before any construction on waterworks materials.
- This location needs further review for final approval with placement, size and location of waterline infrastructure and associated appurtenances. .

Should a Customer Agreement for service not be executed within one year of the date of this letter, MWC reserves the right to reevaluate its ability to serve this project.

All work must be completed in accordance with MWC Terms and Conditions as well as material specifications. All appropriate paperwork must be completed and deposit paid prior to the start of construction. Please forward all design plan revisions as the project develops to prevent construction delays. Water service will be provided in accordance with Maine Public Utility Commission rules. If you have any additional questions, please do not hesitate to contact our office at 1-800-287-1643 or by email at Marcus.Knipp@mainewater.com. We look forward to working with you throughout design and construction.

Sincerely,
The Maine Water Company

Marcus Knipp, E.I.T.
Engineer

The Maine Water Company
93 Industrial Park Road
Saco, ME 04072
T: 207.282.1543
www.mainewater.com

9/28/2022

Matthew Chamberlain
South Street Village LLC
413 South Street
Biddeford, Maine 04005

Sent via email

RE: Ability to Serve Letter for mobile home park project in Biddeford, Maine

Good afternoon:

Thank you for contacting Central Maine Power Company (CMP) to inquire about the property located on South Street in Biddeford. The purpose of this communication is to acknowledge receipt of your ability to serve request for the site referenced above.

CMP has the ability to serve this site with both single phase and polyphase service. Also, as much lead time as you can reasonably provide to CMP before the project breaks ground is always very much appreciated.

In the meantime, please contact me if you have any more questions. I can be reached at (207) 629-4552.

Sincerely,

Jeff Lagueux
Supervisor, Energy Services

Regards,

Jeffrey Lagueux
Supervisor-Energy Services
Central Maine Power Company

Jeff Amos

From: Gagne, Scott <Scott.Gagne@Biddefordmaine.org>
Sent: Wednesday, May 18, 2022 2:51 PM
To: Jeff Amos
Subject: RE: Hidden Hills Manufactured Housing Park

Looks good, thank you

Scott Gagne
Fire Chief

Biddeford Fire Department
152 Alfred St.
Biddeford, ME 04005

(207) 282-6632 Office

Biddeford Fire Department

From: Jeff Amos <jeff@terradynconsultants.com>
Sent: Wednesday, May 18, 2022 2:36 PM
To: Gagne, Scott <Scott.Gagne@Biddefordmaine.org>
Subject: RE: Hidden Hills Manufactured Housing Park

Here's an overall site plan that shows the hydrant locations with a red circle (500' radius). You can see that every lot is well within 500' of a hydrant. Let me know if you need anything else.

Jeff Amos, P.E.

From: Gagne, Scott <Scott.Gagne@Biddefordmaine.org>
Sent: Wednesday, May 18, 2022 11:02 AM
To: Jeff Amos <jeff@terradynconsultants.com>
Subject: RE: Hidden Hills Manufactured Housing Park

Thank you. We would like to see lots that are no more than 500 feet away from a hydrant as possible. Thanks

Scott Gagne
Fire Chief

Biddeford Fire Department
152 Alfred St.
Biddeford, ME 04005

(207) 282-6632 Office

Biddeford Fire Department

From: Jeff Amos <jeff@terradynconsultants.com>
Sent: Wednesday, May 18, 2022 9:58 AM
To: Gagne, Scott <Scott.Gagne@Biddefordmaine.org>; Dexter, Edward <Edward.Dexter@Biddefordmaine.org>
Subject: RE: Hidden Hills Manufactured Housing Park

Great! I've attached our utility plans. I took the liberty of circling all of the hydrants in red so they're easy to find. We tried to adhere to a maximum distance of 500' from hydrant to lot. Let me know if you have any questions.

Jeff Amos, P.E.

From: Gagne, Scott <Scott.Gagne@Biddefordmaine.org>
Sent: Wednesday, May 18, 2022 9:46 AM
To: Jeff Amos <jeff@terradynconsultants.com>; Dexter, Edward <Edward.Dexter@Biddefordmaine.org>
Subject: RE: Hidden Hills Manufactured Housing Park

Emailed info would be fine, thank you.

Scott Gagne
Fire Chief

Biddeford Fire Department
152 Alfred St.
Biddeford, ME 04005

(207) 282-6632 Office

Biddeford Fire Department

From: Jeff Amos <jeff@terradynconsultants.com>
Sent: Wednesday, May 18, 2022 9:39 AM
To: Gagne, Scott <Scott.Gagne@Biddefordmaine.org>; Dexter, Edward <Edward.Dexter@Biddefordmaine.org>
Subject: Hidden Hills Manufactured Housing Park

Hello Chief Gagne & Assistant Chief Dexter,

I'm the project manager for the Hidden Hills Manufactured Housing Park that's located off South Street. I misunderstood the City process and assumed that our preliminary submission would go to you guys for review. It sounds like that's not the case.

In any event, I'd like for your department to review our project. Do you want a PDF via email or do you prefer hard copies? I'm happy to meet with you either in person or on TEAMS/ZOOM to go over the project.

Let me know what you'd like to do.

Jeff Amos, P.E.
Terradyn Consultants, LLC
41 Campus Drive
Cumberland Hall, Suite 301
New Gloucester, ME 04260
Office: 207-926-5111
Cell: 207-272-7571

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STATE OF MAINE
JEFFREY D. AMOS
No. 10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 04-13-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE
SUITE 201
NEW GLOUCESTER, ME 04260
565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
WATER SERVICE PLAN

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 120'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-4.0

C:\OD\Terradyn Consultants\Project Folders - Documents\2021 Jobs\21-13 South Street MHP\CAD\Permitting\21-13 Water For Fire Dept.dwg

Jeff Amos

From: Milligan, Tom <Tom.Milligan@Biddefordmaine.org>
Sent: Wednesday, May 18, 2022 5:11 PM
To: Jeff Amos; Bonine, Hannah
Cc: Demers, Jeff; Chekan, Craig
Subject: RE: Hidden Hills Manufactured Housing Park

This email serves the purpose for the request. I can issue a letter to such if planning needs something for their files that is formal. Tom

---

From: Jeff Amos <jeff@terradynconsultants.com>
Sent: Wednesday, May 18, 2022 5:05 PM
To: Milligan, Tom <Tom.Milligan@Biddefordmaine.org>; Bonine, Hannah <Hannah.Bonine@Biddefordmaine.org>
Cc: Demers, Jeff <Jeff.Demers@Biddefordmaine.org>; Chekan, Craig <Craig.Chekan@Biddefordmaine.org>
Subject: RE: Hidden Hills Manufactured Housing Park

Our property isn't served by the public sewer system. All wastewater from each of the 195 units flows to private subsurface septic systems. I'd imagine that negates the need for you to issue an ability to serve. If not, let me know and I'll make the formal request.

Jeff Amos, P.E.

From: Milligan, Tom <Tom.Milligan@Biddefordmaine.org>
Sent: Wednesday, May 18, 2022 4:52 PM
To: Bonine, Hannah <Hannah.Bonine@Biddefordmaine.org>; Jeff Amos <jeff@terradynconsultants.com>
Cc: Demers, Jeff <Jeff.Demers@Biddefordmaine.org>; Chekan, Craig <Craig.Chekan@Biddefordmaine.org>
Subject: RE: Hidden Hills Manufactured Housing Park

Jeff
Please send an email to request an ability to serve determination. Indicate the proposed use and number of units on site Thanks

---

From: Bonine, Hannah <Hannah.Bonine@Biddefordmaine.org>
Sent: Wednesday, May 18, 2022 4:00 PM
To: Jeff Amos <jeff@terradynconsultants.com>
Cc: Milligan, Tom <Tom.Milligan@Biddefordmaine.org>; Demers, Jeff <Jeff.Demers@Biddefordmaine.org>; Chekan, Craig <Craig.Chekan@Biddefordmaine.org>
Subject: RE: Hidden Hills Manufactured Housing Park

Jeff,

Reading over Chris DiMatteo's report again, it seems he was commenting on the missing Ability to Serve letter for sewer service. In Biddeford, engineering falls under the same structure as sewer/wastewater, and Tom Milligan is typically the one who issues these letters for the department. This is most likely the source of the confusion. So, you will need to provide a letter from Tom in regards to sewer, not engineering specifically. The project was reviewed by our 3rd party engineering reviewer, Tom Saucier.

Hope this clears it up.

Hannah Bonine
Assistant City Planner
P.O. Box 586, 205 Main Street
Biddeford, Maine 04005
Hannah.bonine@biddefordmaine.org
(207) 284-9115

From: Chekan, Craig
Sent: Wednesday, May 18, 2022 11:02 AM
To: Bonine, Hannah <Hannah.Bonine@Biddefordmaine.org>
Cc: Milligan, Tom <Tom.Milligan@Biddefordmaine.org>; Demers, Jeff <Jeff.Demers@Biddefordmaine.org>
Subject: FW: Hidden Hills Manufactured Housing Park

Hannah – can you provide some details of where/what this project is?

Thanks
Craig

From: Jeff Amos [mailto:jeff@terradynconsultants.com]
Sent: Wednesday, May 18, 2022 10:17 AM
To: Chekan, Craig <Craig.Chekan@Biddefordmaine.org>
Subject: FW: Hidden Hills Manufactured Housing Park

Hi Craig,

Perhaps this request is supposed to go to you? Please read below. By the way, I tried calling and leaving a message for Tom and is says his voice mailbox is not available. Didn't know if you guys were aware.

Jeff Amos, P.E.

From: Jeff Amos
Sent: Wednesday, May 18, 2022 9:26 AM
To: Tom.Milligan@biddefordmaine.org
Subject: Hidden Hills Manufactured Housing Park

Hi Tom,

I got our completeness review back from the contract planner and he stated that we didn't not send the project out for review to the City Engineering staff. I assumed that you guys would get your copy from the preliminary submission that

we sent to Planning. Do we need to submit separately to you? If so, I'd be happy to sit down with you guys to introduce the project. There's a lot of material and it may be easier to review with a bit of an overview.

Jeff Amos, P.E.
Terradyn Consultants, LLC
41 Campus Drive
Cumberland Hall, Suite 301
New Gloucester, ME 04260
Office: 207-926-5111
Cell: 207-272-7571

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Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

Attachment 8

Stormwater Report

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

Portland
565 Congress Street, Suite 201
Portland, ME 04101

Revised 11/9/2022

STORMWATER MANAGEMENT PLAN

Hidden Hills Manufactured Housing Park – An Age Restricted Community
Biddeford, Maine

The following Stormwater Management Plan has been prepared for the Hidden Hills Manufactured Housing Park to evaluate stormwater runoff and erosion control for the proposed 195 lot subdivision located at 413 South Street in Biddeford, Maine.

Site Calculations

Total Property Area	320 Ac (+/-)
Total Project Impervious Area	21.6 Ac
Total Developed Area	68.6 Ac

Existing Conditions

The development parcel is located on the southerly side of South Street, just west of the Maine Turnpike at 413 South Street. The property also has access to a private road along the northwestern edge of the property that serves the water district property. The parcel is shown as lot 8 on the City of Biddeford Tax Map 7. The 312.1-acre property is located within both the Suburban Residential (SR1) District and the Rural Farm (RF) District and also contains a Mobile Home Park (MHP) Overlay Zone. The portion of the property that is located within the MHP is approximately 160 acres. The allowable density for any park served by any subsurface wastewater disposal system is 1 unit per 20,000 SF. The net residential area calculation shows that the property can support approximately 348 manufactured homes within the MHP.

The property drains to five major study points:

Study Point 1 is located near the northeast property corner and represents the point where the unnamed stream that flows parallel to South Street crosses beneath the road. The stream flows to the north for a little less than 1,000' where it enters the Saco River.

Study Point 2 handles the runoff from the portion of the development that drains to the south as well as all of the undeveloped remaining land. This area flows to Thatcher Brook. Thatcher Brook is an urban impaired stream. The study point represents the point where the brook leaves the property on the eastern property border.

Study Points 3 & 4 are located near the midpoint of the development on the eastern property line. These area drain to a small field/wetland system that flows to the adjacent Maine Turnpike ditch that eventually outfalls to the Saco River.

Study Point 5 is a small area in the undeveloped portion of the property that is located along the eastern property boundary does not drain directly to Thatcher Brook while on the subject property.

Flooding

The development area is not located within an area of flood hazard according to the Federal Insurance Rate Maps 230145003B and 230145008B. See attached map. Portions of the overall property are located within a Zone-A flood plain however, these locations are outside of the development area of the project.

Modeling Assumptions

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

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

Storm Frequency	Precipitation (in./24 hr)
2-year	3.3
10-year	4.9
25-year	6.2

Onsite Soils

The soils were delineated by Mark Hampton of Mark Hampton Associates. His Class B High Intensity Soil Survey is attached to this submission. Offsite soils were determined from the NRCS Web Soil Mapper. See attached NRCS Soils Map.

Water Quantity (Flooding Standard)

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

Table 1 - Stormwater Runoff Summary Table Pre-Development vs. Post-Development						
Study Point #	2Yr/24Hr (cfs)		10Yr/24Hr (cfs)		25Yr/24Hr (cfs)	
	Pre	Post	Pre	Post	Pre	Post
1	30.5	28.4	70.6	69.0	107.8	105.1
2	67.6	65.8	144.5	139.6	212.9	205.3
3	13.4	10.3	29.9	27.6	44.7	43.6
4	2.6	2.5	5.7	5.4	8.5	7.9
5	4.1	4.1	2.7	2.7	4.1	4.1

As the above result table shows, the post-development flow rates for the 2, 10, 25 and 50-year/24 hour design storm events do not exceed the pre-development conditions.

Basic Standards

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

Requirements for inspection and maintenance of the stormwater management system are provided in the stormwater management system inspection and maintenance plan see attached.

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

General Standards

The General Standard requires that a project's stormwater management system includes measures that will provide pollutant removal from runoff and mitigate for the increased frequency of channels erosive flows due to runoff from smaller storms and potential temperature impacts.

Best Management Practices (BMPs) will be implemented to reduce the impacts of site development on downstream water quality. BMP sizing calculations are attached to this report.

Water Quality (BMP Standard)

The water quality requirements will be met by a combination of gravel wetlands, roof drain filter strips and level spreader/forest & meadow buffers to treat the development.

Linear:

New Linear Impervious Area: The project will result in the creation of approximately 325,428 SF of linear impervious area. The proposed BMPs will result in the treatment of approximately 76.8% of the new impervious area.

Percentage of Treatment of the Impervious Area =76.8% (75% req'd)

Linear Project Developed Area: The project will result in the creation of approximately 602,700 SF of linear developed area. The proposed BMPs will result in the treatment of approximately 76.8% of the area.

Percentage of Treatment of the Developed Area = 76.8% (50% required)

Non-Linear:

New Linear Impervious Area: The project will result in the creation of approximately 616,900 SF of non-linear impervious area. The proposed BMPs will result in the treatment of approximately 95.46% of the new impervious area.

Percentage of Treatment of the Impervious Area =95.62% (95% req'd)

Non-Linear Project Developed Area: The project will result in the creation of approximately 2,238,400 SF of linear developed area. The proposed BMPs will result in the treatment of approximately 86.7% of the area.

Percentage of Treatment of the Developed Area = 86.71% (80% required)

Housekeeping and Maintenance & Inspection guidelines are attached to this report.

Urban Impaired Stream

Thatcher Brook is classified as an urban impaired stream. The portion of the project within the Thatcher Brook watershed will result in approximately 1.74 acres of roof, 1.92 acres of non-roof impervious area and 9.09 acres of landscaped area. According to our calculations, the applicant will be need to pay a compensation fee of $55,505.62. See attachment 4 for more information.

Summary

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

Prepared by,
Terradyn Consultants, LLC

Jeffrey D. Amos, P.E.

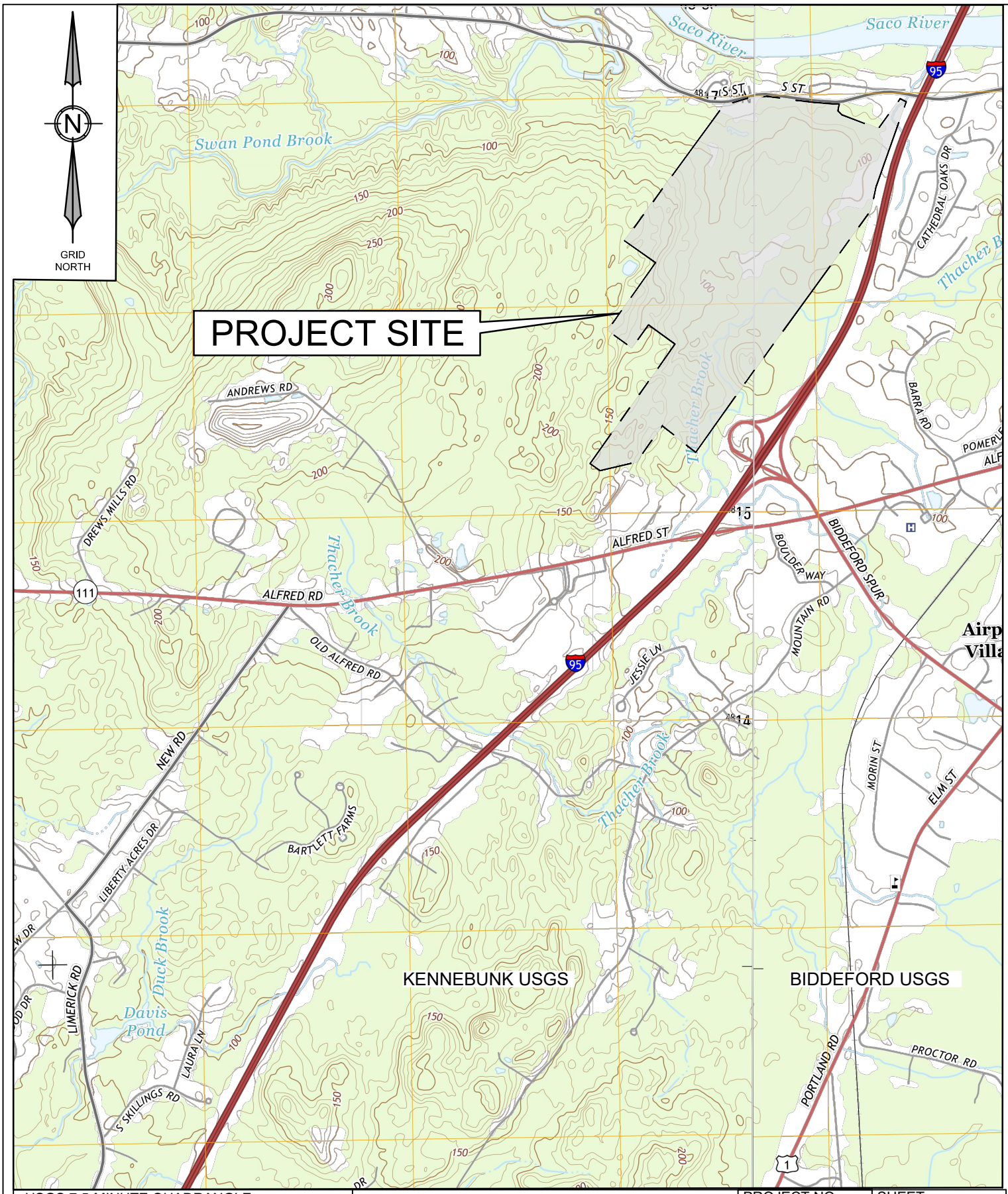
Attachments:

Attachment 1- Site Figures:
- USGS Quadrangle Map
- Aerial Photo
- Medium Intensity Soil Map
- FEMA Floodmap

Attachment 2 – Water Quality Calculations
Attachment 3 – BMP Sizing Calculations
Attachment 4 – Urban Impaired Stream Compensation Fee Calculations
Attachment 5 - Pre Development Hydrocad Calculations
Attachment 6 - Post Development Hydrocad Calculations
Attachment 7 - Pond Spillway Checks – 25 & 100 Year
Attachment 8 - Maintenance & Inspection of Stormwater Facilities
Attachment 9 - Housekeeping Plan
Attachment 10 – Sample Buffer Restriction Language
Attachment 11 - Pond Test Pits
Attachment 12 – Pre & Post Development Watershed Maps

Attachment 1

Site Figures



USGS 7.5-MINUTE QUADRANGLE
BIDDEFORD & KENNEBUNK

PROJECT:
HIDDEN HILLS MANUFACTURED HOUSING PARK
413 SOUTH STREET, BIDDEFORD MAINE 04005

PREPARED FOR:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

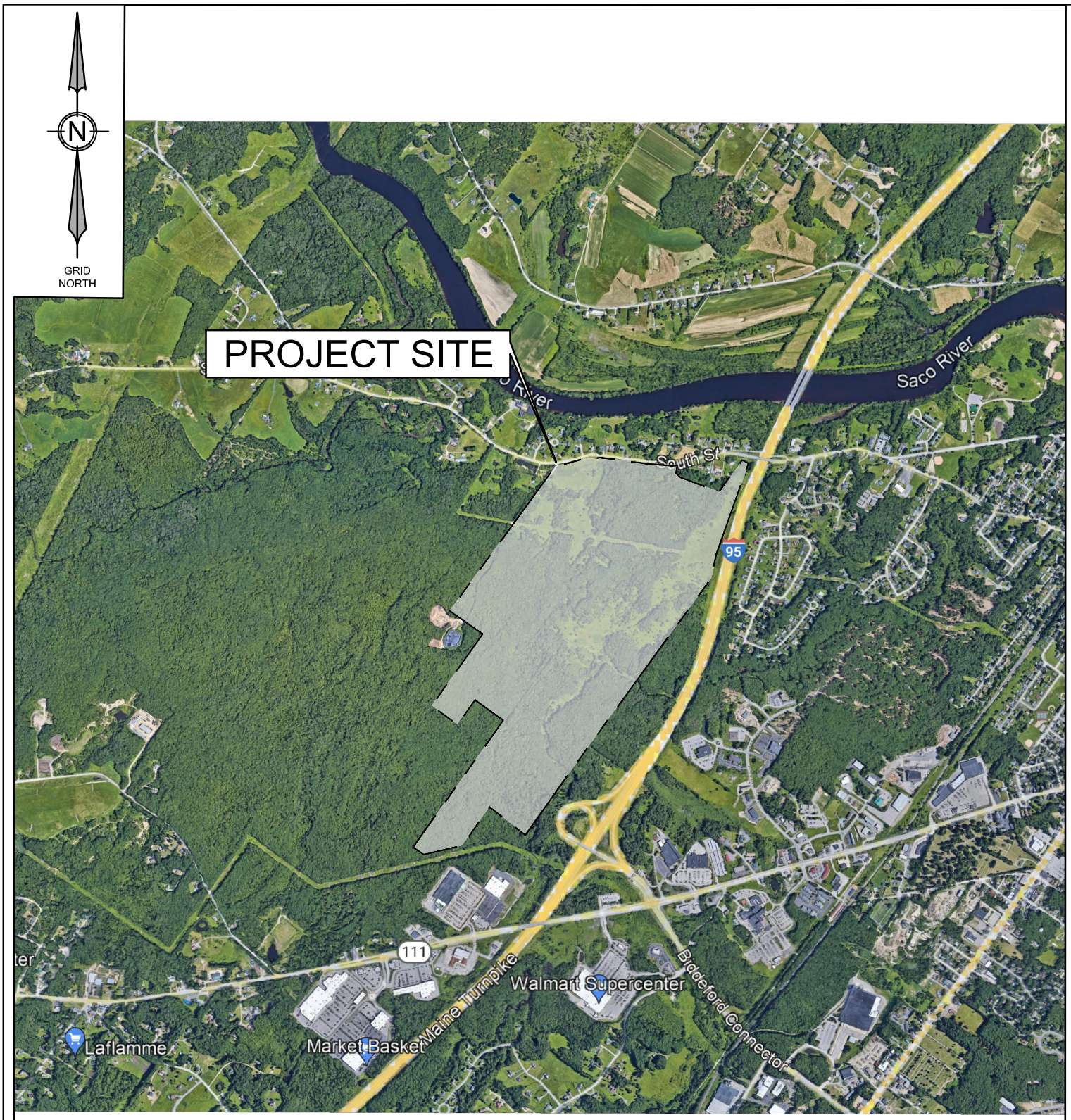
TERRADYN CONSULTANTS, LLC

PINELAND
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260

PORTLAND
565 CONGRESS STREET, SUITE 201
PORTLAND, ME 04101

207.926.5111 • info@terradynconsultants.com • www.terradynconsultants.com

PROJECT NO.	SHEET
21-13	1
DATE	OF
4/12/2022	5
SCALE	
1" = 2000'	



AERIAL MAP

PROJECT:
HIDDEN HILLS MANUFACTURED HOUSING PARK
413 SOUTH STREET, BIDDEFORD MAINE 04005

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PROJECT NO.	SHEET
21-13	2
DATE	OF
4/12/2022	5
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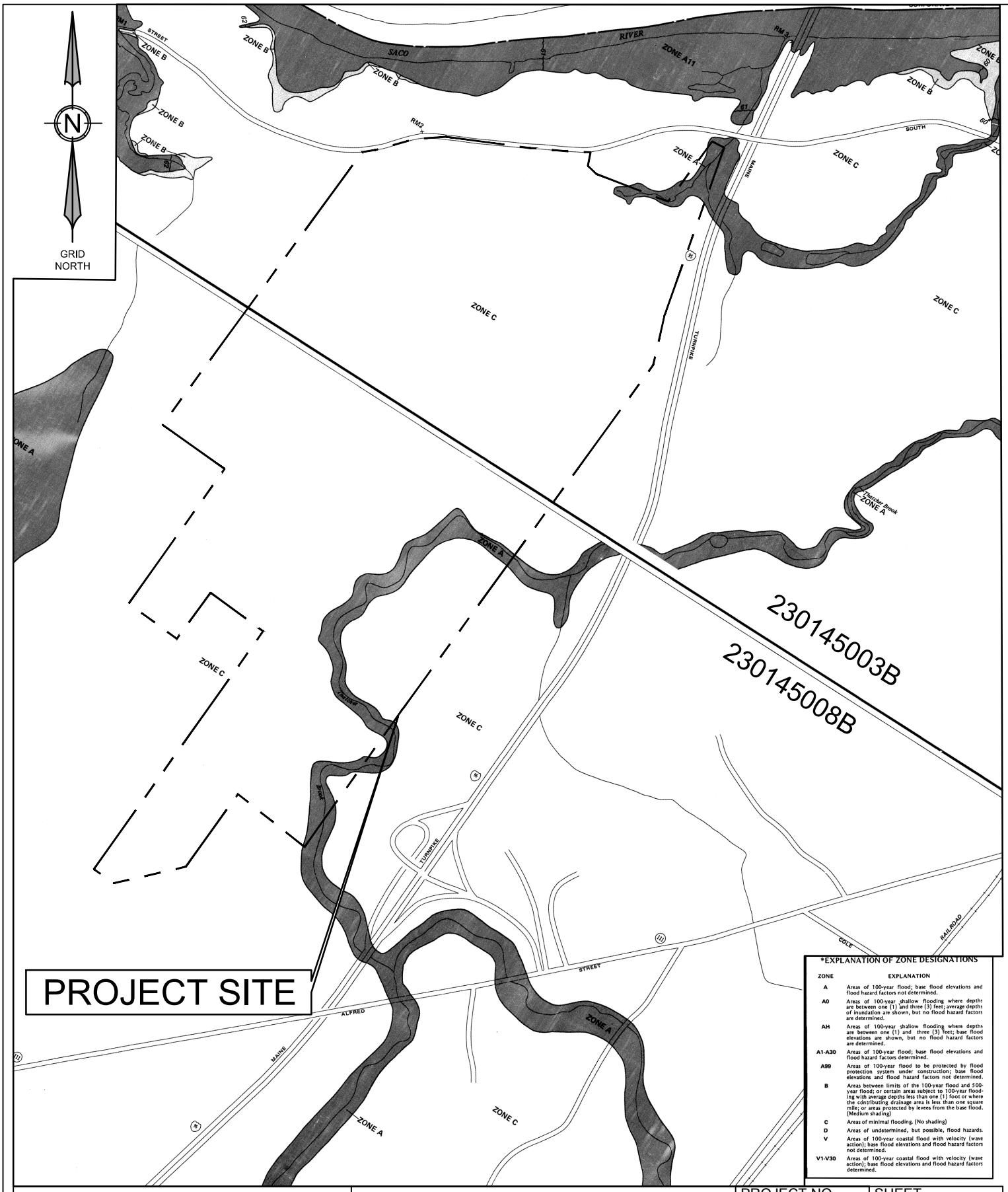
1" = 2000'	



*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

FLOOD INSURANCE RATE MAP

PROJECT:
HIDDEN HILLS MANUFACTURED HOUSING PARK
413 SOUTH STREET, BIDDEFORD MAINE 04005

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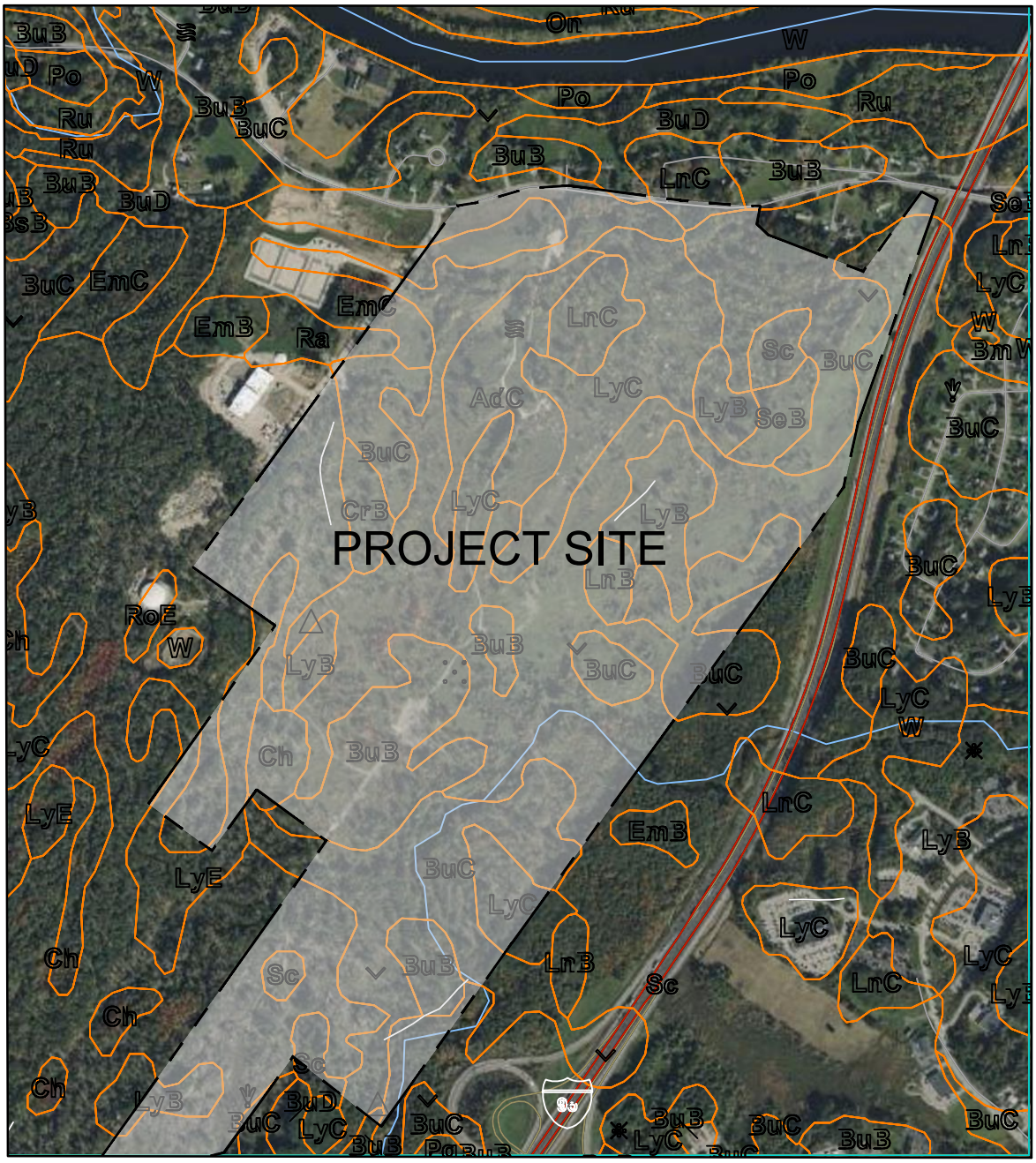
PROJECT NO.	SHEET
21-13	3
DATE 4/12/2022	OF 5
SCALE 1" = 1000'	

GRID NORTH



SOIL SURVEY MAP	TERRADYN CONSULTANTS, LLC	PINELAND 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260 PORTLAND 565 CONGRESS STREET, SUITE 201 PORTLAND, ME 04101	PROJECT NO. 21-13	SHEET 4
PROJECT: HIDDEN HILLS MANUFACTURED HOUSING PARK 413 SOUTH STREET, BIDDEFORD MAINE 04005	207.926.5111 • info@terradynconsultants.com • www.terradynconsultants.com		DATE 4/12/2022	OF 5
PREPARED FOR: SOUTH STREET VILLAGE, LLC 762 MAIN STREET SOUTH PORTLAND, MAINE 04106			SCALE 1" = 1,000'	

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AdC	Adams loamy sand, 8 to 15 percent slopes	A	15.5	2.3%
Bm	Biddeford mucky peat, 0 to 3 percent slopes	D	4.2	0.6%
BuB	Buxton silt loam, 3 to 8 percent slopes	D	38.7	5.9%
BuC	Buxton silt loam, 8 to 15 percent slopes	C	119.6	18.1%
BuD	Buxton silt loam, 15 to 25 percent slopes	C	17.5	2.7%
Ch	Chocorua peat	A/D	4.1	0.6%
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	A	3.7	0.6%
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	B	6.2	0.9%
EmC	Elmwood fine sandy loam, 8 to 15 percent slopes	B	19.0	2.9%
LnB	Lyman loam, 3 to 8 percent slopes, rocky	D	7.3	1.1%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	D	18.3	2.8%
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	D	38.8	5.9%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	129.0	19.5%
LyE	Lyman-Rock outcrop complex, 15 to 80 percent slopes	D	14.7	2.2%
Po	Podunk and Winooski soils	B	2.9	0.4%
Ra	Raynham silt loam	C/D	4.8	0.7%
RoE	Rock outcrop-Lyman complex, 15 to 80 percent slopes		1.2	0.2%
Ru	Rumney fine sandy loam, 0 to 3 percent slopes, frequently flooded	B/D	10.1	1.5%
Sc	Scantic silt loam, 0 to 3 percent slopes	D	194.2	29.4%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
SeB	Scio silt loam, 3 to 8 percent slopes	C	8.2	1.2%
W	Water bodies		2.8	0.4%
Totals for Area of Interest			660.9	100.0%

HYDROGRAPHIC SOIL GROUP

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PROJECT NO. 21-13
DATE 4/12/2022
SCALE 1" = 1,000'
SHEET 5 OF 5

Attachment 2

Water Quality Calculations

Width of Road Impervious	27	Linear New Impervious Area (SF) =	325458
Width of Road Grass	23	Linear New Landscaped Area (SF)=	277242
		Linear Developed Area (SF) =	602700

Watershed	Beginning Station	End Station	Road Length (FT)	Impervious Area (SF)	Landscaped Area (SF)	Total Developed Area(SF)	Incremental Treatment % (Impervious)	Incremental Treatment % (Developed)	BMP	Urban Impaired Stream
Chamber Lane	0	0	0	0	0	0	0.00%	0.00%	LS-1	
Chamber Lane	0	600	600	16200	13800	30000	0.00%	0.00%	LS-2 (None)	
Chamber Lane	600	795	195	5265	4485	9750	1.62%	1.62%	LS-3	
Chamber Lane	795	1420	625	16875	14375	31250	0.00%	0.00%	None	
Chamber Lane	1420	1612	192	5184	4416	9600	0.00%	0.00%	None	
Chamber Lane	1612	2225	613	16551	14099	30650	5.09%	5.09%	LS-4	x
Chamber Lane	2225	2700	475	12825	10925	23750	0.00%	0.00%	LS-5	x
Chamber Lane	2700	2960	260	7020	5980	13000	2.16%	2.16%	GW-2	
Chamber Lane	2960	3112	152	4104	3496	7600	1.26%	1.26%	LS-6	
Chamber Lane	3112	3750	638	17226	14674	31900	5.29%	5.29%	LS-7	
Chamber Lane	3750	4160	410	11070	9430	20500	3.40%	3.40%	GW1	
Chamber Lane	0	0	0	0	0	0	0.00%	0.00%		
Baxter BLVD	0	225	225	6075	5175	11250	1.87%	1.87%	LS-13	
Baxter BLVD	225	380	155	4185	3565	7750	1.29%	1.29%	LS-12	
Baxter BLVD	380	550	170	4590	3910	8500	0.00%	0.00%	None	
Baxter BLVD	550	845	295	7965	6785	14750	2.45%	2.45%	LS-11	
Baxter BLVD	0	0	0	0	0	0	0.00%	0.00%		
Remi Dr.	0	270	270	7290	6210	13500	0.00%	0.00%	None	
Remi Dr.	270	570	300	8100	6900	15000	2.49%	2.49%	LS-8	
Remi Dr.	570	700	130	3510	2990	6500	1.08%	1.08%	LS-9	
Remi Dr.	700	940	240	6480	5520	12000	1.99%	1.99%	LS-10	
Remi Dr.	940	1165	225	6075	5175	11250	1.87%	1.87%	LS-11	
Remi Dr.	1165	1340	175	4725	4025	8750	1.45%	1.45%	LS-14	
Remi Dr.	1340	1590	250	6750	5750	12500	2.07%	2.07%	LS-15	
Remi Dr.	1590	1850	260	7020	5980	13000	0.00%	0.00%	None	
Remi Dr.	1850	2265	415	11205	9545	20750	3.44%	3.44%	LS-16	
Remi Dr.	2265	3180	915	24705	21045	45750	7.59%	7.59%	GW-1	
Remi Dr.	0	0	0	0	0	0	0.00%	0.00%		
Common Way	10	790	780	21060	17940	39000	6.47%	6.47%	GW-1	
Common Way	790	1300	510	13770	11730	25500	4.23%	4.23%	GW-1	
Common Way	1300	1630	330	8910	7590	16500	2.74%	2.74%	LS-17	
Common Way	1630	1828	198	5346	4554	9900	1.64%	1.64%	LS-18	x
Common Way	1828	2032	204	5508	4692	10200	0.00%	0.00%	None	x
Common Way	0	0	0	0	0	0	0.00%	0.00%		
Furr Dr.	10	345	335	4522.5	3852.5	8375	1.39%	1.39%	LS-9	
Furr Dr.	10	345	335	4522.5	3852.5	8375	1.39%	1.39%	LS-10	
Furr Dr.	345	590	245	6615	5635	12250	2.03%	2.03%	LS-19	x
Furr Dr.	0	0	0	0	0	0	0.00%	0.00%		
View Point Loop	10	1277	1267	34209	29141	63350	10.51%	10.51%	GW-2	
	0	0	0	0	0	0	0.00%	0.00%		
	0	0	0	0	0	0	0.00%	0.00%		
	0	0	0	0	0	0	0.00%	0.00%		
	0	0	0	0	0	0	0.00%	0.00%		
	0	0	0	0	0	0	0.00%	0.00%		
	0	0	0	0	0	0	0.00%	0.00%		
	0	0	0	0	0	0	0.00%	0.00%		
	Subtotal			325458	277242	602700	76.80%	76.80%		

Non Linear New Impervious Area (SF) =	616900
Non Linear New Landscaped Area (SF)=	1767500
Non Linear Developed Area (SF) =	2384400

Watershed	Area/Lot #	Total Impervious Area (SF)	Total Landscaped Area (SF)	Total Developed Area (SF)	Incremental Treatment % (Impervious)	Incremental Treatment % (Developed)	BMP	Urban Impaired Stream
	Lot 1	3000	9000	12000	0.49%	0.50%	LS-13	
	Lot 2	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 3	1500	4500	6000	0.24%	0.25%	Lot Buffer	
	Lot 3B	1500	4500	6000	0.24%	0.25%	LS-12	
	Lot 4	3000	9000	12000	0.49%	0.50%	LS-13	
	Lot 5	3000	9000	12000	0.49%	0.50%	LS-13	
	Lot 6	1000	5000	6000	0.16%	0.25%	Lot Buffer	
	Lot 6B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 6C	0	4000	4000	0.00%	0.17%	LS-12	
	Lot 7	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 8	1000	4000	5000	0.16%	0.21%	LS-11	
	Lot 8 B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 8C	0	5000	5000	0.00%	0.00%	None	
	Lot 9	1000	4000	5000	0.16%	0.21%	LS-11	
	Lot 9 B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 9C	0	5000	5000	0.00%	0.00%	None	
	Lot 10	3000	9000	12000	0.49%	0.50%	LS-11	
	Lot 11	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 12	3000	9000	12000	0.49%	0.50%	LS-14	
	Lot 13	3000	9000	12000	0.49%	0.50%	LS-11	
	Lot 14	3000	9000	12000	0.49%	0.50%	LS-14	
	Lot 15	3000	9000	12000	0.49%	0.50%	LS-14	
	Lot 16	3000	9000	12000	0.49%	0.50%	LS-15	
	Lot 17	1000	4000	5000	0.16%	0.21%	LS-15	
	Lot 17B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 17C	0	5000	5000	0.00%	0.00%	None	
	Lot 18	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 19	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 20	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 21	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 22	1000	9000	10000	0.00%	0.00%	None	

	Lot 22B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 23	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 23B	1000	4000	5000	0.16%	0.21%	LS-16	
	Lot 23C	0	5000	5000	0.00%	0.00%	None	
	Lot 24	1000	9000	10000	0.16%	0.42%	Lot Buffer	
	Lot 24B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 25	2000	5000	7000	0.32%	0.29%	LS-16	
	Lot 25B	1000	4000	5000	0.16%	0.21%	Roof Drain	
	Lot 25C	0	4000	4000	0.00%	0.00%	None	
	Lot 26	1000	5000	6000	0.16%	0.25%	LS-16	
	Lot 26B	0	4000	4000	0.00%	0.00%	None	
	Lot 26C	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 27	3000	9000	12000	0.49%	0.50%	LS-16	
	Lot 28	3000	9000	12000	0.49%	0.50%	LS-16	
	Lot 29	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 30	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 31	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 32	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 32B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 32C	0	8000	8000	0.00%	0.34%	Lot Buffer	
	Lot 33	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 33B	0	8000	8000	0.00%	0.34%	Lot Buffer	
	Lot 33C	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 34	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 34B	0	8000	8000	0.00%	0.34%	None	
	Lot 34C	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 35	1000	1000	2000	0.16%	0.08%	Lot Buffer	
	Lot 35B	0	8000	8000	0.00%	0.34%	None	
	Lot 35C	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 36	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 36B	0	8000	8000	0.00%	0.34%	None	
	Lot 36C	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 37	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 37B	0	8000	8000	0.00%	0.34%	None	
	Lot 37C	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 38	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 38B	2000	8000	10000	0.32%	0.42%	Lot Buffer 17	
	Lot 39	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 39B	2000	8000	10000	0.32%	0.42%	Lot Buffer	
	Lot 40	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 40B	2000	8000	10000	0.32%	0.42%	Lot Buffer	

	Lot 41	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 41B	2000	8000	10000	0.32%	0.42%	Lot Buffer	
	Lot 42	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 42B	2000	8000	10000	0.32%	0.42%	Lot Buffer	
	Lot 43	2000	4000	6000	0.32%	0.25%	GW-1	
	Lot 43B	1000	5000	6000	0.16%	0.25%	Lot Buffer	
	Lot 44	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 45	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 46	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 47	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 48	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 49	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 50	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 51	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 52	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 53	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 54	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 55	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 56	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 57	2000	4000	6000	0.32%	0.25%	GW-1	
	Lot 57B	1000	5000	6000	0.16%	0.25%	Lot Buffer	
	Lot 58	1000	4000	5000	0.16%	0.21%	GW-1	
	Lot 58B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 58C	0	5000	5000	0.00%	0.00%	None	
	Lot 59	2000	4000	6000	0.32%	0.25%	GW-1	
	Lot 59B	1000	5000	6000	0.16%	0.25%	Lot Buffer	
	Lot 60	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 61	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 62	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 63	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 64	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 65	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 66	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 67	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 68	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 69	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 70	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 71	3000	9000	12000	0.49%	0.50%	GW-1	
	Lot 72	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 73	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 73B	2000	8000	10000	0.32%	0.42%	Lot Buffer	

	Lot 74	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 74B	2000	8000	10000	0.32%	0.42%	Lot Buffer	
	Lot 75	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 75B	2000	8000	10000	0.32%	0.42%	Lot Buffer	
	Lot 76	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 76B	2000	8000	10000	0.32%	0.42%	Lot Buffer	
	Lot 77	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 77B	2000	8000	10000	0.32%	0.42%	Lot Buffer	
	Lot 78	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 78B	2000	8000	10000	0.32%	0.42%	Lot Buffer	
	Lot 79	1000	1000	2000	0.16%	0.08%	GW-1	
	Lot 79B	2000	8000	10000	0.32%	0.42%	Lot Buffer	
	Lot 80	3000	9000	12000	0.49%	0.50%	LS-1	
	Lot 81	3000	9000	12000	0.49%	0.50%	LS-1	
	Lot 82	3000	9000	12000	0.49%	0.50%	LS-1	
	Lot 83	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 84	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 85	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 86	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 87	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 88	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 88B	1000	9000	10000	0.00%	0.00%	LS-2 (none)	
	Lot 89	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 89B	1000	9000	10000	0.16%	0.42%	LS-2 (none)	
	Lot 90	1000	9000	10000	0.00%	0.00%	LS-2 (none)	
	Lot 90B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 91	1000	9000	10000	0.00%	0.00%	LS-2 (none)	
	Lot 91B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 92	1000	9000	10000	0.00%	0.00%	LS-2 (none)	
	Lot 92B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 93	1000	9000	10000	0.00%	0.00%	LS-2 (none)	
	Lot 93B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 94	3000	9000	12000	0.49%	0.50%	LS-3	
	Lot 95	1000	4000	5000	0.16%	0.21%	LS-3	
	Lot 95B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 95C	0	5000	5000	0.00%	0.00%	None	
	Lot 96	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 96B	0	5000	5000	0.00%	0.21%	Lot Buffer	
	Lot 96C	1000	4000	5000	0.00%	0.00%	None	
	Lot 97	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 97B	0	5000	5000	0.00%	0.21%	Lot Buffer	
	Lot 97C	1000	4000	5000	0.00%	0.00%	None	

	Lot 98	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 98B	0	5000	5000	0.00%	0.21%	Lot Buffer	x
	Lot 98C	1000	4000	5000	0.00%	0.00%	None	
	Lot 99	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 99B	0	5000	5000	0.00%	0.21%	Lot Buffer	x
	Lot 99C	1000	4000	5000	0.00%	0.00%	None	
	Lot 100	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 100B	0	5000	5000	0.00%	0.21%	Lot Buffer	x
	Lot 100C	1000	4000	5000	0.00%	0.00%	None	
	Lot 101	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 101B	0	5000	5000	0.00%	0.21%	Lot Buffer	x
	Lot 101C	1000	4000	5000	0.00%	0.00%	None	
	Lot 102	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 103	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 103B	0	5000	5000	0.00%	0.21%	Lot Buffer	
	Lot 103C	1000	4000	5000	0.00%	0.00%	None	
	Lot 104	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 104B	1000	9000	10000	0.00%	0.00%	None	
	Lot 105	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 106	3000	9000	12000	0.49%	0.50%	LS-8	
	Lot 107	1500	4500	6000	0.24%	0.25%	LS-8	
	Lot 107B	1500	4500	6000	0.24%	0.25%	Lot Buffer	
	Lot 108	1500	4500	6000	0.24%	0.25%	Lot Buffer	
	Lot 108B	1500	4500	6000	0.24%	0.25%	LS-9	
	Lot 109	3000	9000	12000	0.49%	0.50%	LS-9	
	Lot 109B	1500	4500	6000	0.24%	0.25%	Lot Buffer	
	Lot 110	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 111	3000	9000	12000	0.49%	0.50%	LS-10	
	Lot 112	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 113	3000	9000	12000	0.49%	0.50%	LS-10	
	Lot 114	3000	9000	12000	0.49%	0.50%	LS-10	
	Lot 115	1000	4000	5000	0.16%	0.21%	LS-10	
	Lot 115B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 115C	0	5000	5000	0.00%	0.00%	None	
	Lot 116	0	5000	5000	0.00%	0.00%	None	
	Lot 116B	1000	4000	5000	0.16%	0.21%	LS-10	
	Lot 116C	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 117	1000	4000	5000	0.00%	0.00%	LS-19	x
	Lot 117B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 117C	0	5000	5000	0.00%	0.00%	None	
	Lot 118	2000	0	2000	0.32%	0.08%	Roof Drain	

	Lot 118B	1000	9000	10000	0.00%	0.00%	None	
	Lot 119	3000	9000	12000	0.49%	0.50%	LS-17	
	Lot 120	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 120B	1000	4000	5000	0.16%	0.21%	LS-19	x
	Lot 120C	0	5000	5000	0.00%	0.00%	None	x
	Lot 121	3000	9000	12000	0.49%	0.50%	LS-19	x
	Lot 122	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 123	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 124	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 125	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 126	3000	9000	12000	0.49%	0.50%	LS-9	
	Lot 127	3000	9000	12000	0.49%	0.50%	LS-8	
	Lot 128	3000	4000	7000	0.49%	0.29%	LS-8	
	Lot 128B	0	5000	5000	0.00%	0.21%	Lot Buffer	x
	Lot 129	3000	4000	7000	0.49%	0.29%	LS-8	
	Lot 129B	0	5000	5000	0.00%	0.21%	Lot Buffer	x
	Lot 130	3000	4000	7000	0.49%	0.29%	LS-8	
	Lot 130B	0	5000	5000	0.00%	0.21%	Lot Buffer	x
	Lot 131	1000	4000	5000	0.00%	0.00%	None	
	Lot 131B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 131C	0	5000	5000	0.00%	0.21%	Lot Buffer	x
	Lot 132	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 132B	0	5000	5000	0.00%	0.21%	Lot Buffer	x
	Lot 132C	1000	4000	5000	0.00%	0.00%	None	
	Lot 133	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 133B	1000	9000	10000	0.00%	0.00%	None	
	Lot 134	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 134B	1000	9000	10000	0.00%	0.00%	None	x
	Lot 135	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 136	2000	4000	6000	0.32%	0.25%	LS-4	x
	Lot 136B	1000	5000	6000	0.16%	0.25%	Lot Buffer	x
	Lot 137	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 138	1000	4000	5000	0.16%	0.21%	LS-4	x
	Lot 138B	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 138C	0	5000	5000	0.00%	0.00%	None	x
	Lot 139	3000	9000	12000	0.49%	0.50%	LS-4	x
	Lot 140	3000	9000	12000	0.49%	0.50%	LS-4	x
	Lot 141	0	4000	4000	0.00%	0.17%	LS-4	x
	Lot 141B	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 141C	1000	5000	6000	0.00%	0.00%	None	x
	Lot 142	3000	9000	12000	0.49%	0.50%	Lot Buffer	x

	Lot 143	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 144	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 145	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 146	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 147	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 148	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 149	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 150	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 151	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 151B	1000	9000	10000	0.00%	0.00%	None	x
	Lot 152	1000	4000	5000	0.16%	0.21%	LS-5	x
	Lot 152B	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 152C	0	5000	5000	0.00%	0.00%	None	x
	Lot 153	1000	4000	5000	0.16%	0.21%	LS-5	x
	Lot 153B	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 153C	0	5000	5000	0.00%	0.21%	Lot Buffer	x
	Lot 154	2000	4000	6000	0.32%	0.25%	LS-5	x
	Lot 154B	1000	5000	6000	0.16%	0.25%	Lot Buffer	x
	Lot 155	2000	4000	6000	0.32%	0.25%	LS-5	x
	Lot 155B	1000	5000	6000	0.16%	0.25%	Lot Buffer	x
	Lot 156	2000	4000	6000	0.32%	0.25%	LS-5	x
	Lot 156B	1000	5000	6000	0.16%	0.25%	Lot Buffer	x
	Lot 157	1000	4000	5000	0.16%	0.21%	GW-2	
	Lot 157B	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 157C	0	5000	5000	0.00%	0.00%	None	x
	Lot 158	1000	4000	5000	0.16%	0.21%	GW-2	
	Lot 158B	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 158C	0	5000	5000	0.00%	0.00%	None	x
	Lot 159	1000	4000	5000	0.16%	0.21%	GW-2	
	Lot 159B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 159C	0	5000	5000	0.00%	0.00%	None	
	Lot 160	1000	4000	5000	0.16%	0.21%	LS-6	
	Lot 160B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 160C	0	5000	5000	0.00%	0.00%	None	
	Lot 161	1000	4000	5000	0.16%	0.21%	LS-7	
	Lot 161B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 161C	0	5000	5000	0.00%	0.00%	None	
	Lot 162	1000	4000	5000	0.16%	0.21%	LS-7	
	Lot 162B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 162C	0	5000	5000	0.00%	0.00%	None	
	Lot 163	1000	4000	5000	0.16%	0.21%	LS-7	

	Lot 163B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 163C	0	5000	5000	0.00%	0.00%	none	
	Lot 164	3000	9000	12000	0.49%	0.50%	LS-7	
	Lot 165	2000	4000	6000	0.32%	0.25%	LS-7	
	Lot 165B	1000	5000	6000	0.16%	0.25%	Lot Buffer	
	Lot 166	1000	4000	5000	0.16%	0.21%	LS-7	
	Lot 166B	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 166C	0	3000	3000	0.00%	0.13%	Lot Buffer	
	Lot 166D	0	2000	2000	0.00%	0.00%	None	
	Lot 167	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 167B	0	4000	4000	0.00%	0.17%	Lot Buffer	
	Lot 167B	1000	5000	6000	0.00%	0.00%	None	
	Lot 168	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 168B	1000	9000	10000	0.00%	0.00%	None	
	Lot 169	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 169B	1000	9000	10000	0.00%	0.00%	None	
	Lot 170	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 171	3000	9000	12000	0.49%	0.50%	Lot Buffer	
	Lot 172	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 173	1000	0	1000	0.16%	0.04%	GW-2	
	Lot 173B	2000	9000	11000	0.32%	0.46%	Lot Buffer	
	Lot 174	1000	0	1000	0.16%	0.04%	GW-2	
	Lot 174B	2000	9000	11000	0.32%	0.46%	Lot Buffer	
	Lot 175	1000	0	1000	0.16%	0.04%	GW-2	
	Lot 175B	2000	9000	11000	0.32%	0.46%	Lot Buffer	
	Lot 176	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 176B	1000	0	1000	0.16%	0.04%	GW-2	
	Lot 176C	0	9000	9000	0.00%	0.38%	None	
	Lot 177	1000	0	1000	0.16%	0.04%	GW-2	
	Lot 177B	2000	9000	11000	0.32%	0.46%	Lot Buffer	
	Lot 178	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 179	2000	0	2000	0.32%	0.08%	Roof Drain	x
	Lot 179B	1000	9000	10000	0.00%	0.00%	None	x
	Lot 180	3000	9000	12000	0.49%	0.50%	Lot Buffer	x
	Lot 181	2000	0	2000	0.32%	0.08%	Roof Drain	
	Lot 181B	1000	9000	10000	0.00%	0.00%	None	
	Lot 182	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 183	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 184	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 185	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 186	3000	9000	12000	0.49%	0.50%	GW-2	

	Lot 187	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 188	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 189	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 190	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 191	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 192	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 193	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 194	3000	9000	12000	0.49%	0.50%	GW-2	
	Lot 195	3000	9000	12000	0.49%	0.50%	GW-2	
Club House	Building	1500	0	1500	0.24%	0.06%	Roof Drain	
	Parking & Access	12400	2000	14400	2.01%	0.60%	LS-11	
	BB Court	2500	0	2500	0.41%	0.10%	Lot Buffer	
Maintenance	Building	2000	0	2000	0.32%	0.08%	Roof Drain	
	Parking & Access	12000	2000	14000	1.95%	0.59%	LS-1	
	Subtotal	616900	1767500	2384400	95.62%	86.71%		

Attachment 3

BMP Sizing Calculations

STAGE STORAGE CALCULATIONS

GRAVEL WETLAND #1

WATERSHED IMPERVIOUS AREA=	175605	SF	1"
WATERSHED LANDSCAPED AREA=	336175	SF	0.4"
REQUIRED WQV=	25840	CF	
PROVIDED WQV=	26175	CF	
REQUIRED SA=	15504.0		
PROVIDED SA=	15700		

Forebay

STAGE (FT)	AREA (SF)	STORAGE (CF)
84.5	1100	0
85	1267	592
86	1600	2025

Cell #1

STAGE (FT)	AREA (SF)	STORAGE (CF)
83	7300	0
84	8300	7800
84.5	8800	12075

Cell #2

STAGE (FT)	AREA (SF)	STORAGE (CF)
83	7300	0
84	8300	7800
84.5	8800	12075

Total Pond

STAGE (FT)	AREA (SF)	STORAGE (CF)
83	14600	0
84	16600	16192
84.5	17600	26175
84.51	18000	26175
86	19500	54112
87	22500	74842

STAGE STORAGE CALCULATIONS

GRAVEL WETLAND #2

WATERSHED IMPERVIOUS AREA=	94229	SF	1"
WATERSHED LANDSCAPED AREA=	182121	SF	0.4"
REQUIRED WQV=	13923	CF	
PROVIDED WQV=	14401	CF	
REQUIRED SA=	8330		
PROVIDED SA=	8336		

Forebay

STAGE (FT)	AREA (SF)	STORAGE (CF)
86	120	0
87	334	227
87.5	463	426

Cell #1

STAGE (FT)	AREA (SF)	STORAGE (CF)
86	4108	0
87	4837	4473
87.5	5223	6988

Cell #2

STAGE (FT)	AREA (SF)	STORAGE (CF)
86	4108	0
87	4837	4473
87.5	5223	6988

Total Pond

STAGE (FT)	AREA (SF)	STORAGE (CF)
86	8336	0
87	10008	9172
87.5	10909	14401
87.51	10909	14401
88	12781	20205
89	14329	33509

LB-1
Single Family Residential Lot Buffer

Buffer Characteristics:

Soil Type:	C
Cover:	Forest
Slope:	8.00%
Length:	> 50 ft flowpath

Lots Treated:
Lot 78
Lot 79

LS-1

Vegetated Buffer & Level Lip Spreader

Road 1- Sta. 2+50 L

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	2.00
Length:	95

Tributary Area:	(sf)	(acre)	
Total:	56,000	1.29	
Impervious:	21,000	0.48	
Lawn:	35,000	0.80	6000 swale

Berm Length Calculations:

Required Lengths:

105 ft length / acre impervious

31 ft length / acre lawn

76 ft - Required Berm Length

80 ft - Berm Length Provided

LS-2
Vegetated Buffer & Level Lip Spreader
Road 1- Sta. 4+00 L

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	7.00
Length:	70

Tributary Area:	(sf)	(acre)
Total:	63,275	1.45
Impervious:	20,775	0.48
Lawn:	42,500	0.98

Berm Length Calculations:
Required Lengths:

131	ft length / acre impervious
36	ft length / acre lawn
98	**ft - Required Berm Length**
VOID	**ft - Berm Length Provided**

LS-3

Vegetated Buffer & Level Lip Spreader

Road 1- Sta. 8+00 L

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	7.00%
Length:	75

Tributary Area:	(sf)	(acre)
Total:	30,265	0.69
Impervious:	9,265	0.21
Lawn:	21,000	0.48

Berm Length Calculations:

Required Lengths:

125 ft length / acre impervious

35 ft length / acre lawn

43 ft - Required Berm Length

45 ft - Berm Length Provided

LS-4

Vegetated Buffer & Level Lip Spreader

Road 5- Sta. 9+75 R

Buffer Characteristics:

Soil Type:	C1
Cover:	Meadow
Slope:	5.00
Length:	150

Tributary Area:	(sf)	(acre)
Total:	49,650	1.14
Impervious:	23,551	0.54
Lawn:	26,099	0.60

Berm Length Calculations:

Required Lengths:

101	ft length / acre impervious
30	ft length / acre lawn
73	**ft - Required Berm Length**
80	**ft - Berm Length Provided**

LS-5

Vegetated Buffer & Level Lip Spreader

Road 2- Sta. 22+20 R

Buffer Characteristics:

Soil Type:	C1
Cover:	Meadow
Slope:	6.00
Length:	100

Tributary Area:	(sf)	(acre)
Total:	51,750	1.19
Impervious:	20,825	0.48
Lawn:	30,925	0.71

Berm Length Calculations:

Required Lengths:

125 ft length / acre impervious

35 ft length / acre lawn

85 ft - Required Berm Length

90 ft - Berm Length Provided

LS-6

Vegetated Buffer & Level Lip Spreader

Road 2- Sta. 33+50 R

Buffer Characteristics:

Soil Type:	C1
Cover:	meadow
Slope:	6.50
Length:	50

Tributary Area:	(sf)	(acre)
Total:	14,742	0.34
Impervious:	5,104	0.12
Lawn:	9,638	0.22

Berm Length Calculations:

Required Lengths:

183	ft length / acre impervious
60	ft length / acre lawn
35	**ft - Required Berm Length**
35	**ft - Berm Length Provided**

LS-7

Vegetated Buffer & Level Lip Spreader

Road 2- Sta. 33+50 R

Buffer Characteristics:

Soil Type:	C1
Cover:	forest
Slope:	7.00
Length:	150

Tributary Area:	(sf)	(acre)
Total:	69,900	1.60
Impervious:	26,226	0.60
Lawn:	43,674	1.00

Berm Length Calculations:

Required Lengths:

76 ft length / acre impervious

24 ft length / acre lawn

70 ft - Required Berm Length

70 ft - Berm Length Provided

LS-8

Vegetated Buffer & Level Lip Spreader

Road 3- Sta. 1+90 R

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	7.00
Length:	85

Tributary Area:	(sf)	(acre)
Total:	63,000	1.45
Impervious:	21,600	0.50
Lawn:	41,400	0.95

Berm Length Calculations:

Required Lengths:

114	ft length / acre impervious
33	ft length / acre lawn
88	**ft - Required Berm Length**
90	**ft - Berm Length Provided**

LS-9

Vegetated Buffer & Level Lip Spreader

Road 3- Sta. 5+50 R

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	7.50
Length:	100

Tributary Area:	(sf)	(acre)
Total:	56,874	1.31
Impervious:	18,532	0.43
Lawn:	38,342	0.88

Berm Length Calculations:

Required Lengths:

100	ft length / acre impervious
30	ft length / acre lawn
69	**ft - Required Berm Length**
70	**ft - Berm Length Provided**

LS-10

Vegetated Buffer & Level Lip Spreader

Road 3- Sta. 8+00 R

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	10.00
Length:	120

Tributary Area:	(sf)	(acre)
Total:	66,374	1.52
Impervious:	22,002	0.51
Lawn:	44,372	1.02

Berm Length Calculations:

Required Lengths:

103	ft length / acre impervious
33	ft length / acre lawn
86	**ft - Required Berm Length**
90	**ft - Berm Length Provided**

LS-11

Vegetated Buffer & Level Lip Spreader

Road 1- Sta. 5+50 L

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	6.00
Length:	150

Tributary Area:	(sf)	(acre)
Total:	74,400	1.71
Impervious:	34,440	0.79
Lawn:	39,960	0.92

Berm Length Calculations:

Required Lengths:

76 ft length / acre impervious

24 ft length / acre lawn

82 ft - Required Berm Length

82 ft - Berm Length Provided

LS-12

Vegetated Buffer & Level Lip Spreader

Road 1- Sta. 3+75 L

Buffer Characteristics:

Soil Type:	C1
Cover:	FOREST
Slope:	2.00
Length:	130

Tributary Area:	(sf)	(acre)
Total:	17,750	0.41
Impervious:	5,685	0.13
Lawn:	12,065	0.28

Berm Length Calculations:

Required Lengths:

82 ft length / acre impervious

26 ft length / acre lawn

18 ft - Required Berm Length

30 ft - Berm Length Provided

LS-13

Vegetated Buffer & Level Lip Spreader

Road 1- Sta. 10+50 R

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	1.00
Length:	150

Tributary Area:	(sf)	(acre)
Total:	47,250	1.08
Impervious:	15,075	0.35
Lawn:	32,175	0.74

Berm Length Calculations:

Required Lengths:

76 ft length / acre impervious

24 ft length / acre lawn

44 ft - Required Berm Length

45 ft - Berm Length Provided

LS-14

Vegetated Buffer & Level Lip Spreader

Road 3- Sta. 13+30 L

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	4.00
Length:	100

Tributary Area:	(sf)	(acre)
Total:	49,725	1.14
Impervious:	13,725	0.32
Lawn:	36,000	0.83

Berm Length Calculations:

Required Lengths:

100	ft length / acre impervious
30	ft length / acre lawn
56	**ft - Required Berm Length**
56	**ft - Berm Length Provided**

LS-15

Vegetated Buffer & Level Lip Spreader

Road 3- Sta. 15+90 L

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	4.00
Length:	100

Tributary Area:	(sf)	(acre)
Total:	34,750	0.80
Impervious:	10,750	0.25
Lawn:	24,000	0.55

Berm Length Calculations:

Required Lengths:

100	ft length / acre impervious
30	ft length / acre lawn
41	**ft - Required Berm Length**
42	**ft - Berm Length Provided**

LS-16

Vegetated Buffer & Level Lip Spreader

Road 3- Sta. 17+65 L

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	7.00
Length:	120

Tributary Area:	(sf)	(acre)
Total:	57,750	1.33
Impervious:	20,205	0.46
Lawn:	37,545	0.86

Berm Length Calculations:

Required Lengths:

86 ft length / acre impervious

27 ft length / acre lawn

63 ft - Required Berm Length

64 ft - Berm Length Provided

LS-17

Vegetated Buffer & Level Lip Spreader

Road 4- Sta. 12+90 L

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	7.50
Length:	90

Tributary Area:	(sf)	(acre)
Total:	16,500	0.38
Impervious:	8,910	0.20
Lawn:	7,590	0.17

Berm Length Calculations:

Required Lengths:

109	ft length / acre impervious
32	ft length / acre lawn
28	**ft - Required Berm Length**
30	**ft - Berm Length Provided**

LS-18

Vegetated Buffer & Level Lip Spreader

Road 5- Sta. 8+50 R

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	7.00
Length:	115

Tributary Area:	(sf)	(acre)
Total:	9,900	0.23
Impervious:	5,346	0.12
Lawn:	4,554	0.10

Berm Length Calculations:

Required Lengths:

89 ft length / acre impervious

27 ft length / acre lawn

14 ft - Required Berm Length

20 ft - Berm Length Provided

LS-19

Vegetated Buffer & Level Lip Spreader

Road 6- Sta. 3+30 R

Buffer Characteristics:

Soil Type:	C1
Cover:	Forest
Slope:	3.00
Length:	80

Tributary Area:	(sf)	(acre)
Total:	34,250	0.79
Impervious:	11,615	0.27
Lawn:	22,635	0.52

Berm Length Calculations:

Required Lengths:

120	ft length / acre impervious
34	ft length / acre lawn
50	**ft - Required Berm Length**
50	**ft - Berm Length Provided**

Attachment 4

Urban Impaired Stream Calculations

Watershed	Area/Lot #	Roof Impervious Area (SF)	Non-Roof Impervious Area (SF)	Landscaped Area (SF)
	Lot 98	2000	0	0
	Lot 98B	0	0	5000
	Lot 99	2000	0	0
	Lot 99B	0	0	5000
	Lot 100	2000	0	0
	Lot 100B	0	0	5000
	Lot 101	2000	0	0
	Lot 101B	0	0	5000
	Lot 102	2000	1000	9000
	Lot 117	0	1000	4000
	Lot 120B	0	1000	4000
	Lot 120C	0	0	5000
	Lot 121	2000	1000	9000
	Lot 122	2000	1000	9000
	Lot 123	2000	1000	9000
	Lot 124	2000	1000	9000
	Lot 125	2000	1000	9000
	Lot 128B	0	1000	5000
	Lot 129B	0	1000	5000
	Lot 130B	0	1000	5000
	Lot 131C	0	0	5000
	Lot 132B	0	0	5000
	Lot 134	2000	0	0
	Lot 134B	0	1000	9000
	Lot 135	2000	1000	9000
	Lot 136	2000	0	4000
	Lot 136B	0	1000	5000
	Lot 137	2000	1000	9000
	Lot 138	0	1000	4000
	Lot 138B	2000	0	0
	Lot 138C	0	0	5000
	Lot 139	2000	1000	9000
	Lot 140	0	1000	5000
	Lot 140B	2000	0	0
	Lot 140C	0	0	4000
	Lot 141	0	0	4000
	Lot 141B	2000	0	0
	Lot 141C	0	1000	5000
	Lot 142	2000	1000	9000
	Lot 143	2000	1000	9000
	Lot 144	2000	1000	9000
	Lot 145	2000	1000	9000
	Lot 146	2000	1000	9000
	Lot 147	2000	1000	9000
	Lot 148	2000	1000	9000
	Lot 149	2000	1000	9000
	Lot 150	2000	1000	9000
	Lot 151	2000	0	0
	Lot 151B	0	1000	9000
	Lot 152	0	1000	4000
	Lot 152B	2000	0	0
	Lot 152C	0	0	5000

	Lot 153	0	1000	4000
	Lot 153B	2000	0	0
	Lot 153C	0	0	5000
	Lot 154	2000	0	4000
	Lot 154B	0	1000	5000
	Lot 155	2000	0	4000
	Lot 155B	0	1000	5000
	Lot 156	2000	0	4000
	Lot 156B	0	1000	5000
	Lot 157B	2000	0	0
	Lot 157C	0	0	5000
	Lot 158B	2000	0	0
	Lot 158C	0	0	5000
	Lot 178	2000	1000	9000
	Lot 179	2000	0	0
	Lot 179B	0	1000	9000
	Lot 180	2000	1000	9000
	Subtotal	76000	37000	356000

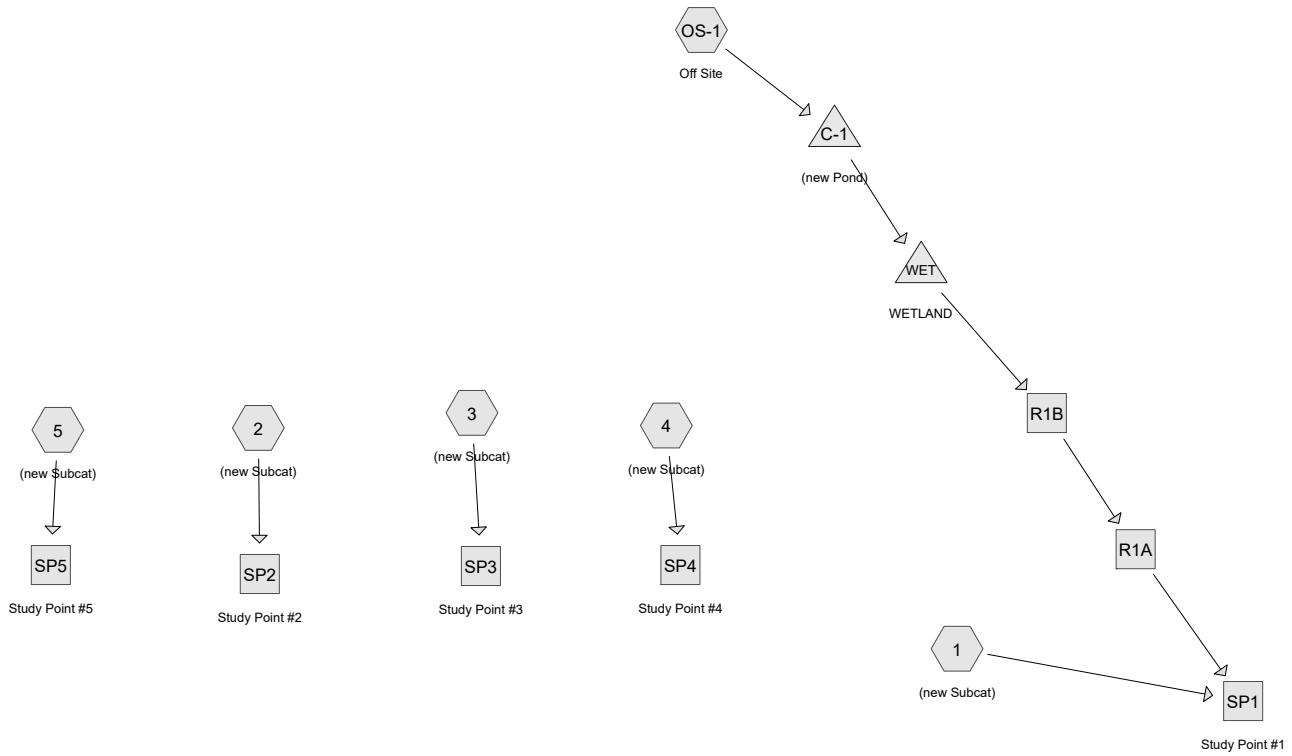
Road	Start Station	End Station	Non-Roof Impervious Area (SF)	Landscaped Area (SF)
Lozolite	1612	2225	16551	14099
Lozolite	2225	2700	12825	10925
Griffinite	1630	1828	5346	4554
Griffinite	1828	2032	5508	4692
Ruby	345	590	6615	5635
	Subtotal		46845	39905

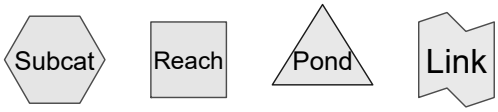
	Roof Impervious Area (SF)	Non-Roof Impervious Area (SF)	Landscaped Area (SF)
Total (SF)	76000	83845	395905
Total (Acres)	1.74	1.92	9.09
Compensation Fee (per acre)	$5,000.00	$12,500.00	$2,500.00
	$8,723.60	$24,060.20	$22,721.82

Total Fee	$55,505.62

Attachment 5

Pre Development Hydrocad Calculations





Routing Diagram for 21-13 PRE
Prepared by Terradyn Consultants, LLC, Printed 11/8/2022
HydroCAD® 10.00-26 s/n 10466 © 2020 HydroCAD Software Solutions LLC

Time span=5.00-20.00 hrs, dt=0.01 hrs, 1501 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: (new Subcat) Runoff Area=122.290 ac 2.81% Impervious Runoff Depth>0.84"
Flow Length=5,317' Tc=139.2 min CN=72 Runoff=29.10 cfs 8.521 af

Subcatchment 2: (new Subcat) Runoff Area=270.762 ac 0.00% Impervious Runoff Depth>0.97"
Flow Length=5,272' Tc=172.1 min CN=75 Runoff=67.59 cfs 21.784 af

Subcatchment 3: (new Subcat) Runoff Area=36.136 ac 2.89% Impervious Runoff Depth>0.92"
Flow Length=840' Tc=80.9 min CN=73 Runoff=13.39 cfs 2.768 af

Subcatchment 4: (new Subcat) Runoff Area=221,542 sf 0.00% Impervious Runoff Depth>0.93"
Flow Length=480' Tc=49.6 min CN=73 Runoff=2.58 cfs 0.396 af

Subcatchment 5: (new Subcat) Runoff Area=113,637 sf 0.00% Impervious Runoff Depth>0.79"
Flow Length=320' Slope=0.0300 '/' Tc=46.6 min CN=70 Runoff=1.11 cfs 0.171 af

Subcatchment OS-1: Off Site Runoff Area=583,385 sf 5.16% Impervious Runoff Depth>0.88"
Flow Length=1,097' Tc=61.7 min CN=72 Runoff=5.56 cfs 0.979 af

Reach R1A: Avg. Flow Depth=0.22' Max Vel=1.32 fps Inflow=1.53 cfs 0.698 af
n=0.030 L=860.0' S=0.0058 '/' Capacity=230.46 cfs Outflow=1.53 cfs 0.683 af

Reach R1B: Avg. Flow Depth=0.26' Max Vel=1.77 fps Inflow=1.53 cfs 0.719 af
n=0.030 L=1,640.0' S=0.0090 '/' Capacity=51.80 cfs Outflow=1.53 cfs 0.698 af

Reach SP1: Study Point #1 Inflow=30.52 cfs 9.204 af
Outflow=30.52 cfs 9.204 af

Reach SP2: Study Point #2 Inflow=67.59 cfs 21.784 af
Outflow=67.59 cfs 21.784 af

Reach SP3: Study Point #3 Inflow=13.39 cfs 2.768 af
Outflow=13.39 cfs 2.768 af

Reach SP4: Study Point #4 Inflow=2.58 cfs 0.396 af
Outflow=2.58 cfs 0.396 af

Reach SP5: Study Point #5 Inflow=1.11 cfs 0.171 af
Outflow=1.11 cfs 0.171 af

Pond C-1: (new Pond) Peak Elev=75.83' Storage=200 cf Inflow=5.56 cfs 0.979 af
Outflow=5.55 cfs 0.979 af

Pond WET: WETLAND Peak Elev=74.18' Storage=19,361 cf Inflow=5.55 cfs 0.979 af
Outflow=1.53 cfs 0.719 af

Total Runoff Area = 450.275 ac Runoff Volume = 34.620 af Average Runoff Depth = 0.92"
98.85% Pervious = 445.100 ac 1.15% Impervious = 5.175 ac

Time span=5.00-20.00 hrs, dt=0.01 hrs, 1501 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: (new Subcat) Runoff Area=122.290 ac 2.81% Impervious Runoff Depth>1.84"
Flow Length=5,317' Tc=139.2 min CN=72 Runoff=66.40 cfs 18.731 af

Subcatchment 2: (new Subcat) Runoff Area=270.762 ac 0.00% Impervious Runoff Depth>2.02"
Flow Length=5,272' Tc=172.1 min CN=75 Runoff=144.46 cfs 45.623 af

Subcatchment 3: (new Subcat) Runoff Area=36.136 ac 2.89% Impervious Runoff Depth>1.97"
Flow Length=840' Tc=80.9 min CN=73 Runoff=29.86 cfs 5.943 af

Subcatchment 4: (new Subcat) Runoff Area=221,542 sf 0.00% Impervious Runoff Depth>2.00"
Flow Length=480' Tc=49.6 min CN=73 Runoff=5.69 cfs 0.848 af

Subcatchment 5: (new Subcat) Runoff Area=113,637 sf 0.00% Impervious Runoff Depth>1.77"
Flow Length=320' Slope=0.0300 '/' Tc=46.6 min CN=70 Runoff=2.66 cfs 0.386 af

Subcatchment OS-1: Off Site Runoff Area=583,385 sf 5.16% Impervious Runoff Depth>1.91"
Flow Length=1,097' Tc=61.7 min CN=72 Runoff=12.66 cfs 2.135 af

Reach R1A: Avg. Flow Depth=0.41' Max Vel=1.92 fps Inflow=4.29 cfs 1.691 af
n=0.030 L=860.0' S=0.0058 '/' Capacity=230.46 cfs Outflow=4.29 cfs 1.669 af

Reach R1B: Avg. Flow Depth=0.49' Max Vel=2.51 fps Inflow=4.31 cfs 1.722 af
n=0.030 L=1,640.0' S=0.0090 '/' Capacity=51.80 cfs Outflow=4.29 cfs 1.691 af

Reach SP1: Study Point #1 Inflow=70.62 cfs 20.400 af
Outflow=70.62 cfs 20.400 af

Reach SP2: Study Point #2 Inflow=144.46 cfs 45.623 af
Outflow=144.46 cfs 45.623 af

Reach SP3: Study Point #3 Inflow=29.86 cfs 5.943 af
Outflow=29.86 cfs 5.943 af

Reach SP4: Study Point #4 Inflow=5.69 cfs 0.848 af
Outflow=5.69 cfs 0.848 af

Reach SP5: Study Point #5 Inflow=2.66 cfs 0.386 af
Outflow=2.66 cfs 0.386 af

Pond C-1: (new Pond) Peak Elev=76.44' Storage=1,813 cf Inflow=12.66 cfs 2.135 af
Outflow=12.26 cfs 2.135 af

Pond WET: WETLAND Peak Elev=74.49' Storage=40,849 cf Inflow=12.26 cfs 2.135 af
Outflow=4.31 cfs 1.722 af

Total Runoff Area = 450.275 ac Runoff Volume = 73.666 af Average Runoff Depth = 1.96"
98.85% Pervious = 445.100 ac 1.15% Impervious = 5.175 ac

Time span=5.00-20.00 hrs, dt=0.01 hrs, 1501 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: (new Subcat) Runoff Area=122.290 ac 2.81% Impervious Runoff Depth>2.77"
Flow Length=5,317' Tc=139.2 min CN=72 Runoff=100.71 cfs 28.219 af

Subcatchment 2: (new Subcat) Runoff Area=270.762 ac 0.00% Impervious Runoff Depth>2.98"
Flow Length=5,272' Tc=172.1 min CN=75 Runoff=212.91 cfs 67.320 af

Subcatchment 3: (new Subcat) Runoff Area=36.136 ac 2.89% Impervious Runoff Depth>2.94"
Flow Length=840' Tc=80.9 min CN=73 Runoff=44.74 cfs 8.862 af

Subcatchment 4: (new Subcat) Runoff Area=221,542 sf 0.00% Impervious Runoff Depth>2.98"
Flow Length=480' Tc=49.6 min CN=73 Runoff=8.50 cfs 1.263 af

Subcatchment 5: (new Subcat) Runoff Area=113,637 sf 0.00% Impervious Runoff Depth>2.70"
Flow Length=320' Slope=0.0300 '/' Tc=46.6 min CN=70 Runoff=4.09 cfs 0.588 af

Subcatchment OS-1: Off Site Runoff Area=583,385 sf 5.16% Impervious Runoff Depth>2.87"
Flow Length=1,097' Tc=61.7 min CN=72 Runoff=19.16 cfs 3.206 af

Reach R1A: Avg. Flow Depth=0.57' Max Vel=2.31 fps Inflow=7.31 cfs 2.653 af
n=0.030 L=860.0' S=0.0058 '/' Capacity=230.46 cfs Outflow=7.29 cfs 2.626 af

Reach R1B: Avg. Flow Depth=0.67' Max Vel=2.97 fps Inflow=7.36 cfs 2.690 af
n=0.030 L=1,640.0' S=0.0090 '/' Capacity=51.80 cfs Outflow=7.31 cfs 2.653 af

Reach SP1: Study Point #1 Inflow=107.80 cfs 30.845 af
Outflow=107.80 cfs 30.845 af

Reach SP2: Study Point #2 Inflow=212.91 cfs 67.320 af
Outflow=212.91 cfs 67.320 af

Reach SP3: Study Point #3 Inflow=44.74 cfs 8.862 af
Outflow=44.74 cfs 8.862 af

Reach SP4: Study Point #4 Inflow=8.50 cfs 1.263 af
Outflow=8.50 cfs 1.263 af

Reach SP5: Study Point #5 Inflow=4.09 cfs 0.588 af
Outflow=4.09 cfs 0.588 af

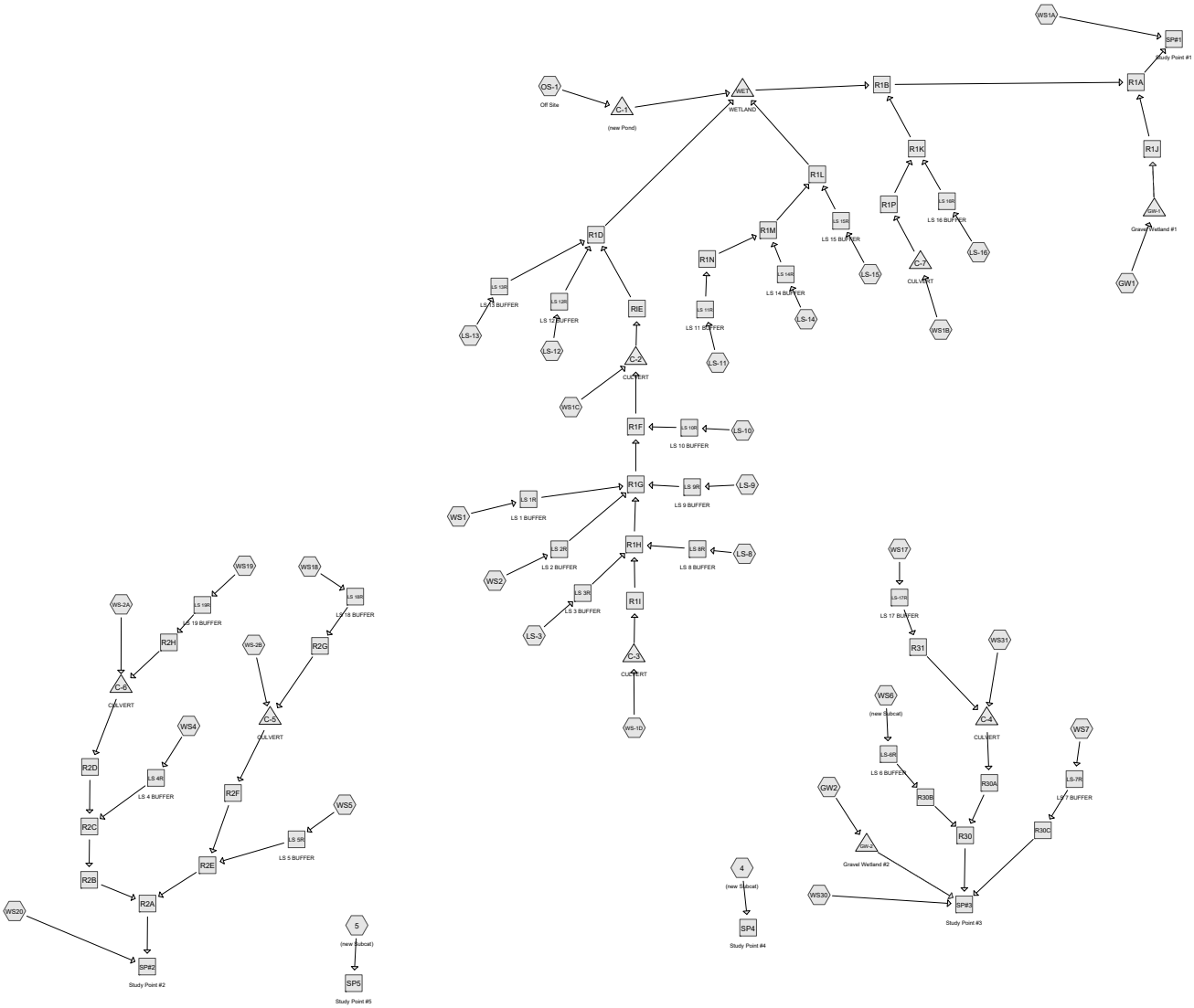
Pond C-1: (new Pond) Peak Elev=76.87' Storage=5,764 cf Inflow=19.16 cfs 3.206 af
Outflow=17.73 cfs 3.205 af

Pond WET: WETLAND Peak Elev=74.78' Storage=60,896 cf Inflow=17.73 cfs 3.205 af
Outflow=7.36 cfs 2.690 af

Total Runoff Area = 450.275 ac Runoff Volume = 109.458 af Average Runoff Depth = 2.92"
98.85% Pervious = 445.100 ac 1.15% Impervious = 5.175 ac

Attachment 6

Post Development Hydrocad



Subcat Reach Pond Link

Routing Diagram for 21-13 POST
Prepared by Terradyn Consultants, LLC, Printed 11/8/2022
HydroCAD® 10.00-26 s/n 10466 © 2020 HydroCAD Software Solutions LLC

Time span=5.00-40.00 hrs, dt=0.01 hrs, 3501 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 4: (new Subcat) Runoff Area=192,646 sf 5.19% Impervious Runoff Depth=1.16"
Flow Length=480' Tc=49.6 min CN=75 Runoff=2.54 cfs 0.428 af

Subcatchment 5: (new Subcat) Runoff Area=113,637 sf 0.00% Impervious Runoff Depth=0.89"
Flow Length=320' Slope=0.0300 '/' Tc=46.6 min CN=70 Runoff=1.11 cfs 0.193 af

Subcatchment GW1: Runoff Area=552,670 sf 31.77% Impervious Runoff Depth=1.62"
Flow Length=1,090' Tc=42.0 min CN=82 Runoff=11.50 cfs 1.712 af

Subcatchment GW2: Runoff Area=317,270 sf 29.70% Impervious Runoff Depth=1.28"
Flow Length=560' Tc=11.7 min UI Adjusted CN=77 Runoff=8.83 cfs 0.779 af

Subcatchment LS-10: Runoff Area=81,466 sf 27.01% Impervious Runoff Depth=1.22"
Flow Length=440' Tc=8.9 min UI Adjusted CN=76 Runoff=2.35 cfs 0.190 af

Subcatchment LS-11: Runoff Area=90,223 sf 38.17% Impervious Runoff Depth=1.62"
Flow Length=700' Tc=32.2 min CN=82 Runoff=2.14 cfs 0.279 af

Subcatchment LS-12: Runoff Area=17,750 sf 32.03% Impervious Runoff Depth=1.62"
Flow Length=150' Slope=0.0800 '/' Tc=7.7 min CN=82 Runoff=0.73 cfs 0.055 af

Subcatchment LS-13: Runoff Area=69,679 sf 21.63% Impervious Runoff Depth=1.16"
Flow Length=650' Tc=46.2 min UI Adjusted CN=75 Runoff=0.95 cfs 0.155 af

Subcatchment LS-14: Runoff Area=49,725 sf 27.60% Impervious Runoff Depth=1.28"
Flow Length=370' Tc=7.5 min UI Adjusted CN=77 Runoff=1.59 cfs 0.122 af

Subcatchment LS-15: Runoff Area=34,750 sf 30.94% Impervious Runoff Depth=1.55"
Tc=7.5 min CN=81 Runoff=1.37 cfs 0.103 af

Subcatchment LS-16: Runoff Area=68,793 sf 29.37% Impervious Runoff Depth=1.28"
Flow Length=600' Tc=13.3 min UI Adjusted CN=77 Runoff=1.83 cfs 0.169 af

Subcatchment LS-3: Runoff Area=35,656 sf 25.98% Impervious Runoff Depth=1.22"
Flow Length=300' Tc=11.9 min UI Adjusted CN=76 Runoff=0.93 cfs 0.083 af

Subcatchment LS-8: Runoff Area=75,146 sf 28.74% Impervious Runoff Depth=1.28"
Flow Length=640' Tc=11.5 min UI Adjusted CN=77 Runoff=2.10 cfs 0.185 af

Subcatchment LS-9: Runoff Area=56,874 sf 32.58% Impervious Runoff Depth=1.62"
Flow Length=550' Tc=9.5 min CN=82 Runoff=2.19 cfs 0.176 af

Subcatchment OS-1: Off Site Runoff Area=583,385 sf 5.16% Impervious Runoff Depth=0.99"
Flow Length=1,097' Tc=61.7 min CN=72 Runoff=5.56 cfs 1.107 af

Subcatchment WS-1D: Runoff Area=638,889 sf 2.45% Impervious Runoff Depth=0.89"
Flow Length=1,500' Tc=74.2 min UI Adjusted CN=70 Runoff=4.69 cfs 1.084 af

Subcatchment WS-2A: Runoff Area=296,906 sf 6.09% Impervious Runoff Depth=1.10"
Flow Length=720' Tc=68.6 min UI Adjusted CN=74 Runoff=3.00 cfs 0.627 af

Subcatchment WS-2B: Runoff Area=8.619 ac 8.26% Impervious Runoff Depth=1.10"
Flow Length=1,000' Tc=113.5 min UI Adjusted CN=74 Runoff=2.70 cfs 0.793 af

Subcatchment WS1: Runoff Area=51,519 sf 4.08% Impervious Runoff Depth=1.05"
Flow Length=230' Tc=9.1 min UI Adjusted CN=73 Runoff=1.23 cfs 0.103 af

Subcatchment WS17: Runoff Area=26,816 sf 33.23% Impervious Runoff Depth=1.48"
Tc=6.0 min CN=80 Runoff=1.06 cfs 0.076 af

Subcatchment WS18: Runoff Area=9,900 sf 54.00% Impervious Runoff Depth=2.00"
Tc=6.0 min CN=87 Runoff=0.53 cfs 0.038 af

Subcatchment WS19: Runoff Area=34,250 sf 33.91% Impervious Runoff Depth=1.62"
Flow Length=180' Tc=9.3 min CN=82 Runoff=1.33 cfs 0.106 af

Subcatchment WS1A: Runoff Area=2,700,581 sf 3.76% Impervious Runoff Depth=0.94"
Flow Length=3,337' Tc=135.7 min CN=71 Runoff=14.04 cfs 4.850 af

Subcatchment WS1B: Runoff Area=356,623 sf 4.37% Impervious Runoff Depth=0.99"
Flow Length=770' Tc=67.4 min UI Adjusted CN=72 Runoff=3.22 cfs 0.677 af

Subcatchment WS1C: Runoff Area=16.775 ac 8.55% Impervious Runoff Depth=1.05"
Flow Length=870' Tc=78.0 min UI Adjusted CN=73 Runoff=6.42 cfs 1.464 af

Subcatchment WS2: Runoff Area=230,676 sf 9.01% Impervious Runoff Depth=0.99"
Flow Length=726' Tc=41.6 min UI Adjusted CN=72 Runoff=2.77 cfs 0.438 af

Subcatchment WS20: Runoff Area=245.185 ac 0.23% Impervious Runoff Depth=1.16"
Flow Length=5,272' Tc=172.1 min CN=75 Runoff=61.20 cfs 23.746 af

Subcatchment WS30: Runoff Area=569,331 sf 3.69% Impervious Runoff Depth=0.94"
Flow Length=650' Tc=51.6 min UI Adjusted CN=71 Runoff=5.65 cfs 1.023 af

Subcatchment WS31: Runoff Area=8.074 ac 1.71% Impervious Runoff Depth=0.99"
Flow Length=707' Tc=80.3 min UI Adjusted CN=72 Runoff=2.83 cfs 0.668 af

Subcatchment WS4: Runoff Area=49,650 sf 47.43% Impervious Runoff Depth=1.84"
Tc=7.5 min CN=85 Runoff=2.34 cfs 0.175 af

Subcatchment WS5: Runoff Area=51,750 sf 40.24% Impervious Runoff Depth=1.77"
Tc=7.5 min CN=84 Runoff=2.34 cfs 0.175 af

Subcatchment WS6: (new Subcat) Runoff Area=14,742 sf 34.62% Impervious Runoff Depth=1.62"
Tc=6.0 min CN=82 Runoff=0.64 cfs 0.046 af

Subcatchment WS7: Runoff Area=104,548 sf 25.09% Impervious Runoff Depth=1.16"
Flow Length=580' Tc=37.4 min UI Adjusted CN=75 Runoff=1.60 cfs 0.232 af

Reach LS 10R: LS 10 BUFFER Avg. Flow Depth=0.12' Max Vel=0.16 fps Inflow=2.35 cfs 0.190 af
n=0.800 L=100.0' S=0.1200 '/' Capacity=63.30 cfs Outflow=1.75 cfs 0.190 af

Reach LS 11R: LS 11 BUFFER Avg. Flow Depth=0.22' Max Vel=0.10 fps Inflow=2.14 cfs 0.279 af
n=0.800 L=84.0' S=0.0238 '/' Capacity=25.94 cfs Outflow=1.89 cfs 0.279 af

Reach LS 12R: LS 12 BUFFER Avg. Flow Depth=0.17' Max Vel=0.04 fps Inflow=0.73 cfs 0.055 af
n=0.800 L=150.0' S=0.0067 '/' Capacity=6.06 cfs Outflow=0.24 cfs 0.055 af

Reach LS 13R: LS 13 BUFFER Avg. Flow Depth=0.20' Max Vel=0.07 fps Inflow=0.95 cfs 0.155 af
n=0.800 L=150.0' S=0.0120 '/' Capacity=11.06 cfs Outflow=0.65 cfs 0.155 af

Reach LS 14R: LS 14 BUFFER Avg. Flow Depth=0.15' Max Vel=0.12 fps Inflow=1.59 cfs 0.122 af
n=0.800 L=110.0' S=0.0545 '/' Capacity=28.21 cfs Outflow=0.99 cfs 0.122 af

Reach LS 15R: LS 15 BUFFER Avg. Flow Depth=0.16' Max Vel=0.12 fps Inflow=1.37 cfs 0.103 af
n=0.800 L=110.0' S=0.0545 '/' Capacity=21.48 cfs Outflow=0.89 cfs 0.103 af

Reach LS 16R: LS 16 BUFFER Avg. Flow Depth=0.14' Max Vel=0.14 fps Inflow=1.83 cfs 0.169 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=38.26 cfs Outflow=1.23 cfs 0.169 af

Reach LS 18R: LS 18 BUFFER Avg. Flow Depth=0.11' Max Vel=0.12 fps Inflow=0.53 cfs 0.038 af
n=0.800 L=150.0' S=0.0867 '/' Capacity=16.68 cfs Outflow=0.29 cfs 0.038 af

Reach LS 19R: LS 19 BUFFER Avg. Flow Depth=0.13' Max Vel=0.08 fps Inflow=1.33 cfs 0.106 af
n=0.800 L=150.0' S=0.0333 '/' Capacity=23.37 cfs Outflow=0.66 cfs 0.106 af

Reach LS 1R: LS 1 BUFFER Avg. Flow Depth=0.09' Max Vel=0.08 fps Inflow=1.23 cfs 0.103 af
n=0.800 L=150.0' S=0.0533 '/' Capacity=37.98 cfs Outflow=0.58 cfs 0.103 af

Reach LS 2R: LS 2 BUFFER Avg. Flow Depth=0.47' Max Vel=0.18 fps Inflow=2.77 cfs 0.438 af
n=0.800 L=135.0' S=0.0370 '/' Capacity=10.91 cfs Outflow=2.51 cfs 0.438 af

Reach LS 3R: LS 3 BUFFER Avg. Flow Depth=0.13' Max Vel=0.12 fps Inflow=0.93 cfs 0.083 af
n=0.800 L=90.0' S=0.0667 '/' Capacity=26.06 cfs Outflow=0.69 cfs 0.083 af

Reach LS 4R: LS 4 BUFFER Avg. Flow Depth=0.16' Max Vel=0.13 fps Inflow=2.34 cfs 0.175 af
n=0.800 L=80.0' S=0.0625 '/' Capacity=41.11 cfs Outflow=1.77 cfs 0.175 af

Reach LS 5R: LS 5 BUFFER Avg. Flow Depth=0.16' Max Vel=0.13 fps Inflow=2.34 cfs 0.175 af
n=0.800 L=80.0' S=0.0625 '/' Capacity=41.11 cfs Outflow=1.76 cfs 0.175 af

Reach LS 8R: LS 8 BUFFER Avg. Flow Depth=0.13' Max Vel=0.13 fps Inflow=2.10 cfs 0.185 af
n=0.800 L=95.0' S=0.0842 '/' Capacity=53.03 cfs Outflow=1.60 cfs 0.185 af

Reach LS 9R: LS 9 BUFFER Avg. Flow Depth=0.15' Max Vel=0.13 fps Inflow=2.19 cfs 0.176 af
n=0.800 L=130.0' S=0.0654 '/' Capacity=37.38 cfs Outflow=1.44 cfs 0.176 af

Reach LS-17R: LS 17 BUFFER Avg. Flow Depth=0.15' Max Vel=0.11 fps Inflow=1.06 cfs 0.076 af
n=0.800 L=150.0' S=0.0533 '/' Capacity=17.13 cfs Outflow=0.55 cfs 0.076 af

Reach LS-6R: LS 6 BUFFER Avg. Flow Depth=0.10' Max Vel=0.08 fps Inflow=0.64 cfs 0.046 af
n=0.800 L=150.0' S=0.0467 '/' Capacity=17.94 cfs Outflow=0.28 cfs 0.046 af

Reach LS-7R: LS 7 BUFFER Avg. Flow Depth=0.15' Max Vel=0.11 fps Inflow=1.60 cfs 0.232 af
n=0.800 L=150.0' S=0.0467 '/' Capacity=31.58 cfs Outflow=1.27 cfs 0.232 af

Reach R1A: Avg. Flow Depth=0.85' Max Vel=2.90 fps Inflow=14.41 cfs 7.541 af
n=0.030 L=860.0' S=0.0058 '/' Capacity=230.46 cfs Outflow=14.41 cfs 7.537 af

Reach R1B: Avg. Flow Depth=0.89' Max Vel=3.44 fps Inflow=11.88 cfs 6.349 af
n=0.030 L=1,640.0' S=0.0090 '/' Capacity=51.80 cfs Outflow=11.86 cfs 6.345 af

Reach R1D: Avg. Flow Depth=0.55' Max Vel=0.79 fps Inflow=15.36 cfs 3.916 af
n=0.100 L=260.0' S=0.0077 '/' Capacity=371.57 cfs Outflow=15.29 cfs 3.916 af

Reach R1F: Avg. Flow Depth=0.74' Max Vel=4.14 fps Inflow=8.38 cfs 2.260 af
n=0.030 L=280.0' S=0.0179 '/' Capacity=30.96 cfs Outflow=8.38 cfs 2.260 af

Reach R1G: Avg. Flow Depth=1.20' Max Vel=1.96 fps Inflow=7.95 cfs 2.069 af
n=0.070 L=220.0' S=0.0136 '/' Capacity=52.87 cfs Outflow=7.94 cfs 2.069 af

Reach R1H: Avg. Flow Depth=1.03' Max Vel=1.62 fps Inflow=5.19 cfs 1.352 af
n=0.070 L=180.0' S=0.0111 '/' Capacity=47.72 cfs Outflow=5.18 cfs 1.352 af

Reach R1I: Avg. Flow Depth=1.23' Max Vel=1.10 fps Inflow=4.68 cfs 1.084 af
n=0.070 L=240.0' S=0.0042 '/' Capacity=29.22 cfs Outflow=4.66 cfs 1.084 af

Reach R1J: Avg. Flow Depth=0.85' Max Vel=3.21 fps Inflow=7.08 cfs 1.197 af
n=0.070 L=300.0' S=0.0567 '/' Capacity=42.31 cfs Outflow=7.06 cfs 1.196 af

Reach R1K: Avg. Flow Depth=0.49' Max Vel=3.22 fps Inflow=3.70 cfs 0.846 af
n=0.070 L=110.0' S=0.1091 '/' Capacity=16.76 cfs Outflow=3.70 cfs 0.846 af

Reach R1L: Avg. Flow Depth=1.07' Max Vel=0.82 fps Inflow=2.87 cfs 0.504 af
n=0.070 L=370.0' S=0.0027 '/' Capacity=23.54 cfs Outflow=2.80 cfs 0.504 af

Reach R1M: Avg. Flow Depth=1.18' Max Vel=0.70 fps Inflow=2.47 cfs 0.402 af
n=0.070 L=270.0' S=0.0019 '/' Capacity=16.43 cfs Outflow=2.41 cfs 0.402 af

Reach R1N: Avg. Flow Depth=0.97' Max Vel=0.85 fps Inflow=1.89 cfs 0.279 af
n=0.070 L=140.0' S=0.0036 '/' Capacity=18.62 cfs Outflow=1.88 cfs 0.279 af

Reach R1P: Avg. Flow Depth=0.75' Max Vel=2.08 fps Inflow=3.22 cfs 0.677 af
n=0.070 L=420.0' S=0.0286 '/' Capacity=23.92 cfs Outflow=3.20 cfs 0.677 af

Reach R2A: Avg. Flow Depth=0.39' Max Vel=0.75 fps Inflow=6.23 cfs 1.914 af
n=0.030 L=600.0' S=0.0008 '/' Capacity=498.29 cfs Outflow=6.12 cfs 1.914 af

Reach R2B: Avg. Flow Depth=0.26' Max Vel=0.66 fps Inflow=3.49 cfs 0.908 af
n=0.030 L=360.0' S=0.0011 '/' Capacity=575.38 cfs Outflow=3.45 cfs 0.908 af

Reach R2C: Avg. Flow Depth=0.92' Max Vel=1.39 fps Inflow=3.51 cfs 0.908 af
n=0.100 L=440.0' S=0.0195 '/' Capacity=17.39 cfs Outflow=3.49 cfs 0.908 af

Reach R2D: Avg. Flow Depth=0.95' Max Vel=1.48 fps Inflow=3.30 cfs 0.733 af
n=0.100 L=770.0' S=0.0227 '/' Capacity=14.93 cfs Outflow=3.24 cfs 0.733 af

Reach R2E: Avg. Flow Depth=0.82' Max Vel=1.42 fps Inflow=2.97 cfs 1.006 af
n=0.100 L=550.0' S=0.0236 '/' Capacity=19.13 cfs Outflow=2.96 cfs 1.006 af

Reach R2F: Avg. Flow Depth=0.82' Max Vel=1.31 fps Inflow=2.76 cfs 0.831 af
n=0.100 L=200.0' S=0.0200 '/' Capacity=17.60 cfs Outflow=2.76 cfs 0.831 af

Reach R2G: Avg. Flow Depth=0.25' Max Vel=0.75 fps Inflow=0.29 cfs 0.038 af
n=0.100 L=550.0' S=0.0291 '/' Capacity=4.71 cfs Outflow=0.25 cfs 0.038 af

Reach R2H: Avg. Flow Depth=0.41' Max Vel=0.87 fps Inflow=0.66 cfs 0.106 af
n=0.100 L=570.0' S=0.0211 '/' Capacity=4.00 cfs Outflow=0.61 cfs 0.106 af

Reach R30: Avg. Flow Depth=0.81' Max Vel=1.53 fps Inflow=3.15 cfs 0.789 af
n=0.100 L=360.0' S=0.0278 '/' Capacity=20.74 cfs Outflow=3.13 cfs 0.789 af

Reach R30A: Avg. Flow Depth=0.84' Max Vel=1.40 fps Inflow=3.04 cfs 0.744 af
n=0.100 L=180.0' S=0.0222 '/' Capacity=18.55 cfs Outflow=3.03 cfs 0.744 af

Reach R30B: Avg. Flow Depth=0.25' Max Vel=0.87 fps Inflow=0.28 cfs 0.046 af
n=0.100 L=100.0' S=0.0400 '/' Capacity=5.52 cfs Outflow=0.28 cfs 0.046 af

Reach R30C: Avg. Flow Depth=0.11' Max Vel=0.52 fps Inflow=1.27 cfs 0.232 af
n=0.100 L=110.0' S=0.0273 '/' Capacity=74.87 cfs Outflow=1.26 cfs 0.232 af

Reach R31: Avg. Flow Depth=0.34' Max Vel=0.94 fps Inflow=0.55 cfs 0.076 af
n=0.100 L=540.0' S=0.0315 '/' Capacity=4.89 cfs Outflow=0.50 cfs 0.076 af

Reach RIE: Avg. Flow Depth=0.95' Max Vel=2.57 fps Inflow=14.59 cfs 3.706 af
n=0.030 L=370.0' S=0.0041 '/' Capacity=192.45 cfs Outflow=14.57 cfs 3.706 af

Reach SP#1: Study Point #1 Inflow=28.37 cfs 12.387 af
Outflow=28.37 cfs 12.387 af

Reach SP#2: Study Point #2 Inflow=65.79 cfs 25.660 af
Outflow=65.79 cfs 25.660 af

Reach SP#3: Study Point #3 Inflow=10.30 cfs 2.528 af
Outflow=10.30 cfs 2.528 af

Reach SP4: Study Point #4 Inflow=2.54 cfs 0.428 af
Outflow=2.54 cfs 0.428 af

Reach SP5: Study Point #5 Inflow=1.11 cfs 0.193 af
Outflow=1.11 cfs 0.193 af

Pond C-1: (new Pond) Peak Elev=75.83' Storage=200 cf Inflow=5.56 cfs 1.107 af
Outflow=5.55 cfs 1.107 af

Pond C-2: CULVERT Peak Elev=85.31' Storage=4,337 cf Inflow=14.67 cfs 3.724 af
Outflow=14.59 cfs 3.706 af

Pond C-3: CULVERT Peak Elev=96.63' Storage=502 cf Inflow=4.69 cfs 1.084 af
Outflow=4.68 cfs 1.084 af

Pond C-4: CULVERT Peak Elev=96.55' Storage=117 cf Inflow=3.04 cfs 0.744 af
Outflow=3.04 cfs 0.744 af

Pond C-5: CULVERT Peak Elev=96.52' Storage=59 cf Inflow=2.76 cfs 0.831 af
Outflow=2.76 cfs 0.831 af

Pond C-6: CULVERT Peak Elev=106.08' Storage=1,390 cf Inflow=3.41 cfs 0.733 af
Outflow=3.30 cfs 0.733 af

Pond C-7: CULVERT Peak Elev=93.57' Storage=37 cf Inflow=3.22 cfs 0.677 af
Outflow=3.22 cfs 0.677 af

Pond GW-1: Gravel Wetland #1 Peak Elev=84.76' Storage=28,910 cf Inflow=11.50 cfs 1.712 af
Primary=0.04 cfs 0.086 af Secondary=7.04 cfs 1.111 af Outflow=7.08 cfs 1.197 af

Pond GW-2: Gravel Wetland #2 Peak Elev=87.73' Storage=17,158 cf Inflow=8.83 cfs 0.779 af
Primary=1.09 cfs 0.484 af Secondary=0.00 cfs 0.000 af Outflow=1.09 cfs 0.484 af

Pond WET: WETLAND Peak Elev=75.05' Storage=81,350 cf Inflow=22.33 cfs 5.528 af
Outflow=10.38 cfs 5.503 af

Total Runoff Area = 450.275 ac Runoff Volume = 42.058 af Average Runoff Depth = 1.12"
95.41% Pervious = 429.588 ac 4.59% Impervious = 20.686 ac

Time span=5.00-40.00 hrs, dt=0.01 hrs, 3501 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 4: (new Subcat) Runoff Area=192,646 sf 5.19% Impervious Runoff Depth=2.37"
Flow Length=480' Tc=49.6 min CN=75 Runoff=5.35 cfs 0.873 af

Subcatchment 5: (new Subcat) Runoff Area=113,637 sf 0.00% Impervious Runoff Depth=1.96"
Flow Length=320' Slope=0.0300 '/' Tc=46.6 min CN=70 Runoff=2.66 cfs 0.427 af

Subcatchment GW1: Runoff Area=552,670 sf 31.77% Impervious Runoff Depth=2.99"
Flow Length=1,090' Tc=42.0 min CN=82 Runoff=21.36 cfs 3.161 af

Subcatchment GW2: Runoff Area=317,270 sf 29.70% Impervious Runoff Depth=2.54"
Flow Length=560' Tc=11.7 min UI Adjusted CN=77 Runoff=17.95 cfs 1.541 af

Subcatchment LS-10: Runoff Area=81,466 sf 27.01% Impervious Runoff Depth=2.45"
Flow Length=440' Tc=8.9 min UI Adjusted CN=76 Runoff=4.86 cfs 0.382 af

Subcatchment LS-11: Runoff Area=90,223 sf 38.17% Impervious Runoff Depth=2.99"
Flow Length=700' Tc=32.2 min CN=82 Runoff=3.97 cfs 0.516 af

Subcatchment LS-12: Runoff Area=17,750 sf 32.03% Impervious Runoff Depth=2.99"
Flow Length=150' Slope=0.0800 '/' Tc=7.7 min CN=82 Runoff=1.34 cfs 0.102 af

Subcatchment LS-13: Runoff Area=69,679 sf 21.63% Impervious Runoff Depth=2.37"
Flow Length=650' Tc=46.2 min UI Adjusted CN=75 Runoff=2.01 cfs 0.316 af

Subcatchment LS-14: Runoff Area=49,725 sf 27.60% Impervious Runoff Depth=2.54"
Flow Length=370' Tc=7.5 min UI Adjusted CN=77 Runoff=3.22 cfs 0.242 af

Subcatchment LS-15: Runoff Area=34,750 sf 30.94% Impervious Runoff Depth=2.90"
Tc=7.5 min CN=81 Runoff=2.57 cfs 0.193 af

Subcatchment LS-16: Runoff Area=68,793 sf 29.37% Impervious Runoff Depth=2.54"
Flow Length=600' Tc=13.3 min UI Adjusted CN=77 Runoff=3.72 cfs 0.334 af

Subcatchment LS-3: Runoff Area=35,656 sf 25.98% Impervious Runoff Depth=2.45"
Flow Length=300' Tc=11.9 min UI Adjusted CN=76 Runoff=1.93 cfs 0.167 af

Subcatchment LS-8: Runoff Area=75,146 sf 28.74% Impervious Runoff Depth=2.54"
Flow Length=640' Tc=11.5 min UI Adjusted CN=77 Runoff=4.28 cfs 0.365 af

Subcatchment LS-9: Runoff Area=56,874 sf 32.58% Impervious Runoff Depth=2.99"
Flow Length=550' Tc=9.5 min CN=82 Runoff=4.06 cfs 0.325 af

Subcatchment OS-1: Off Site Runoff Area=583,385 sf 5.16% Impervious Runoff Depth=2.12"
Flow Length=1,097' Tc=61.7 min CN=72 Runoff=12.66 cfs 2.367 af

Subcatchment WS-1D: Runoff Area=638,889 sf 2.45% Impervious Runoff Depth=1.96"
Flow Length=1,500' Tc=74.2 min UI Adjusted CN=70 Runoff=11.27 cfs 2.399 af

Subcatchment WS-2A: Runoff Area=296,906 sf 6.09% Impervious Runoff Depth=2.28"
Flow Length=720' Tc=68.6 min UI Adjusted CN=74 Runoff=6.53 cfs 1.298 af

Subcatchment WS-2B: Runoff Area=8.619 ac 8.26% Impervious Runoff Depth=2.28"
Flow Length=1,000' Tc=113.5 min UI Adjusted CN=74 Runoff=5.92 cfs 1.641 af

Subcatchment WS1: Runoff Area=51,519 sf 4.08% Impervious Runoff Depth=2.20"
Flow Length=230' Tc=9.1 min UI Adjusted CN=73 Runoff=2.72 cfs 0.217 af

Subcatchment WS17: Runoff Area=26,816 sf 33.23% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=80 Runoff=2.03 cfs 0.144 af

Subcatchment WS18: Runoff Area=9,900 sf 54.00% Impervious Runoff Depth=3.47"
Tc=6.0 min CN=87 Runoff=0.91 cfs 0.066 af

Subcatchment WS19: Runoff Area=34,250 sf 33.91% Impervious Runoff Depth=2.99"
Flow Length=180' Tc=9.3 min CN=82 Runoff=2.46 cfs 0.196 af

Subcatchment WS1A: Runoff Area=2,700,581 sf 3.76% Impervious Runoff Depth=2.04"
Flow Length=3,337' Tc=135.7 min CN=71 Runoff=32.82 cfs 10.546 af

Subcatchment WS1B: Runoff Area=356,623 sf 4.37% Impervious Runoff Depth=2.12"
Flow Length=770' Tc=67.4 min UI Adjusted CN=72 Runoff=7.35 cfs 1.447 af

Subcatchment WS1C: Runoff Area=16.775 ac 8.55% Impervious Runoff Depth=2.20"
Flow Length=870' Tc=78.0 min UI Adjusted CN=73 Runoff=14.31 cfs 3.079 af

Subcatchment WS2: Runoff Area=230,676 sf 9.01% Impervious Runoff Depth=2.12"
Flow Length=726' Tc=41.6 min UI Adjusted CN=72 Runoff=6.26 cfs 0.936 af

Subcatchment WS20: Runoff Area=245.185 ac 0.23% Impervious Runoff Depth=2.37"
Flow Length=5,272' Tc=172.1 min CN=75 Runoff=130.81 cfs 48.392 af

Subcatchment WS30: Runoff Area=569,331 sf 3.69% Impervious Runoff Depth=2.04"
Flow Length=650' Tc=51.6 min UI Adjusted CN=71 Runoff=13.15 cfs 2.223 af

Subcatchment WS31: Runoff Area=8.074 ac 1.71% Impervious Runoff Depth=2.12"
Flow Length=707' Tc=80.3 min UI Adjusted CN=72 Runoff=6.48 cfs 1.427 af

Subcatchment WS4: Runoff Area=49,650 sf 47.43% Impervious Runoff Depth=3.28"
Tc=7.5 min CN=85 Runoff=4.12 cfs 0.311 af

Subcatchment WS5: Runoff Area=51,750 sf 40.24% Impervious Runoff Depth=3.18"
Tc=7.5 min CN=84 Runoff=4.18 cfs 0.315 af

Subcatchment WS6: (new Subcat) Runoff Area=14,742 sf 34.62% Impervious Runoff Depth=2.99"
Tc=6.0 min CN=82 Runoff=1.18 cfs 0.084 af

Subcatchment WS7: Runoff Area=104,548 sf 25.09% Impervious Runoff Depth=2.37"
Flow Length=580' Tc=37.4 min UI Adjusted CN=75 Runoff=3.38 cfs 0.474 af

Reach LS 10R: LS 10 BUFFER Avg. Flow Depth=0.20' Max Vel=0.21 fps Inflow=4.86 cfs 0.382 af
n=0.800 L=100.0' S=0.1200 '/' Capacity=63.30 cfs Outflow=4.00 cfs 0.382 af

Reach LS 11R: LS 11 BUFFER Avg. Flow Depth=0.32' Max Vel=0.13 fps Inflow=3.97 cfs 0.516 af
n=0.800 L=84.0' S=0.0238 '/' Capacity=25.94 cfs Outflow=3.66 cfs 0.516 af

Reach LS 12R: LS 12 BUFFER Avg. Flow Depth=0.26' Max Vel=0.06 fps Inflow=1.34 cfs 0.102 af
n=0.800 L=150.0' S=0.0067 '/' Capacity=6.06 cfs Outflow=0.53 cfs 0.101 af

Reach LS 13R: LS 13 BUFFER Avg. Flow Depth=0.34' Max Vel=0.09 fps Inflow=2.01 cfs 0.316 af
n=0.800 L=150.0' S=0.0120 '/' Capacity=11.06 cfs Outflow=1.58 cfs 0.316 af

Reach LS 14R: LS 14 BUFFER Avg. Flow Depth=0.24' Max Vel=0.16 fps Inflow=3.22 cfs 0.242 af
n=0.800 L=110.0' S=0.0545 '/' Capacity=28.21 cfs Outflow=2.31 cfs 0.242 af

Reach LS 15R: LS 15 BUFFER Avg. Flow Depth=0.25' Max Vel=0.16 fps Inflow=2.57 cfs 0.193 af
n=0.800 L=110.0' S=0.0545 '/' Capacity=21.48 cfs Outflow=1.86 cfs 0.193 af

Reach LS 16R: LS 16 BUFFER Avg. Flow Depth=0.22' Max Vel=0.18 fps Inflow=3.72 cfs 0.334 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=38.26 cfs Outflow=2.81 cfs 0.334 af

Reach LS 18R: LS 18 BUFFER Avg. Flow Depth=0.16' Max Vel=0.15 fps Inflow=0.91 cfs 0.066 af
n=0.800 L=150.0' S=0.0867 '/' Capacity=16.68 cfs Outflow=0.55 cfs 0.066 af

Reach LS 19R: LS 19 BUFFER Avg. Flow Depth=0.20' Max Vel=0.11 fps Inflow=2.46 cfs 0.196 af
n=0.800 L=150.0' S=0.0333 '/' Capacity=23.37 cfs Outflow=1.43 cfs 0.196 af

Reach LS 1R: LS 1 BUFFER Avg. Flow Depth=0.16' Max Vel=0.12 fps Inflow=2.72 cfs 0.217 af
n=0.800 L=150.0' S=0.0533 '/' Capacity=37.98 cfs Outflow=1.61 cfs 0.217 af

Reach LS 2R: LS 2 BUFFER Avg. Flow Depth=0.74' Max Vel=0.23 fps Inflow=6.26 cfs 0.936 af
n=0.800 L=135.0' S=0.0370 '/' Capacity=10.91 cfs Outflow=5.90 cfs 0.936 af

Reach LS 3R: LS 3 BUFFER Avg. Flow Depth=0.20' Max Vel=0.16 fps Inflow=1.93 cfs 0.167 af
n=0.800 L=90.0' S=0.0667 '/' Capacity=26.06 cfs Outflow=1.58 cfs 0.167 af

Reach LS 4R: LS 4 BUFFER Avg. Flow Depth=0.23' Max Vel=0.17 fps Inflow=4.12 cfs 0.311 af
n=0.800 L=80.0' S=0.0625 '/' Capacity=41.11 cfs Outflow=3.34 cfs 0.311 af

Reach LS 5R: LS 5 BUFFER Avg. Flow Depth=0.23' Max Vel=0.17 fps Inflow=4.18 cfs 0.315 af
n=0.800 L=80.0' S=0.0625 '/' Capacity=41.11 cfs Outflow=3.39 cfs 0.315 af

Reach LS 8R: LS 8 BUFFER Avg. Flow Depth=0.21' Max Vel=0.18 fps Inflow=4.28 cfs 0.365 af
n=0.800 L=95.0' S=0.0842 '/' Capacity=53.03 cfs Outflow=3.56 cfs 0.365 af

Reach LS 9R: LS 9 BUFFER Avg. Flow Depth=0.23' Max Vel=0.17 fps Inflow=4.06 cfs 0.325 af
n=0.800 L=130.0' S=0.0654 '/' Capacity=37.38 cfs Outflow=2.96 cfs 0.325 af

Reach LS-17R: LS 17 BUFFER Avg. Flow Depth=0.23' Max Vel=0.15 fps Inflow=2.03 cfs 0.144 af
n=0.800 L=150.0' S=0.0533 '/' Capacity=17.13 cfs Outflow=1.21 cfs 0.144 af

Reach LS-6R: LS 6 BUFFER Avg. Flow Depth=0.15' Max Vel=0.11 fps Inflow=1.18 cfs 0.084 af
n=0.800 L=150.0' S=0.0467 '/' Capacity=17.94 cfs Outflow=0.62 cfs 0.084 af

Reach LS-7R: LS 7 BUFFER Avg. Flow Depth=0.25' Max Vel=0.15 fps Inflow=3.38 cfs 0.474 af
n=0.800 L=150.0' S=0.0467 '/' Capacity=31.58 cfs Outflow=2.95 cfs 0.474 af

Reach R1A: Avg. Flow Depth=1.46' Max Vel=3.87 fps Inflow=36.62 cfs 15.980 af
n=0.030 L=860.0' S=0.0058 '/' Capacity=230.46 cfs Outflow=36.61 cfs 15.975 af

Reach R1B: Avg. Flow Depth=1.52' Max Vel=4.52 fps Inflow=31.00 cfs 13.339 af
n=0.030 L=1,640.0' S=0.0090 '/' Capacity=51.80 cfs Outflow=30.94 cfs 13.334 af

Reach R1D: Avg. Flow Depth=0.86' Max Vel=1.03 fps Inflow=34.35 cfs 8.270 af
n=0.100 L=260.0' S=0.0077 '/' Capacity=371.57 cfs Outflow=34.26 cfs 8.270 af

Reach R1F: Avg. Flow Depth=1.16' Max Vel=5.19 fps Inflow=19.00 cfs 4.792 af
n=0.030 L=280.0' S=0.0179 '/' Capacity=30.96 cfs Outflow=19.00 cfs 4.792 af

Reach R1G: Avg. Flow Depth=1.78' Max Vel=2.48 fps Inflow=18.17 cfs 4.409 af
n=0.070 L=220.0' S=0.0136 '/' Capacity=52.87 cfs Outflow=18.16 cfs 4.409 af

Reach R1H: Avg. Flow Depth=1.54' Max Vel=2.06 fps Inflow=12.17 cfs 2.931 af
n=0.070 L=180.0' S=0.0111 '/' Capacity=47.72 cfs Outflow=12.16 cfs 2.931 af

Reach R1I: Avg. Flow Depth=1.88' Max Vel=1.41 fps Inflow=11.23 cfs 2.399 af
n=0.070 L=240.0' S=0.0042 '/' Capacity=29.22 cfs Outflow=11.21 cfs 2.399 af

Reach R1J: Avg. Flow Depth=1.40' Max Vel=4.32 fps Inflow=20.16 cfs 2.646 af
n=0.070 L=300.0' S=0.0567 '/' Capacity=42.31 cfs Outflow=20.14 cfs 2.645 af

Reach R1K: Avg. Flow Depth=0.71' Max Vel=4.08 fps Inflow=8.20 cfs 1.781 af
n=0.070 L=110.0' S=0.1091 '/' Capacity=16.76 cfs Outflow=8.20 cfs 1.781 af

Reach R1L: Avg. Flow Depth=1.50' Max Vel=1.00 fps Inflow=5.71 cfs 0.950 af
n=0.070 L=370.0' S=0.0027 '/' Capacity=23.54 cfs Outflow=5.63 cfs 0.950 af

Reach R1M: Avg. Flow Depth=1.63' Max Vel=0.85 fps Inflow=4.84 cfs 0.758 af
n=0.070 L=270.0' S=0.0019 '/' Capacity=16.43 cfs Outflow=4.76 cfs 0.758 af

Reach R1N: Avg. Flow Depth=1.34' Max Vel=1.02 fps Inflow=3.66 cfs 0.516 af
n=0.070 L=140.0' S=0.0036 '/' Capacity=18.62 cfs Outflow=3.64 cfs 0.516 af

Reach R1P: Avg. Flow Depth=1.12' Max Vel=2.61 fps Inflow=7.35 cfs 1.447 af
n=0.070 L=420.0' S=0.0286 '/' Capacity=23.92 cfs Outflow=7.32 cfs 1.447 af

Reach R2A: Avg. Flow Depth=0.62' Max Vel=0.99 fps Inflow=13.17 cfs 3.826 af
n=0.030 L=600.0' S=0.0008 '/' Capacity=498.29 cfs Outflow=13.02 cfs 3.826 af

Reach R2B: Avg. Flow Depth=0.40' Max Vel=0.87 fps Inflow=7.34 cfs 1.805 af
n=0.030 L=360.0' S=0.0011 '/' Capacity=575.38 cfs Outflow=7.28 cfs 1.805 af

Reach R2C: Avg. Flow Depth=1.32' Max Vel=1.72 fps Inflow=7.36 cfs 1.805 af
n=0.100 L=440.0' S=0.0195 '/' Capacity=17.39 cfs Outflow=7.34 cfs 1.805 af

Reach R2D: Avg. Flow Depth=1.37' Max Vel=1.83 fps Inflow=7.00 cfs 1.494 af
n=0.100 L=770.0' S=0.0227 '/' Capacity=14.93 cfs Outflow=6.92 cfs 1.494 af

Reach R2E: Avg. Flow Depth=1.17' Max Vel=1.76 fps Inflow=6.35 cfs 2.022 af
n=0.100 L=550.0' S=0.0236 '/' Capacity=19.13 cfs Outflow=6.33 cfs 2.022 af

Reach R2F: Avg. Flow Depth=1.19' Max Vel=1.64 fps Inflow=6.01 cfs 1.707 af
n=0.100 L=200.0' S=0.0200 '/' Capacity=17.60 cfs Outflow=6.00 cfs 1.707 af

Reach R2G: Avg. Flow Depth=0.34' Max Vel=0.91 fps Inflow=0.55 cfs 0.066 af
n=0.100 L=550.0' S=0.0291 '/' Capacity=4.71 cfs Outflow=0.48 cfs 0.066 af

Reach R2H: Avg. Flow Depth=0.59' Max Vel=1.09 fps Inflow=1.43 cfs 0.196 af
n=0.100 L=570.0' S=0.0211 '/' Capacity=4.00 cfs Outflow=1.32 cfs 0.196 af

Reach R30: Avg. Flow Depth=1.18' Max Vel=1.92 fps Inflow=6.99 cfs 1.655 af
n=0.100 L=360.0' S=0.0278 '/' Capacity=20.74 cfs Outflow=6.98 cfs 1.655 af

Reach R30A: Avg. Flow Depth=1.23' Max Vel=1.76 fps Inflow=6.81 cfs 1.571 af
n=0.100 L=180.0' S=0.0222 '/' Capacity=18.55 cfs Outflow=6.80 cfs 1.571 af

Reach R30B: Avg. Flow Depth=0.35' Max Vel=1.10 fps Inflow=0.62 cfs 0.084 af
n=0.100 L=100.0' S=0.0400 '/' Capacity=5.52 cfs Outflow=0.62 cfs 0.084 af

Reach R30C: Avg. Flow Depth=0.18' Max Vel=0.70 fps Inflow=2.95 cfs 0.474 af
n=0.100 L=110.0' S=0.0273 '/' Capacity=74.87 cfs Outflow=2.94 cfs 0.474 af

Reach R31: Avg. Flow Depth=0.49' Max Vel=1.19 fps Inflow=1.21 cfs 0.144 af
n=0.100 L=540.0' S=0.0315 '/' Capacity=4.89 cfs Outflow=1.10 cfs 0.144 af

Reach RIE: Avg. Flow Depth=1.52' Max Vel=3.29 fps Inflow=32.59 cfs 7.853 af
n=0.030 L=370.0' S=0.0041 '/' Capacity=192.45 cfs Outflow=32.57 cfs 7.853 af

Reach SP#1: Study Point #1 Inflow=68.97 cfs 26.521 af
Outflow=68.97 cfs 26.521 af

Reach SP#2: Study Point #2 Inflow=139.58 cfs 52.218 af
Outflow=139.58 cfs 52.218 af

Reach SP#3: Study Point #3 Inflow=27.60 cfs 5.597 af
Outflow=27.60 cfs 5.597 af

Reach SP4: Study Point #4 Inflow=5.35 cfs 0.873 af
Outflow=5.35 cfs 0.873 af

Reach SP5: Study Point #5 Inflow=2.66 cfs 0.427 af
Outflow=2.66 cfs 0.427 af

Pond C-1: (new Pond) Peak Elev=76.44' Storage=1,813 cf Inflow=12.66 cfs 2.367 af
Outflow=12.26 cfs 2.367 af

Pond C-2: CULVERT Peak Elev=86.25' Storage=9,056 cf Inflow=32.85 cfs 7.871 af
Outflow=32.59 cfs 7.853 af

Pond C-3: CULVERT Peak Elev=97.11' Storage=1,389 cf Inflow=11.27 cfs 2.399 af
Outflow=11.23 cfs 2.399 af

Pond C-4: CULVERT Peak Elev=96.94' Storage=225 cf Inflow=6.82 cfs 1.571 af
Outflow=6.81 cfs 1.571 af

Pond C-5: CULVERT Peak Elev=96.86' Storage=137 cf Inflow=6.02 cfs 1.707 af
Outflow=6.01 cfs 1.707 af

Pond C-6: CULVERT Peak Elev=106.46' Storage=3,297 cf Inflow=7.27 cfs 1.494 af
Outflow=7.00 cfs 1.494 af

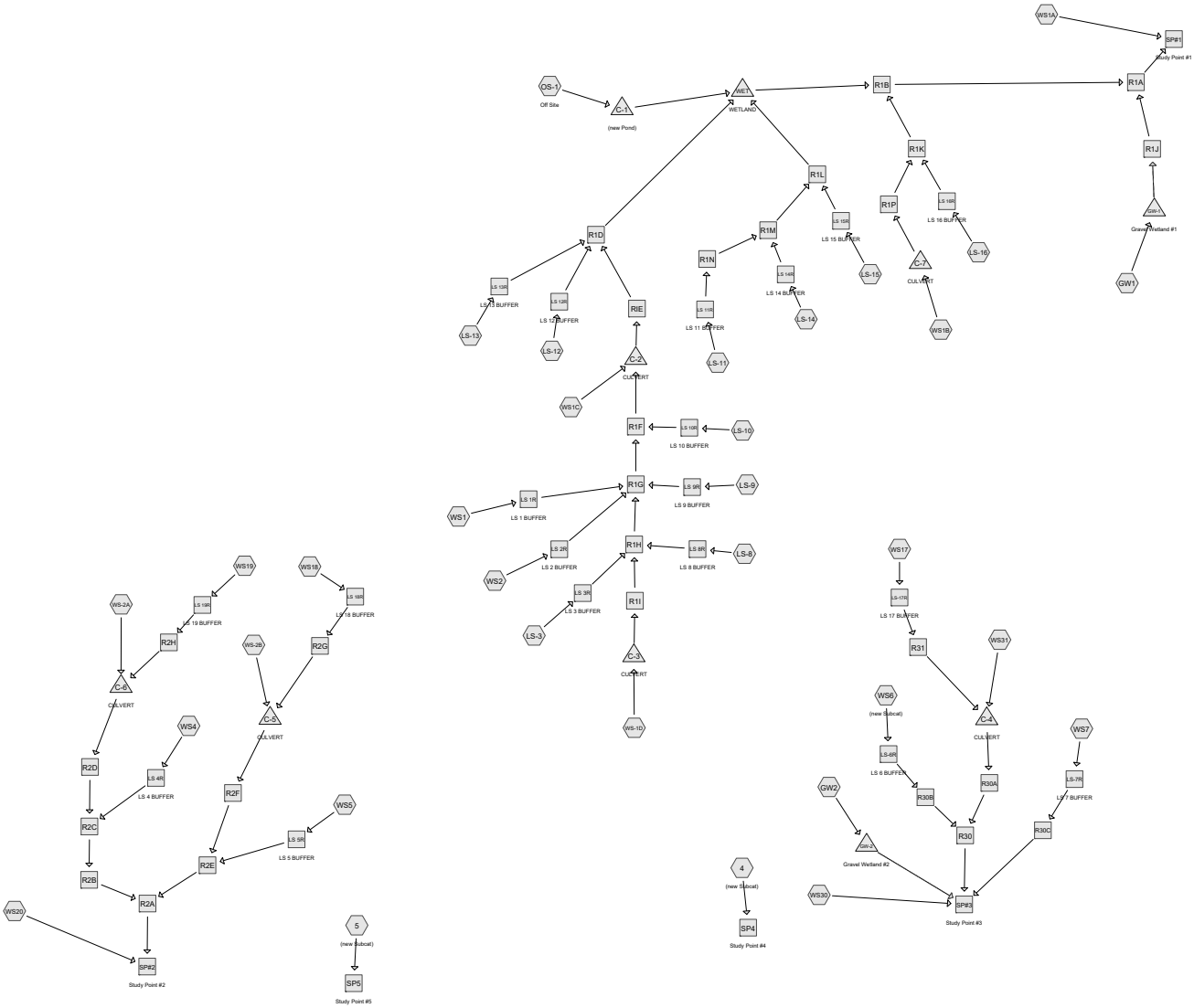
Pond C-7: CULVERT Peak Elev=93.99' Storage=74 cf Inflow=7.35 cfs 1.447 af
Outflow=7.35 cfs 1.447 af

Pond GW-1: Gravel Wetland #1 Peak Elev=85.02' Storage=33,655 cf Inflow=21.36 cfs 3.161 af
Primary=0.04 cfs 0.090 af Secondary=20.12 cfs 2.556 af Outflow=20.16 cfs 2.646 af

Pond GW-2: Gravel Wetland #2 Peak Elev=88.36' Storage=25,259 cf Inflow=17.95 cfs 1.541 af
Primary=7.87 cfs 1.245 af Secondary=0.00 cfs 0.000 af Outflow=7.87 cfs 1.245 af

Pond WET: WETLAND Peak Elev=76.09' Storage=165,059 cf Inflow=49.74 cfs 11.588 af
Outflow=27.12 cfs 11.557 af

Total Runoff Area = 450.275 ac Runoff Volume = 86.505 af Average Runoff Depth = 2.31"
95.41% Pervious = 429.588 ac 4.59% Impervious = 20.686 ac



Subcat Reach Pond Link

Routing Diagram for 21-13 POST
Prepared by Terradyn Consultants, LLC, Printed 11/8/2022
HydroCAD® 10.00-26 s/n 10466 © 2020 HydroCAD Software Solutions LLC

Time span=5.00-40.00 hrs, dt=0.01 hrs, 3501 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 4: (new Subcat) Runoff Area=192,646 sf 5.19% Impervious Runoff Depth=3.45"
Flow Length=480' Tc=49.6 min CN=75 Runoff=7.85 cfs 1.273 af

Subcatchment 5: (new Subcat) Runoff Area=113,637 sf 0.00% Impervious Runoff Depth=2.96"
Flow Length=320' Slope=0.0300 '/' Tc=46.6 min CN=70 Runoff=4.09 cfs 0.645 af

Subcatchment GW1: Runoff Area=552,670 sf 31.77% Impervious Runoff Depth=4.17"
Flow Length=1,090' Tc=42.0 min CN=82 Runoff=29.66 cfs 4.411 af

Subcatchment GW2: Runoff Area=317,270 sf 29.70% Impervious Runoff Depth=3.65"
Flow Length=560' Tc=11.7 min UI Adjusted CN=77 Runoff=25.87 cfs 2.218 af

Subcatchment LS-10: Runoff Area=81,466 sf 27.01% Impervious Runoff Depth=3.55"
Flow Length=440' Tc=8.9 min UI Adjusted CN=76 Runoff=7.05 cfs 0.554 af

Subcatchment LS-11: Runoff Area=90,223 sf 38.17% Impervious Runoff Depth=4.17"
Flow Length=700' Tc=32.2 min CN=82 Runoff=5.51 cfs 0.720 af

Subcatchment LS-12: Runoff Area=17,750 sf 32.03% Impervious Runoff Depth=4.17"
Flow Length=150' Slope=0.0800 '/' Tc=7.7 min CN=82 Runoff=1.86 cfs 0.142 af

Subcatchment LS-13: Runoff Area=69,679 sf 21.63% Impervious Runoff Depth=3.45"
Flow Length=650' Tc=46.2 min UI Adjusted CN=75 Runoff=2.95 cfs 0.460 af

Subcatchment LS-14: Runoff Area=49,725 sf 27.60% Impervious Runoff Depth=3.65"
Flow Length=370' Tc=7.5 min UI Adjusted CN=77 Runoff=4.64 cfs 0.348 af

Subcatchment LS-15: Runoff Area=34,750 sf 30.94% Impervious Runoff Depth=4.07"
Tc=7.5 min CN=81 Runoff=3.59 cfs 0.270 af

Subcatchment LS-16: Runoff Area=68,793 sf 29.37% Impervious Runoff Depth=3.65"
Flow Length=600' Tc=13.3 min UI Adjusted CN=77 Runoff=5.36 cfs 0.481 af

Subcatchment LS-3: Runoff Area=35,656 sf 25.98% Impervious Runoff Depth=3.55"
Flow Length=300' Tc=11.9 min UI Adjusted CN=76 Runoff=2.81 cfs 0.242 af

Subcatchment LS-8: Runoff Area=75,146 sf 28.74% Impervious Runoff Depth=3.65"
Flow Length=640' Tc=11.5 min UI Adjusted CN=77 Runoff=6.16 cfs 0.525 af

Subcatchment LS-9: Runoff Area=56,874 sf 32.58% Impervious Runoff Depth=4.17"
Flow Length=550' Tc=9.5 min CN=82 Runoff=5.62 cfs 0.454 af

Subcatchment OS-1: Off Site Runoff Area=583,385 sf 5.16% Impervious Runoff Depth=3.16"
Flow Length=1,097' Tc=61.7 min CN=72 Runoff=19.16 cfs 3.524 af

Subcatchment WS-1D: Runoff Area=638,889 sf 2.45% Impervious Runoff Depth=2.96"
Flow Length=1,500' Tc=74.2 min UI Adjusted CN=70 Runoff=17.37 cfs 3.624 af

Subcatchment WS-2A: Runoff Area=296,906 sf 6.09% Impervious Runoff Depth=3.35"
Flow Length=720' Tc=68.6 min UI Adjusted CN=74 Runoff=9.69 cfs 1.905 af

Subcatchment WS-2B: Runoff Area=8.619 ac 8.26% Impervious Runoff Depth=3.35"
Flow Length=1,000' Tc=113.5 min UI Adjusted CN=74 Runoff=8.80 cfs 2.409 af

Subcatchment WS1: Runoff Area=51,519 sf 4.08% Impervious Runoff Depth=3.26"
Flow Length=230' Tc=9.1 min UI Adjusted CN=73 Runoff=4.06 cfs 0.321 af

Subcatchment WS17: Runoff Area=26,816 sf 33.23% Impervious Runoff Depth=3.96"
Tc=6.0 min CN=80 Runoff=2.85 cfs 0.203 af

Subcatchment WS18: Runoff Area=9,900 sf 54.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=87 Runoff=1.22 cfs 0.089 af

Subcatchment WS19: Runoff Area=34,250 sf 33.91% Impervious Runoff Depth=4.17"
Flow Length=180' Tc=9.3 min CN=82 Runoff=3.40 cfs 0.273 af

Subcatchment WS1A: Runoff Area=2,700,581 sf 3.76% Impervious Runoff Depth=3.06"
Flow Length=3,337' Tc=135.7 min CN=71 Runoff=50.21 cfs 15.813 af

Subcatchment WS1B: Runoff Area=356,623 sf 4.37% Impervious Runoff Depth=3.16"
Flow Length=770' Tc=67.4 min UI Adjusted CN=72 Runoff=11.07 cfs 2.154 af

Subcatchment WS1C: Runoff Area=16.775 ac 8.55% Impervious Runoff Depth=3.26"
Flow Length=870' Tc=78.0 min UI Adjusted CN=73 Runoff=21.40 cfs 4.551 af

Subcatchment WS2: Runoff Area=230,676 sf 9.01% Impervious Runoff Depth=3.16"
Flow Length=726' Tc=41.6 min UI Adjusted CN=72 Runoff=9.42 cfs 1.393 af

Subcatchment WS20: Runoff Area=245.185 ac 0.23% Impervious Runoff Depth=3.45"
Flow Length=5,272' Tc=172.1 min CN=75 Runoff=192.80 cfs 70.555 af

Subcatchment WS30: Runoff Area=569,331 sf 3.69% Impervious Runoff Depth=3.06"
Flow Length=650' Tc=51.6 min UI Adjusted CN=71 Runoff=20.02 cfs 3.334 af

Subcatchment WS31: Runoff Area=8.074 ac 1.71% Impervious Runoff Depth=3.16"
Flow Length=707' Tc=80.3 min UI Adjusted CN=72 Runoff=9.79 cfs 2.125 af

Subcatchment WS4: Runoff Area=49,650 sf 47.43% Impervious Runoff Depth=4.49"
Tc=7.5 min CN=85 Runoff=5.58 cfs 0.427 af

Subcatchment WS5: Runoff Area=51,750 sf 40.24% Impervious Runoff Depth=4.38"
Tc=7.5 min CN=84 Runoff=5.70 cfs 0.434 af

Subcatchment WS6: (new Subcat) Runoff Area=14,742 sf 34.62% Impervious Runoff Depth=4.17"
Tc=6.0 min CN=82 Runoff=1.64 cfs 0.118 af

Subcatchment WS7: Runoff Area=104,548 sf 25.09% Impervious Runoff Depth=3.45"
Flow Length=580' Tc=37.4 min UI Adjusted CN=75 Runoff=4.96 cfs 0.691 af

Reach LS 10R: LS 10 BUFFER Avg. Flow Depth=0.25' Max Vel=0.25 fps Inflow=7.05 cfs 0.554 af
n=0.800 L=100.0' S=0.1200 '/' Capacity=63.30 cfs Outflow=6.02 cfs 0.554 af

Reach LS 11R: LS 11 BUFFER Avg. Flow Depth=0.39' Max Vel=0.15 fps Inflow=5.51 cfs 0.720 af
n=0.800 L=84.0' S=0.0238 '/' Capacity=25.94 cfs Outflow=5.15 cfs 0.720 af

Reach LS 12R: LS 12 BUFFER Avg. Flow Depth=0.33' Max Vel=0.07 fps Inflow=1.86 cfs 0.142 af
n=0.800 L=150.0' S=0.0067 '/' Capacity=6.06 cfs Outflow=0.80 cfs 0.141 af

Reach LS 13R: LS 13 BUFFER Avg. Flow Depth=0.43' Max Vel=0.11 fps Inflow=2.95 cfs 0.460 af
n=0.800 L=150.0' S=0.0120 '/' Capacity=11.06 cfs Outflow=2.43 cfs 0.460 af

Reach LS 14R: LS 14 BUFFER Avg. Flow Depth=0.30' Max Vel=0.18 fps Inflow=4.64 cfs 0.348 af
n=0.800 L=110.0' S=0.0545 '/' Capacity=28.21 cfs Outflow=3.50 cfs 0.348 af

Reach LS 15R: LS 15 BUFFER Avg. Flow Depth=0.32' Max Vel=0.18 fps Inflow=3.59 cfs 0.270 af
n=0.800 L=110.0' S=0.0545 '/' Capacity=21.48 cfs Outflow=2.71 cfs 0.270 af

Reach LS 16R: LS 16 BUFFER Avg. Flow Depth=0.28' Max Vel=0.22 fps Inflow=5.36 cfs 0.481 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=38.26 cfs Outflow=4.25 cfs 0.481 af

Reach LS 18R: LS 18 BUFFER Avg. Flow Depth=0.20' Max Vel=0.17 fps Inflow=1.22 cfs 0.089 af
n=0.800 L=150.0' S=0.0867 '/' Capacity=16.68 cfs Outflow=0.78 cfs 0.089 af

Reach LS 19R: LS 19 BUFFER Avg. Flow Depth=0.25' Max Vel=0.13 fps Inflow=3.40 cfs 0.273 af
n=0.800 L=150.0' S=0.0333 '/' Capacity=23.37 cfs Outflow=2.12 cfs 0.273 af

Reach LS 1R: LS 1 BUFFER Avg. Flow Depth=0.21' Max Vel=0.15 fps Inflow=4.06 cfs 0.321 af
n=0.800 L=150.0' S=0.0533 '/' Capacity=37.98 cfs Outflow=2.62 cfs 0.321 af

Reach LS 2R: LS 2 BUFFER Avg. Flow Depth=0.91' Max Vel=0.26 fps Inflow=9.42 cfs 1.393 af
n=0.800 L=135.0' S=0.0370 '/' Capacity=10.91 cfs Outflow=8.98 cfs 1.393 af

Reach LS 3R: LS 3 BUFFER Avg. Flow Depth=0.26' Max Vel=0.18 fps Inflow=2.81 cfs 0.242 af
n=0.800 L=90.0' S=0.0667 '/' Capacity=26.06 cfs Outflow=2.37 cfs 0.242 af

Reach LS 4R: LS 4 BUFFER Avg. Flow Depth=0.28' Max Vel=0.19 fps Inflow=5.58 cfs 0.427 af
n=0.800 L=80.0' S=0.0625 '/' Capacity=41.11 cfs Outflow=4.67 cfs 0.427 af

Reach LS 5R: LS 5 BUFFER Avg. Flow Depth=0.29' Max Vel=0.19 fps Inflow=5.70 cfs 0.434 af
n=0.800 L=80.0' S=0.0625 '/' Capacity=41.11 cfs Outflow=4.77 cfs 0.434 af

Reach LS 8R: LS 8 BUFFER Avg. Flow Depth=0.26' Max Vel=0.21 fps Inflow=6.16 cfs 0.525 af
n=0.800 L=95.0' S=0.0842 '/' Capacity=53.03 cfs Outflow=5.31 cfs 0.525 af

Reach LS 9R: LS 9 BUFFER Avg. Flow Depth=0.29' Max Vel=0.20 fps Inflow=5.62 cfs 0.454 af
n=0.800 L=130.0' S=0.0654 '/' Capacity=37.38 cfs Outflow=4.29 cfs 0.454 af

Reach LS-17R: LS 17 BUFFER Avg. Flow Depth=0.29' Max Vel=0.17 fps Inflow=2.85 cfs 0.203 af
n=0.800 L=150.0' S=0.0533 '/' Capacity=17.13 cfs Outflow=1.82 cfs 0.203 af

Reach LS-6R: LS 6 BUFFER Avg. Flow Depth=0.19' Max Vel=0.12 fps Inflow=1.64 cfs 0.118 af
n=0.800 L=150.0' S=0.0467 '/' Capacity=17.94 cfs Outflow=0.92 cfs 0.118 af

Reach LS-7R: LS 7 BUFFER Avg. Flow Depth=0.32' Max Vel=0.18 fps Inflow=4.96 cfs 0.691 af
n=0.800 L=150.0' S=0.0467 '/' Capacity=31.58 cfs Outflow=4.46 cfs 0.691 af

Reach R1A: Avg. Flow Depth=1.88' Max Vel=4.39 fps Inflow=56.55 cfs 23.602 af
n=0.030 L=860.0' S=0.0058 '/' Capacity=230.46 cfs Outflow=56.53 cfs 23.597 af

Reach R1B: Avg. Flow Depth=1.91' Max Vel=5.07 fps Inflow=47.62 cfs 19.712 af
n=0.030 L=1,640.0' S=0.0090 '/' Capacity=51.80 cfs Outflow=47.55 cfs 19.707 af

Reach R1D: Avg. Flow Depth=1.07' Max Vel=1.17 fps Inflow=50.89 cfs 12.248 af
n=0.100 L=260.0' S=0.0077 '/' Capacity=371.57 cfs Outflow=50.80 cfs 12.248 af

Reach R1F: Avg. Flow Depth=1.44' Max Vel=5.77 fps Inflow=28.53 cfs 7.113 af
n=0.030 L=280.0' S=0.0179 '/' Capacity=30.96 cfs Outflow=28.52 cfs 7.113 af

Reach R1G: Avg. Flow Depth=2.17' Max Vel=2.77 fps Inflow=27.36 cfs 6.559 af
n=0.070 L=220.0' S=0.0136 '/' Capacity=52.87 cfs Outflow=27.35 cfs 6.559 af

Reach R1H: Avg. Flow Depth=1.89' Max Vel=2.31 fps Inflow=18.55 cfs 4.391 af
n=0.070 L=180.0' S=0.0111 '/' Capacity=47.72 cfs Outflow=18.55 cfs 4.391 af

Reach R1I: Avg. Flow Depth=2.32' Max Vel=1.59 fps Inflow=17.27 cfs 3.624 af
n=0.070 L=240.0' S=0.0042 '/' Capacity=29.22 cfs Outflow=17.25 cfs 3.624 af

Reach R1J: Avg. Flow Depth=1.66' Max Vel=4.76 fps Inflow=28.75 cfs 3.895 af
n=0.070 L=300.0' S=0.0567 '/' Capacity=42.31 cfs Outflow=28.73 cfs 3.894 af

Reach R1K: Avg. Flow Depth=0.86' Max Vel=4.59 fps Inflow=12.25 cfs 2.635 af
n=0.070 L=110.0' S=0.1091 '/' Capacity=16.76 cfs Outflow=12.25 cfs 2.635 af

Reach R1L: Avg. Flow Depth=1.78' Max Vel=1.10 fps Inflow=8.13 cfs 1.338 af
n=0.070 L=370.0' S=0.0027 '/' Capacity=23.54 cfs Outflow=8.06 cfs 1.338 af

Reach R1M: Avg. Flow Depth=1.94' Max Vel=0.93 fps Inflow=6.85 cfs 1.068 af
n=0.070 L=270.0' S=0.0019 '/' Capacity=16.43 cfs Outflow=6.76 cfs 1.068 af

Reach R1N: Avg. Flow Depth=1.59' Max Vel=1.11 fps Inflow=5.15 cfs 0.720 af
n=0.070 L=140.0' S=0.0036 '/' Capacity=18.62 cfs Outflow=5.13 cfs 0.720 af

Reach R1P: Avg. Flow Depth=1.37' Max Vel=2.92 fps Inflow=11.07 cfs 2.154 af
n=0.070 L=420.0' S=0.0286 '/' Capacity=23.92 cfs Outflow=11.05 cfs 2.154 af

Reach R2A: Avg. Flow Depth=0.78' Max Vel=1.14 fps Inflow=19.31 cfs 5.537 af
n=0.030 L=600.0' S=0.0008 '/' Capacity=498.29 cfs Outflow=19.14 cfs 5.537 af

Reach R2B: Avg. Flow Depth=0.50' Max Vel=1.01 fps Inflow=10.69 cfs 2.605 af
n=0.030 L=360.0' S=0.0011 '/' Capacity=575.38 cfs Outflow=10.63 cfs 2.605 af

Reach R2C: Avg. Flow Depth=1.58' Max Vel=1.90 fps Inflow=10.72 cfs 2.605 af
n=0.100 L=440.0' S=0.0195 '/' Capacity=17.39 cfs Outflow=10.69 cfs 2.605 af

Reach R2D: Avg. Flow Depth=1.65' Max Vel=2.02 fps Inflow=10.23 cfs 2.178 af
n=0.100 L=770.0' S=0.0227 '/' Capacity=14.93 cfs Outflow=10.13 cfs 2.178 af

Reach R2E: Avg. Flow Depth=1.41' Max Vel=1.96 fps Inflow=9.37 cfs 2.932 af
n=0.100 L=550.0' S=0.0236 '/' Capacity=19.13 cfs Outflow=9.33 cfs 2.932 af

Reach R2F: Avg. Flow Depth=1.44' Max Vel=1.83 fps Inflow=8.92 cfs 2.498 af
n=0.100 L=200.0' S=0.0200 '/' Capacity=17.60 cfs Outflow=8.91 cfs 2.498 af

Reach R2G: Avg. Flow Depth=0.40' Max Vel=1.00 fps Inflow=0.78 cfs 0.089 af
n=0.100 L=550.0' S=0.0291 '/' Capacity=4.71 cfs Outflow=0.67 cfs 0.089 af

Reach R2H: Avg. Flow Depth=0.71' Max Vel=1.22 fps Inflow=2.12 cfs 0.273 af
n=0.100 L=570.0' S=0.0211 '/' Capacity=4.00 cfs Outflow=1.96 cfs 0.273 af

Reach R30: Avg. Flow Depth=1.43' Max Vel=2.15 fps Inflow=10.44 cfs 2.445 af
n=0.100 L=360.0' S=0.0278 '/' Capacity=20.74 cfs Outflow=10.43 cfs 2.445 af

Reach R30A: Avg. Flow Depth=1.50' Max Vel=1.97 fps Inflow=10.21 cfs 2.328 af
n=0.100 L=180.0' S=0.0222 '/' Capacity=18.55 cfs Outflow=10.21 cfs 2.328 af

Reach R30B: Avg. Flow Depth=0.43' Max Vel=1.23 fps Inflow=0.92 cfs 0.118 af
n=0.100 L=100.0' S=0.0400 '/' Capacity=5.52 cfs Outflow=0.92 cfs 0.118 af

Reach R30C: Avg. Flow Depth=0.22' Max Vel=0.81 fps Inflow=4.46 cfs 0.691 af
n=0.100 L=110.0' S=0.0273 '/' Capacity=74.87 cfs Outflow=4.44 cfs 0.691 af

Reach R31: Avg. Flow Depth=0.60' Max Vel=1.34 fps Inflow=1.82 cfs 0.203 af
n=0.100 L=540.0' S=0.0315 '/' Capacity=4.89 cfs Outflow=1.65 cfs 0.203 af

Reach RIE: Avg. Flow Depth=1.90' Max Vel=3.69 fps Inflow=48.34 cfs 11.647 af
n=0.030 L=370.0' S=0.0041 '/' Capacity=192.45 cfs Outflow=48.32 cfs 11.647 af

Reach SP#1: Study Point #1 Inflow=105.12 cfs 39.410 af
Outflow=105.12 cfs 39.410 af

Reach SP#2: Study Point #2 Inflow=205.10 cfs 76.092 af
Outflow=205.10 cfs 76.092 af

Reach SP#3: Study Point #3 Inflow=43.58 cfs 8.391 af
Outflow=43.58 cfs 8.391 af

Reach SP4: Study Point #4 Inflow=7.85 cfs 1.273 af
Outflow=7.85 cfs 1.273 af

Reach SP5: Study Point #5 Inflow=4.09 cfs 0.645 af
Outflow=4.09 cfs 0.645 af

Pond C-1: (new Pond) Peak Elev=76.95' Storage=6,799 cf Inflow=19.16 cfs 3.524 af
Outflow=16.77 cfs 3.524 af

Pond C-2: CULVERT Peak Elev=87.04' Storage=15,041 cf Inflow=49.15 cfs 11.664 af
Outflow=48.34 cfs 11.647 af

Pond C-3: CULVERT Peak Elev=97.48' Storage=2,389 cf Inflow=17.37 cfs 3.624 af
Outflow=17.27 cfs 3.624 af

Pond C-4: CULVERT Peak Elev=97.24' Storage=322 cf Inflow=10.22 cfs 2.328 af
Outflow=10.21 cfs 2.328 af

Pond C-5: CULVERT Peak Elev=97.13' Storage=215 cf Inflow=8.93 cfs 2.498 af
Outflow=8.92 cfs 2.498 af

Pond C-6: CULVERT Peak Elev=106.74' Storage=5,095 cf Inflow=10.67 cfs 2.178 af
Outflow=10.23 cfs 2.178 af

Pond C-7: CULVERT Peak Elev=94.31' Storage=115 cf Inflow=11.07 cfs 2.154 af
Outflow=11.07 cfs 2.154 af

Pond GW-1: Gravel Wetland #1 Peak Elev=85.16' Storage=36,206 cf Inflow=29.66 cfs 4.411 af
Primary=0.04 cfs 0.093 af Secondary=28.71 cfs 3.802 af Outflow=28.75 cfs 3.895 af

Pond GW-2: Gravel Wetland #2 Peak Elev=88.87' Storage=32,206 cf Inflow=25.87 cfs 2.218 af
Primary=13.31 cfs 1.921 af Secondary=0.00 cfs 0.000 af Outflow=13.31 cfs 1.921 af

Pond WET: WETLAND Peak Elev=76.79' Storage=237,521 cf Inflow=71.48 cfs 17.110 af
Outflow=41.69 cfs 17.077 af

Total Runoff Area = 450.275 ac Runoff Volume = 126.683 af Average Runoff Depth = 3.38"
95.41% Pervious = 429.588 ac 4.59% Impervious = 20.686 ac

Attachment 7

Pond Spillway Checks – 25 & 100 Year

Summary for Subcatchment GW1:

Runoff = 29.66 cfs @ 12.56 hrs, Volume= 4.411 af, Depth= 4.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
	175,605	98	Unconnected pavement, HSG C
	336,145	74	>75% Grass cover, Good, HSG C
	12,920	70	Woods, Good, HSG C
*	28,000	74	Stormwater Pond
	552,670	82	Weighted Average
	377,065		68.23% Pervious Area
	175,605		31.77% Impervious Area
	175,605		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.5	150	0.0530	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.30"
3.9	140	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	800	0.0050	3.72	4.57	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
42.0	1,090	Total			

Summary for Subcatchment GW2:

Runoff = 25.87 cfs @ 12.16 hrs, Volume= 2.218 af, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Adj	Description
	94,229	98		Unconnected pavement, HSG C
	182,121	74		>75% Grass cover, Good, HSG C
	12,920	70		Woods, Good, HSG C
*	28,000	74		Stormwater Pond
	317,270	81	77	Weighted Average, UI Adjusted
	223,041			70.30% Pervious Area
	94,229			29.70% Impervious Area
	94,229			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	150	0.0460	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.9	135	0.0270	2.46		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.2	275	0.0050	3.72	4.57	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
11.7	560	Total			

Summary for Pond GW-1: Gravel Wetland #1

Inflow Area = 12.688 ac, 31.77% Impervious, Inflow Depth = 4.17" for 25-yr event
Inflow = 29.66 cfs @ 12.56 hrs, Volume= 4.411 af
Outflow = 28.75 cfs @ 12.66 hrs, Volume= 3.856 af, Atten= 3%, Lag= 5.9 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Secondary = 28.75 cfs @ 12.66 hrs, Volume= 3.856 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 85.16' @ 12.66 hrs Surf.Area= 18,653 sf Storage= 36,219 cf

Plug-Flow detention time= 96.9 min calculated for 3.855 af (87% of inflow)
Center-of-Mass det. time= 39.9 min (880.9 - 841.0)

Volume	Invert	Avail.Storage	Storage Description
#1	83.00'	73,266 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.00	14,600	0	0
84.00	16,600	15,600	15,600
84.50	17,600	8,550	24,150
84.51	18,000	178	24,328
86.00	19,500	27,937	52,266
87.00	22,500	21,000	73,266

Device	Routing	Invert	Outlet Devices
#1	Primary	82.67'	**12.0" Round Culvert X 0.00** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 82.67' / 79.50' S= 0.0634 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	80.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#3	Device 2	80.75'	**4.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 80.75' / 80.00' S= 0.0469 '/' Cc= 0.900 n= 0.012, Flow Area= 0.09 sf
#4	Device 3	83.00'	**2.400 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.67'
#5	Secondary	84.50'	**20.0' long x 13.0' 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) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=83.00' TW=76.00' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)
└─**2=Orifice/Grate** (Passes 0.00 cfs of 0.02 cfs potential flow)
└─**3=Culvert** (Passes 0.00 cfs of 0.19 cfs potential flow)
└─**4=Exfiltration** (Passes 0.00 cfs of 0.81 cfs potential flow)

Secondary OutFlow Max=28.75 cfs @ 12.66 hrs HW=85.16' TW=77.66' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Weir Controls 28.75 cfs @ 2.18 fps)

Summary for Pond GW-2: Gravel Wetland #2

Inflow Area =	7.284 ac, 29.70% Impervious, Inflow Depth = 3.65" for 25-yr event				
Inflow =	25.87 cfs @	12.16 hrs, Volume=	2.218 af		
Outflow =	14.15 cfs @	12.38 hrs, Volume=	1.435 af, Atten= 45%, Lag= 13.4 min		
Primary =	0.00 cfs @	5.00 hrs, Volume=	0.000 af		
Secondary =	14.15 cfs @	12.38 hrs, Volume=	1.435 af		

Routing by Dyn-Stor-Ind method, Time Span= 5.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 89.36' @ 12.38 hrs Surf.Area= 15,116 sf Storage= 39,406 cf

Plug-Flow detention time= 183.0 min calculated for 1.434 af (65% of inflow)
Center-of-Mass det. time= 81.0 min (906.4 - 825.5)

Volume	Invert	Avail.Storage	Storage Description
#1	86.00'	56,332 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
86.00	8,336	0	0
87.00	10,008	9,172	9,172
88.00	12,781	11,395	20,567
89.00	14,329	13,555	34,122
90.40	17,400	22,210	56,332

Device	Routing	Invert	Outlet Devices
#1	Primary	85.67'	**18.0" Round Culvert X 0.00** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 85.67' / 82.50' S= 0.0634 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	87.50'	**3.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)
#3	Device 2	86.50'	**24.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 86.50' / 86.30' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#4	Device 1	83.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#5	Device 4	83.75'	**4.0" Round Culvert** L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.75' / 83.00' S= 0.0094 '/' Cc= 0.900 n= 0.012, Flow Area= 0.09 sf

#6	Device 5	86.00'	**2.400 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 85.67'
#7	Secondary	89.00'	**25.0' long x 13.0' 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) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=86.00' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)
  ├─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)
  │ └─**3=Culvert** (Controls 0.00 cfs)
  └─**4=Orifice/Grate** (Passes 0.00 cfs of 0.02 cfs potential flow)
    └─**5=Culvert** (Passes 0.00 cfs of 0.12 cfs potential flow)
      └─**6=Exfiltration** (Passes 0.00 cfs of 0.46 cfs potential flow)

Secondary OutFlow Max=14.14 cfs @ 12.38 hrs HW=89.36' TW=0.00' (Dynamic Tailwater)
└─**7=Broad-Crested Rectangular Weir** (Weir Controls 14.14 cfs @ 1.58 fps)

Summary for Subcatchment GW1:

Runoff = 45.78 cfs @ 12.55 hrs, Volume= 6.901 af, Depth> 6.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.70"

	Area (sf)	CN	Description
	175,605	98	Unconnected pavement, HSG C
	336,145	74	>75% Grass cover, Good, HSG C
	12,920	70	Woods, Good, HSG C
*	28,000	74	Stormwater Pond
	552,670	82	Weighted Average
	377,065		68.23% Pervious Area
	175,605		31.77% Impervious Area
	175,605		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.5	150	0.0530	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.30"
3.9	140	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	800	0.0050	3.72	4.57	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
42.0	1,090	Total			

Summary for Subcatchment GW2:

Runoff = 41.55 cfs @ 12.16 hrs, Volume= 3.593 af, Depth= 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.70"

	Area (sf)	CN	Adj	Description
	94,229	98		Unconnected pavement, HSG C
	182,121	74		>75% Grass cover, Good, HSG C
	12,920	70		Woods, Good, HSG C
*	28,000	74		Stormwater Pond
	317,270	81	77	Weighted Average, UI Adjusted
	223,041			70.30% Pervious Area
	94,229			29.70% Impervious Area
	94,229			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	150	0.0460	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.9	135	0.0270	2.46		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.2	275	0.0050	3.72	4.57	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
11.7	560	Total			

Summary for Pond GW-1: Gravel Wetland #1

Inflow Area = 12.688 ac, 31.77% Impervious, Inflow Depth > 6.53" for 100-yr event
Inflow = 45.78 cfs @ 12.55 hrs, Volume= 6.901 af
Outflow = 44.64 cfs @ 12.64 hrs, Volume= 6.385 af, Atten= 2%, Lag= 4.9 min
Primary = 0.04 cfs @ 12.64 hrs, Volume= 0.097 af
Secondary = 44.60 cfs @ 12.64 hrs, Volume= 6.287 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 85.39' @ 12.64 hrs Surf.Area= 18,886 sf Storage= 40,559 cf

Plug-Flow detention time= 78.5 min calculated for 6.385 af (93% of inflow)
Center-of-Mass det. time= 39.4 min (867.9 - 828.5)

Volume	Invert	Avail.Storage	Storage Description
#1	83.00'	73,266 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.00	14,600	0	0
84.00	16,600	15,600	15,600
84.50	17,600	8,550	24,150
84.51	18,000	178	24,328
86.00	19,500	27,937	52,266
87.00	22,500	21,000	73,266

Device	Routing	Invert	Outlet Devices
#1	Primary	82.67'	**12.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 82.67' / 79.50' S= 0.0634 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	80.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#3	Device 2	80.75'	**4.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 80.75' / 80.00' S= 0.0469 '/' Cc= 0.900 n= 0.012, Flow Area= 0.09 sf
#4	Device 3	83.00'	**2.400 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.67'
#5	Secondary	84.50'	**20.0' long x 13.0' 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) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=0.04 cfs @ 12.64 hrs HW=85.39' TW=78.05' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.04 cfs of 5.63 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 7.94 fps)
└─**3=Culvert** (Passes 0.04 cfs of 0.55 cfs potential flow)
└─**4=Exfiltration** (Passes 0.04 cfs of 7.28 cfs potential flow)

Secondary OutFlow Max=44.59 cfs @ 12.64 hrs HW=85.39' TW=78.05' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Weir Controls 44.59 cfs @ 2.51 fps)

Summary for Pond GW-2: Gravel Wetland #2

Inflow Area = 7.284 ac, 29.70% Impervious, Inflow Depth = 5.92" for 100-yr event
Inflow = 41.55 cfs @ 12.16 hrs, Volume= 3.593 af
Outflow = 34.37 cfs @ 12.24 hrs, Volume= 3.296 af, Atten= 17%, Lag= 5.0 min
Primary = 14.56 cfs @ 12.24 hrs, Volume= 2.844 af
Secondary = 19.82 cfs @ 12.24 hrs, Volume= 0.452 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 89.35' @ 12.24 hrs Surf.Area= 15,042 sf Storage= 39,214 cf

Plug-Flow detention time= 102.3 min calculated for 3.296 af (92% of inflow)
Center-of-Mass det. time= 60.2 min (872.0 - 811.8)

Volume	Invert	Avail.Storage	Storage Description
#1	86.00'	54,485 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
86.00	8,336	0	0
87.00	10,008	9,172	9,172
88.00	12,781	11,395	20,567
89.00	14,329	13,555	34,122
90.30	17,000	20,364	54,485

Device	Routing	Invert	Outlet Devices
#1	Primary	85.67'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 85.67' / 82.50' S= 0.0634 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	87.50'	**3.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)
#3	Device 2	86.50'	**24.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 86.50' / 86.30' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#4	Device 1	83.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#5	Device 4	83.75'	**4.0" Round Culvert** L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.75' / 83.00' S= 0.0094 '/' Cc= 0.900 n= 0.012, Flow Area= 0.09 sf

#6	Device 5	86.00'	**2.400 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 85.67'
#7	Secondary	88.90'	**25.0' long x 13.0' 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) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=14.56 cfs @ 12.24 hrs HW=89.35' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 14.56 cfs @ 8.24 fps)
  ├─**2=Sharp-Crested Vee/Trap Weir** (Passes < 24.65 cfs potential flow)
  │ └─**3=Culvert** (Passes < 16.23 cfs potential flow)
  └─**4=Orifice/Grate** (Passes < 0.05 cfs potential flow)
    └─**5=Culvert** (Passes < 0.40 cfs potential flow)
      └─**6=Exfiltration** (Passes < 6.09 cfs potential flow)

Secondary OutFlow Max=19.80 cfs @ 12.24 hrs HW=89.35' TW=0.00' (Dynamic Tailwater)
└─**7=Broad-Crested Rectangular Weir** (Weir Controls 19.80 cfs @ 1.77 fps)

Attachment 8

Maintenance & Inspection of Stormwater Facilities

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

Portland
565 Congress Street, Suite 201
Portland, ME 04101

HIDDEN HILLS MHP
BIDDEFORD, MAINE
STORMWATER MANAGEMENT SYSTEM INSEPCTION & MAINTENANCE PLAN

Project Owner/Developer: South Street Village, LLC
762 Main Street
South Portland, ME 04106

Responsible Party: Homeowners Association or General Contractor
TBD

Prepared By: Jeffery Amos, P.E.
Terradyn Consultants, LLC
41 Campus Drive, Suite 101
New Gloucester, Maine 04260
(207) 926-5111

INTRODUCTION:

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

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

INSPECTION TASKS

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

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

3. Inspect **culverts** in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet.

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

5. Inspect **grassed underdrained soil filter** semi-annually and following major storm events. Debris and sediment buildup shall be removed from the forebay and basin as needed. Mowing of grassed basin can occur semi-annually to a height of no less than 6-inches. Any bare area or erosion rills shall be repaired with new filter media or sandy loam then seeded and mulched. Maintaining good grass cover will minimize clogging with fine sediments and if ponding exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration capacity.

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

7. Inspect **resource and treatment buffers** once a year for evidence of erosion, concentrating flow, and encroachment by development. If flows are concentrating within a buffer, site grading, level spreaders, or ditch turn-outs must be used to ensure a more even distribution of flow into a buffer. Check down slope of all spreaders and turn-outs for erosion. If erosion is present, adjust or modify the spreader or turnout lip to ensure a better distribution of flow into a buffer. Clean-out any accumulation of sediment within the spreader bays or turn-out pools.

Recertification requirement:

Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the Department.

(a) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.

(b) All aspects of the stormwater control system are operating as approved, have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system, as necessary.

(c) The stormwater maintenance plan for the site is being implemented as approved by the Department, and the maintenance log is being maintained.

(d) All proprietary systems have been maintained according to the manufacturer's recommendations. Where required by the Department, the permittee shall execute a 5-year maintenance contract with a qualified professional for the coming 5-year interval. The maintenance contract must include provisions for routine inspections, cleaning and general maintenance.

(e) The Department may waive some or all of these recertification requirements on a case-by-case basis for permittees subject to the Department's Multi-Sector General Permit ("MSGP") and/or Maine Pollutant Discharge Elimination System ("MEPDES") programs where it is demonstrated that these programs are providing stormwater control that is at least as effective as required pursuant to this Chapter.

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

1. Inspection schedule:

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

b. Inspect culverts in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet.

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

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

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

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

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

Roadway Surfaces:

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

Catch Basin Systems:

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

Vegetated Swales:

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

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

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

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

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

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

Level Lip Spreader:

Long term maintenance of the level spreader is essential to ensure its effectiveness. Spreaders constructed of wood, asphalt, stone or concrete curbing also require inspection and maintenance.

1. **Inspections:** At least once a year and following major storms (one inch of rain in 24 hours), the level spreader pools should be inspected for sand accumulation and debris that may reduce its capacity.
2. **Sediment Removal:** Sediment build-up should be removed when it has accumulated to approximately 25% of design volume or channel capacity. Dispose of the sediments appropriately.
3. **Debris:** Remove debris such as leaf litter, branches and tree growth.
4. **Mowing:** Vegetated spreaders may require mowing.
5. **Snow Storage:** Do not store snow within the area of the level spreaders.
6. **Level Spreader Replacement:** The reconstruction of the level spreader may be necessary when sheet flow from the spreader channelize into the buffer.

Vegetated Buffers:

1. **Mowing:** Meadow buffers may be mown no more than twice per year. They may not be maintained as a lawn.

2. **Inspection Frequency:** Buffers should be inspected annually for evidence of erosion or concentrated flows through or around the buffer. All eroded areas should be repaired, seeded

and mulched. A shallow stone trench should be installed and maintained as a level spreader to distribute flows evenly in any area showing concentrated flows.

3. **Access and Use:** Buffers should not be traversed by all-terrain vehicles or other vehicles. Activities within buffers should be conducted so as not to damage vegetation, disturb any organic duff layer, and expose soil.

4. **Snow Storage:** Do not store snow within the buffer area.

5. **Model Maintenance Plan:** The following techniques should be followed to maintain the integrity of buffers from initial planning through post-construction (Schueler, 1994):

a. Planning Stage:
i. Require buffer limits to be present on all clearing/grading and erosion control plans

ii. Record all buffer boundaries on official maps and site plans.

iii. Clearly establish acceptable and unacceptable uses for the buffer, and include in deed restrictions and conservation easements.

iv. Establish clear vegetation targets and management rules for the buffer.

v. Provide incentives for owners protect buffers through perpetual conservation easements rather than deed restrictions.

b. Construction Stage:
i. Pre-construction stakeout of buffers to define the Limit of Disturbance (LOD). ii. Set LOD based on drip-line of the forested buffer.

iii. Conduct pre-construction meeting to familiarize contractors and foremen with LOD and buffer limit.

iv. Mark the LOD with silt fence barrier, signs or other methods to exclude construction equipment.

c. Post-Development Stage:
i. Mark buffer boundaries with permanent signs (or fences) describing allowable uses.

ii. Educate property owners/homeowner associations on the purpose, limits and allowable uses of the buffer.

iii. Conduct periodic "buffer walks" to inspect the condition of the buffer network (using volunteers, where possible).

iv. Replant unused meadow buffers with trees and shrubs, if possible.

6. **Tree Removal**: Any removal of trees or other vegetation within the Restricted Buffer Area must be limited to the following:

   (i) No purposefully cleared openings may be created and an evenly distributed stand of trees and other vegetation must be maintained. An "evenly distributed stand of trees" is defined as maintaining a minimum rating score of 24 points in any 25-foot by 50-foot rectangle (1,250 square feet) area, as determined by the rating scheme in Table 11:

Table 11.

Point System for Determining an Evenly

Distributed Stand of Trees

Diameter of tree at 4½ feet above ground level	**Points**
2 - 4 inches	1
4 - 8 inches	2
8 - 12 inches	4
>12 inches	8

Where existing trees and other vegetation result in a rating score less than 24 points, no trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;

   (ii) No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;

DOCUMENTATION

Keep a log (report) summarizing inspections, maintenance, and any corrective actions taken. The log must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed after removal. The log must be made accessible to Department of Environmental Protection staff and a copy provided to the Department upon request. The permittee shall retain a copy of the log for a period of at least five years from the completion of permanent stabilization.

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

ATTACHMENTS:
Stormwater Management Facilities Inspection & Maintenance Log

Stormwater Management Facilities
Inspection & Maintenance Log
Hidden Hills MHP

General Information:

Inspected by:	Date:	Weather:

Reason for Inspection: (Regular Inspection) (Major Rain Event)

BMP	Conditions Observed	Repairs Needed?
1. Vegetated Areas		
2. Ditches, Swales, Open Channels		
3. Culverts		
4. Roof Drain Filter Strip		
5. Gravel Wetland		
6. Catch Basin		
7. Vegetated Buffers		
8. Level Lip Spreader		

Detailed Repair Notes:

BMP Type	Date	Description of Repairs & Sediment Disposal

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

Attachment 9

Housekeeping Plan

HIDDEN HILLS MHP
BIDDEFORD, MAINE
HOUSEKEEPING PLAN

Project Owner/Developer: South Street Village, LLC
762 Main Street
South Portland, ME 04106

Responsible Party: Homeowners Association or General Contractor
TBD

Prepared By: Jeffery Amos, P.E.
Terradyn Consultants, LLC
41 Campus Drive, Suite 101
New Gloucester, Maine 04260
(207) 926-5111

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

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

1. **Spill prevention.** Controls must be used to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

2. **Groundwater protection.** During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

3. **Fugitive sediment and dust.** Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.

Operations during wet months that experience tracking of mud off the site onto public roads should provide for sweeping of road areas at least once a week and prior to significant storm events. Where chronic mud tracking occurs, a stabilized construction entrance should be provided. Operations during dry months, that experience fugitive dust problems, should wet down the access roads once a week or more frequently as needed.

4. **Debris and other materials.** Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

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

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

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

(a) Discharges from firefighting activity;

(b) Fire hydrant flushings;

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

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

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

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

(g) Uncontaminated air conditioning or compressor condensate;

(h) Uncontaminated groundwater or spring water;

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

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

(k) Potable water sources including waterline flushings; and

(l) Landscape irrigation.

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

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

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

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

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

Attachment 10

Sample Buffer Restriction Language

Forms H1-3 SUGGESTED TEMPLATES FOR STORMWATER BUFFER DEED RESTRICTIONS. With some minor revisions the H-1 (Forested buffer, no disturbance) template may be used to protect undisturbed stream buffers.

Forested buffer, No disturbance FORM H-1 04/06

DECLARATION OF RESTRICTIONS (Forested Buffer, No Disturbance)

THIS DECLARATION OF RESTRICTIONS is made this _____day of _____ , 20___,
by _____, _____ ,
(Name) (Street Address)
_____, _____County, Maine, _____ , (herein referred to as the
(City or Town) (County) (Zip Code)
"Declarant", pursuant to a permit received from the Maine Department of Environmental Protection under the Site Location of Development Act, to preserve a buffer area on a parcel of land near _____, _____ .
(Road Name) (Known Feature and/or Town)

WHEREAS, the Declarant holds title to certain real property situated in _____, Maine
(Town)
described in a deed from _____to _____, dated
(Name) (Name of Declarant)
_____, 20____, and recorded in Book ____ Page ____ at the _____County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer location here)

WHEREAS, pursuant to the Site Location of Development Act, 38 M.R.S.A. §§ 481-490, and Department Rules for stormwater management, Chapter 500, promulgated by the Maine Board of Environmental Protection, Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties

having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. Restrictions on Restricted Buffer Area. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Site Location of Development Act and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material will be placed, stored or dumped on the Restricted Buffer Area, nor shall the topography of the area be altered or manipulated in any way;

b. No trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;

c. No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;

d. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole or fence;

e. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area;

f. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. Enforcement. The MDEP may enforce any of the Restrictions set forth in Section 1 above.

3. Binding Effect. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. Amendment. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.

5. Effective Provisions of Declaration. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.

6. Severability. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. Governing Law. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

_____

(Name)

STATE OF MAINE, _____County, dated _____, 20__.
(County)

Personally appeared before me the above named _____, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

_____
Notary Public

1. Forested buffer, limited disturbance

DECLARATION OF RESTRICTIONS (Forested Buffer, Limited Disturbance)

THIS DECLARATION OF RESTRICTIONS is made this _____day of _____, 20___, by _____ , _____,
(Name) (Street Address)
_____, _____County, Maine, _____, (herein referred to as the
(City or Town) (County) (Zip Code)
"Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Site Location of Development Act to preserve a buffer area on a parcel of land near _____,_____ .
(Road Name) (Known Feature and/or Town)

WHEREAS, the Declarant holds title to certain real property situated in _____, Maine
(Town)
described in a deed from_____ to _____dated
(Name) (Name of Declarant)
_____, 20____, and recorded in Book ____ Page ____ at the _____County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer area location here)

WHEREAS, pursuant to the Site Location of Development Act, 38 M.R.S.A. §§ 481-490, and Department Rules for stormwater management, Chapter 500, promulgated by the Maine Board of Environmental Protection, Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. Restrictions on Restricted Buffer Area. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and

absorb stormwater, and to maintain compliance with the Site Location of Development Act and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material may be placed, stored or dumped on the Restricted Buffer Area, nor may the topography of the area be altered or manipulated in any way;

b. Any removal of trees or other vegetation within the Restricted Buffer Area must be limited to the following:

(i) No purposefully cleared openings may be created and an evenly distributed stand of trees and other vegetation must be maintained. An "evenly distributed stand of trees " is defined as maintaining a minimum rating score of 24 points in any 25 foot by 50 foot square (2500 square feet) area, as determined by the following rating scheme:

Diameter of tree at 4½ feet above ground level	**Points**
2 - 4 inches	1
4 - 8 inches	2
8 - 12 inches	4
>12 inches	8

Where existing trees and other vegetation result in a rating score less than 24 points, no trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;

(ii) No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;

c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole or fence;

d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area;

e. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. Enforcement. The MDEP may enforce any of the Restrictions set forth in Section 1 above.

3. Binding Effect. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. Amendment. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.

5. Effective Provisions of Declaration. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.

6. Severability. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. Governing Law. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

(Name)

_____

STATE OF MAINE
_____ County, _____, 20__.
(County) (Date)

Personally appeared before me the above named _____, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

_____

Notary Public

_____

DECLARATION OF RESTRICTIONS (Non-Wooded Meadow Buffer)

THIS DECLARATION OF RESTRICTIONS is made this _____day of _____, 20___, by
_____, _____
(Name) (Street Address)
_____, _____County, Maine,_____, (herein referred to as the
(City or Town) (County) (Zip Code)
"Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Site Location of Development Act, to preserve a buffer area on a parcel of land near
_____, _____ .
(Road Name) (known feature and/or town)

WHEREAS, the Declarant holds title to certain real property situated in _____, Maine
(Town)
described in a deed from_____to _____, dated
(Name) (Name of Declarant)
_____, 20____, and recorded in Book ____ Page ____ at the _____County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer location here)

WHEREAS, pursuant to the Site Location of Development Act, 38 M.R.S.A. §§ 481-490 and Department Rules for stormwater management (Chapter 500) promulgated by the Maine Board of Environmental Protection, Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. Restrictions on Restricted Buffer Area. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Site Location of Development Act and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material will be placed, stored or dumped on the Restricted Buffer Area, nor may the topography or the natural mineral soil of the area be altered or manipulated in any way;

b. A dense cover of grassy vegetation must be maintained over the Restricted Buffer Area, except that shrubs, trees and other woody vegetation may also be planted or allowed to grow in the area. The Restricted Buffer Area may not be maintained as a lawn or used as a pasture. If vegetation in the Restricted Buffer Area is mowed, it may be mown no more than two times per year.

c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole or fence;

d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area, except for vehicles used in mowing;

e. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. Enforcement. The MDEP may enforce any of the Restrictions set forth in Section 1 above.

3. Binding Effect. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. Amendment. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.

5. Effective Provisions of Declaration. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.

6. Severability. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. Governing Law. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

_____
(NAME)

STATE OF MAINE, _____, County, dated _____, 20__ .
(County)

Personally appeared before me the above named _____, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

_____

Notary Public

_____

Attachment 11

Pond Test Pits

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

5365

July 21, 2022

Mr. Mark Lazoraitis
Terradyn Consultants, LLC
41 Campus Drive Suite 301
New Gloucester, ME 04260

Re: Soil Test Pit Evaluation, Stormwater Management, South Street Village Biddeford , ME

Dear Mark,

I have completed the evaluation of two hand dug test pits for the proposed stormwater treatment program for the South Street Village Project located on South Street Biddeford, ME. The soil evaluation was conducted in accordance with Section 7.D.4 of the Stormwater Management Rules. Both test pits were dug in the proposed stormwater treatment areas.

The soils evaluated were well drained glacial till over ledge. The limiting factor was 39 inches and 42 inches respectively. The soil test pit log descriptions are attached. The hydrological soil group for all the test pits is noted on the log descriptions. No groundwater was observed in either of the test pits.

If you have any questions or require additional information, please contact me.

Sincerely,

Mark J. Hampton L.S.E., C.S.S.
Licensed Site Evaluator #263
Certified Soil Scientist #216

Enc.

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

Quality services that meet your deadline

5365

PAGE ____ OF ____

FORM F (SS1) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Villages	South Street Villages LLC	Biddeford

Exploration Symbol # STW-1 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches): 0, 10, 20, 30, 40, 50, 60

Horizon	Color	Texture	Structure	Consistence	Redox
AE	Dark Brown	Sandy Loam	Fine Grand	Very Friable	
Bhs	Dusky Red	Sandy Loam	Fine Grand	Friable	
Bs1	Brown	Sandy Loam	Fine Grand	Friable	None Noted
R		LEDGE			

Soil Details

Soil Series/Phase Name:	Limiting Factor	Drainage Class	Slope	Hydric Soil	Hydrologic Soil Group
Lyman-Tunbridge	39 " Depth; ☐ Groundwater ☐ Restrictive Layer ☒ Bedrock	☐ ED ☐ SED ☒ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD	10 Percent	☒ No ☐ Yes	C

Exploration Symbol # STW-2 ☒ Test Pit ☐ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches): 0, 10, 20, 30, 40, 50, 60

Horizon	Color	Texture	Structure	Consistence	Redox
AE	Dark Brown	Sandy Loam	Fine Grand	Very Friable	
Bhs	Dusky Red	Sandy Loam	Grand	Friable	
Bs1	Tan	Sandy Loam	Fine Grand	Friable	None Noted
R		LEDGE			

Soil Details

Soil Series/Phase Name:	Limiting Factor	Drainage Class	Slope	Hydric Soil	Hydrologic Soil Group
Lyman-Tunbridge	42 " Depth; ☐ Groundwater ☐ Restrictive Layer ☒ Bedrock	☐ ED ☐ SED ☒ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD	8 Percent	☒ No ☐ Yes	C

Exploration Symbol # STW-1C ☒ Test Pit ☐ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches): 0, 10, 20, 30, 40, 50, 60

Horizon	Color	Texture	Structure	Consistence	Redox

Soil Details

Soil Series/Phase Name:	Limiting Factor	Drainage Class	Slope	Hydric Soil	Hydrologic Soil Group
	" Depth; ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock	☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD	Percent	☐ No ☐ Yes	

Exploration Symbol # ____ ☐ Test Pit ☐ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☐ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches): 0, 10, 20, 30, 40, 50, 60

Horizon	Color	Texture	Structure	Consistence	Redox

Soil Details

Soil Series/Phase Name:	Limiting Factor	Drainage Class	Slope	Hydric Soil	Hydrologic Soil Group
	" Depth; ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock	☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD	Percent	☐ No ☐ Yes	

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature

Mark J. Hampton
Name Printed

7/21/2022
Date

216
SS License No.

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

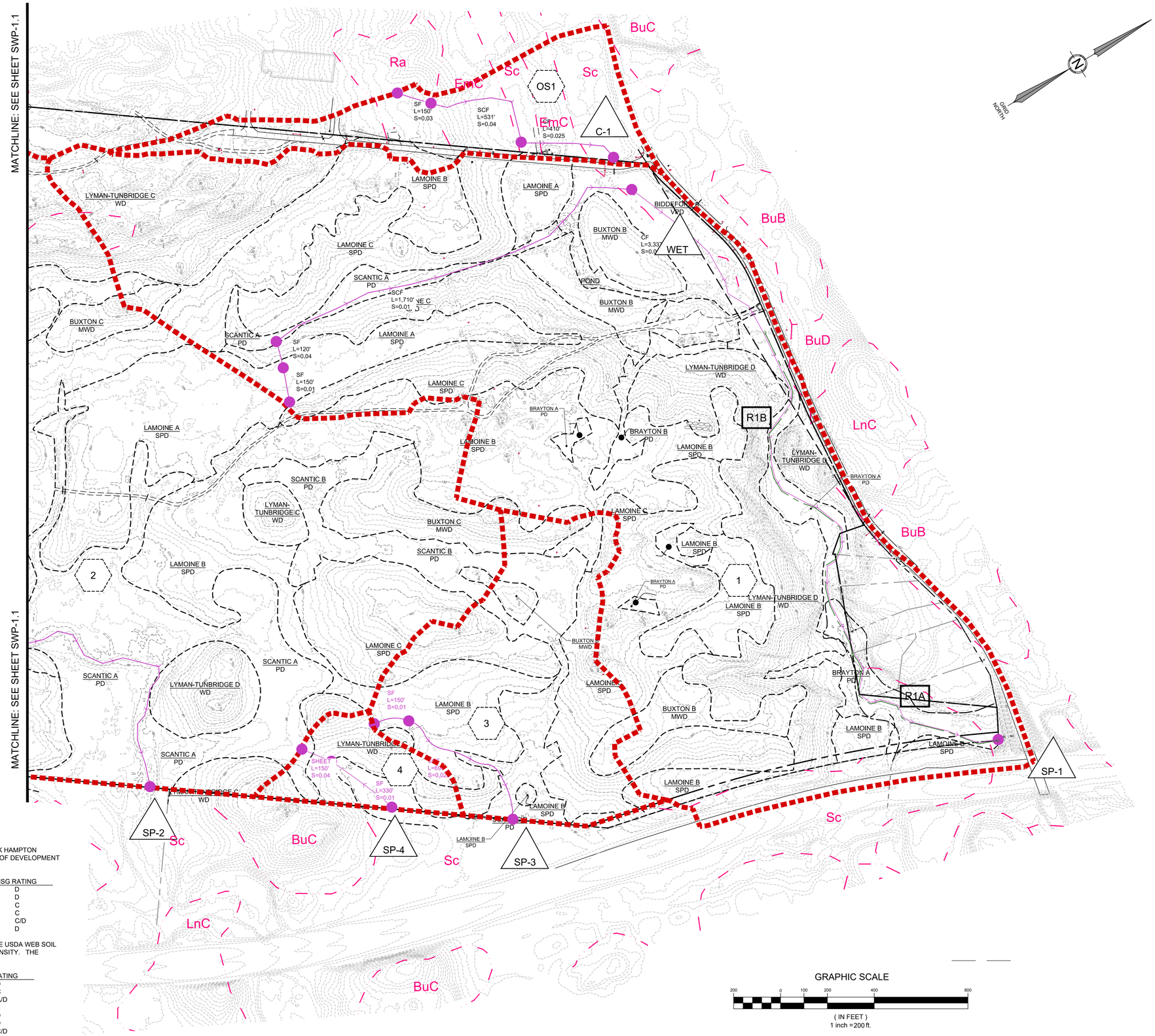
affix professional seal

Attachment 12

Pre & Post Development Watershed Maps

LEGEND

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



SOILS NOTES:

1. ONSITE SOILS OBTAINED FROM CLASS B HIGH INTENSITY SOIL SURVEY CONDUCTED BY MARK HAMPTON ASSOCIATES, DATED 5/6/2021. THE REPORT CAN BE FOUND IN SECTION 11 OF THE SITE LOCATION OF DEVELOPMENT PERMIT APPLICATION. THE SOILS ARE SUMMARIZED BELOW:

MAP UNIT NAME	SLOPE DESIGNATION	DRAINAGE CLASS	HSG RATING
BIDDEFORD	A	VPD	D
BRAYTON	A & B	PD	D
BUXTON	A,B,C & E	MWD	C
LAMOINE	A,B & C	SPD	C
LYMAN-TUNBRIDGE	C & D	WD	C/D
SCANTIC	A & B	PD	D

2. OFFSITE SOILS OBTAINED FROM THE CUMBERLAND COUNTY SOIL SURVEY AS SHOWN ON THE USDA WEB SOIL SURVEY. THE FULL OUTPUT CAN BE FOUND IN SECTION 12. THE SOIL SURVEY IS OF MEDIUM INTENSITY. THE SOILS ARE SUMMARIZED BELOW:

MAP UNIT SYMBOL	MAP UNIT NAME	HSG RATING
BuB	BUXTON SILT LOAM	D
BuC, BuD	BUXTON SILT LOAM	C
Ch	CHOCORUA PEAT	A/D
EmC	ELMWOOD FINE SAND	B
LnB, LnC, LnD	LYMAN LOAM	D
LyB, LyC, LyE	LYMAN ROCK OUTCROP	D
Ra	RAYNHAM SILT LOAM	C/D
Sn	SCANTIC SILT LOAM	D

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	
A	04-13-2022	PRELIMINARY SUBMISSION	

41 CAMPUS DRIVE SUITE 201 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE: PRE-DEVELOPMENT WATERSHED MAP

CLIENT: SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 200'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	SWP-1.0

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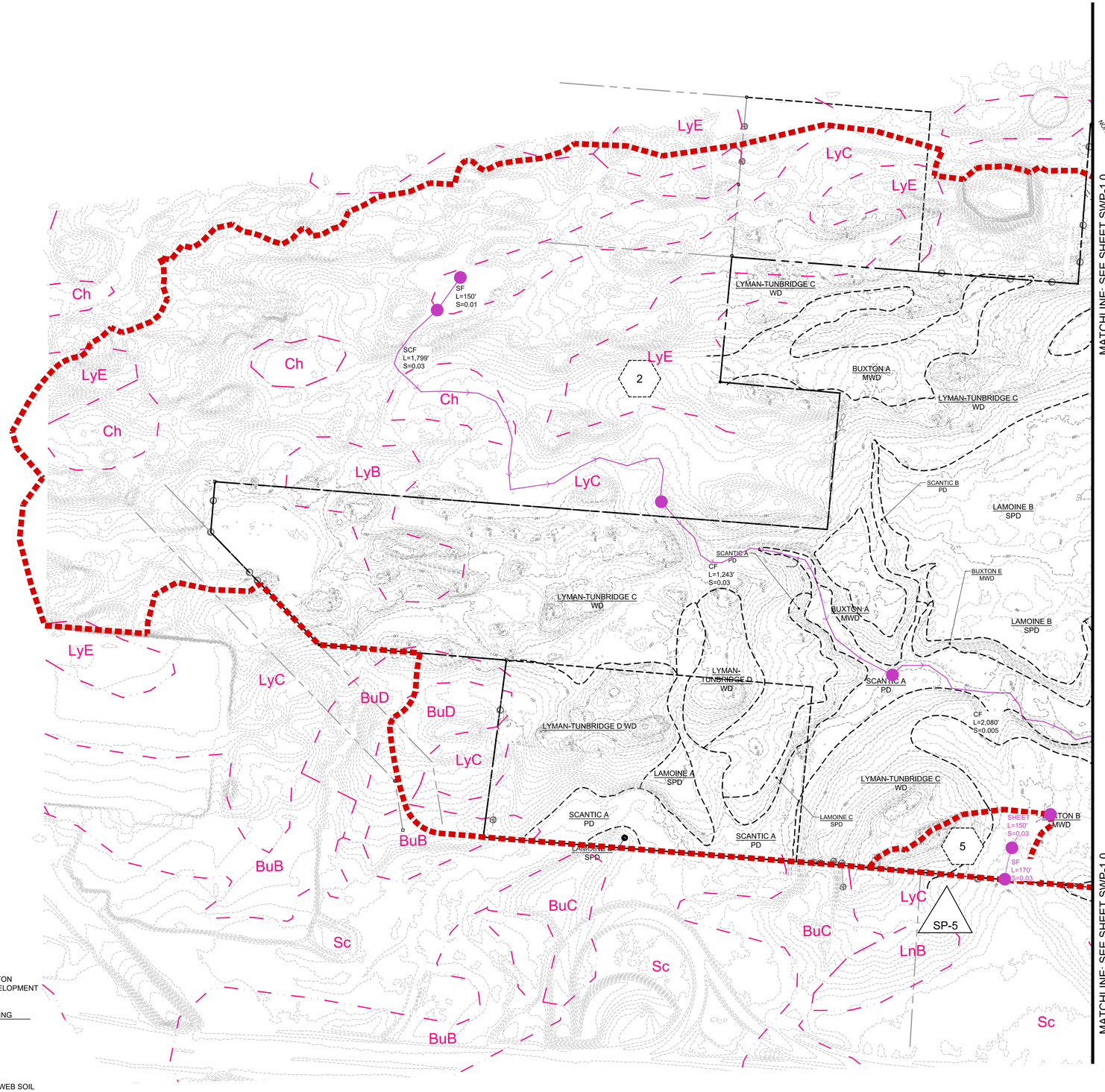
LEGEND

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



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Sn	SCANTIC SILT LOAM	D

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

MATCHLINE: SEE SHEET SWP-1.0

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

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TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE SUITE 201 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 301 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE: PRE-DEVELOPMENT WATERSHED MAP

CLIENT: SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 200'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	SWP-1.1

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LEGEND

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- PRE — WATERSHED LABEL
- 1 — REACH
- CB — CATCH BASIN/POND
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- ADAMS — HIGH INTENSITY SOIL NAME
- MEDIUM INTENSITY SOIL BOUNDARY
- HIGH INTENSITY SOIL BOUNDARY
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- 124 — MINOR CONTOURS
- 124 — MAJOR CONTOURS
- 124 — PROPOSED CONTOURS
- WETLAND BOUNDARY
- PROPOSED FORESTED BUFFER

SOILS NOTES:

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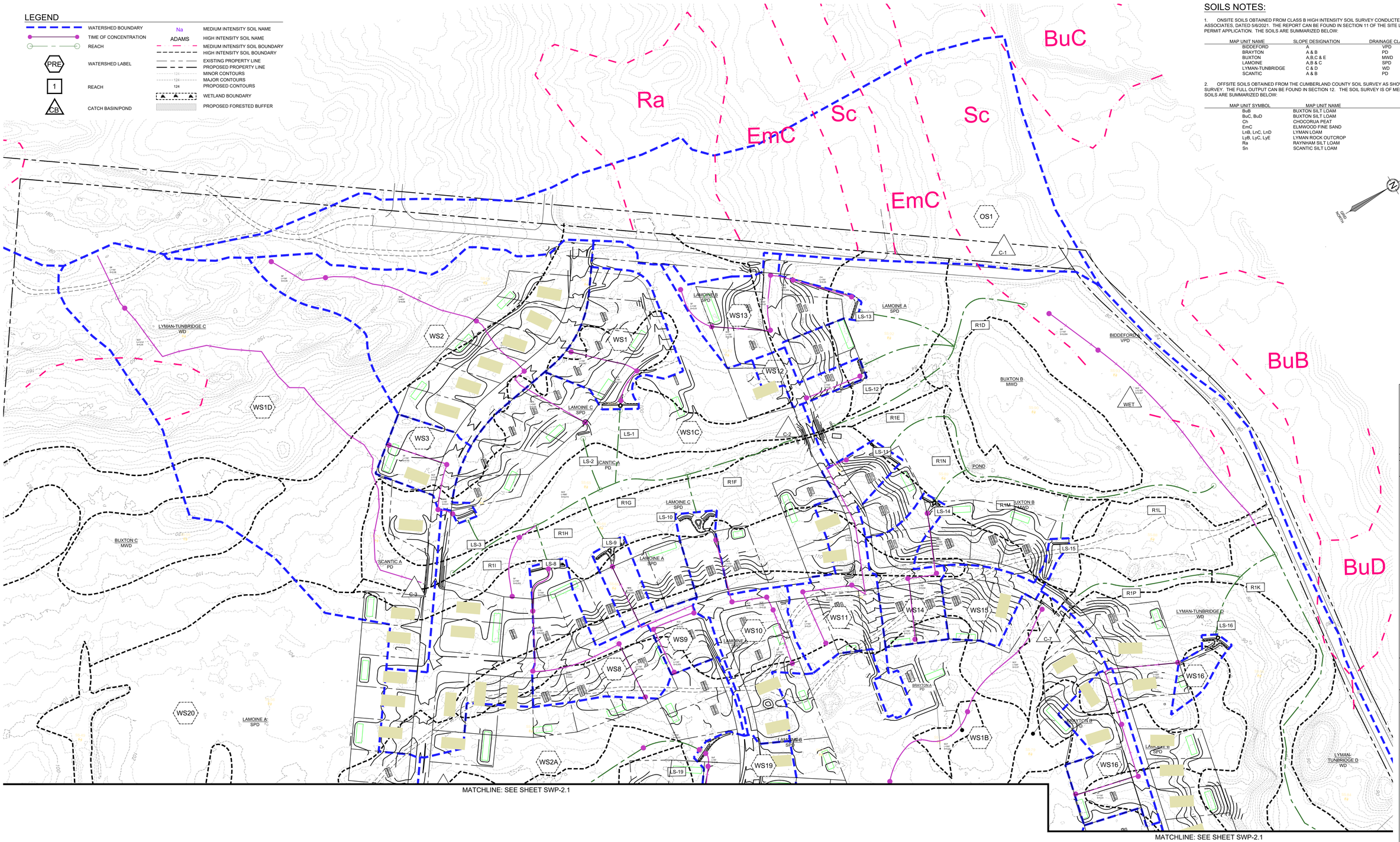

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 11/16/2022
P.E.: Jeffrey D. Amos, # 10167

NO.	DATE	REVISION	BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA

REVISIONS

565 CONGRESS STREET
SUITE 200
PORTLAND, ME 04102
OFFICE: (207) 928-5111 FAX: (207) 221-1317
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41 CAMPUS DRIVE
SUITE 203
NEW GLOUCESTER, ME 04260

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

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
POST-DEVELOPMENT WATERSHED MAP

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1"=80'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	SWP-2.0

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LEGEND

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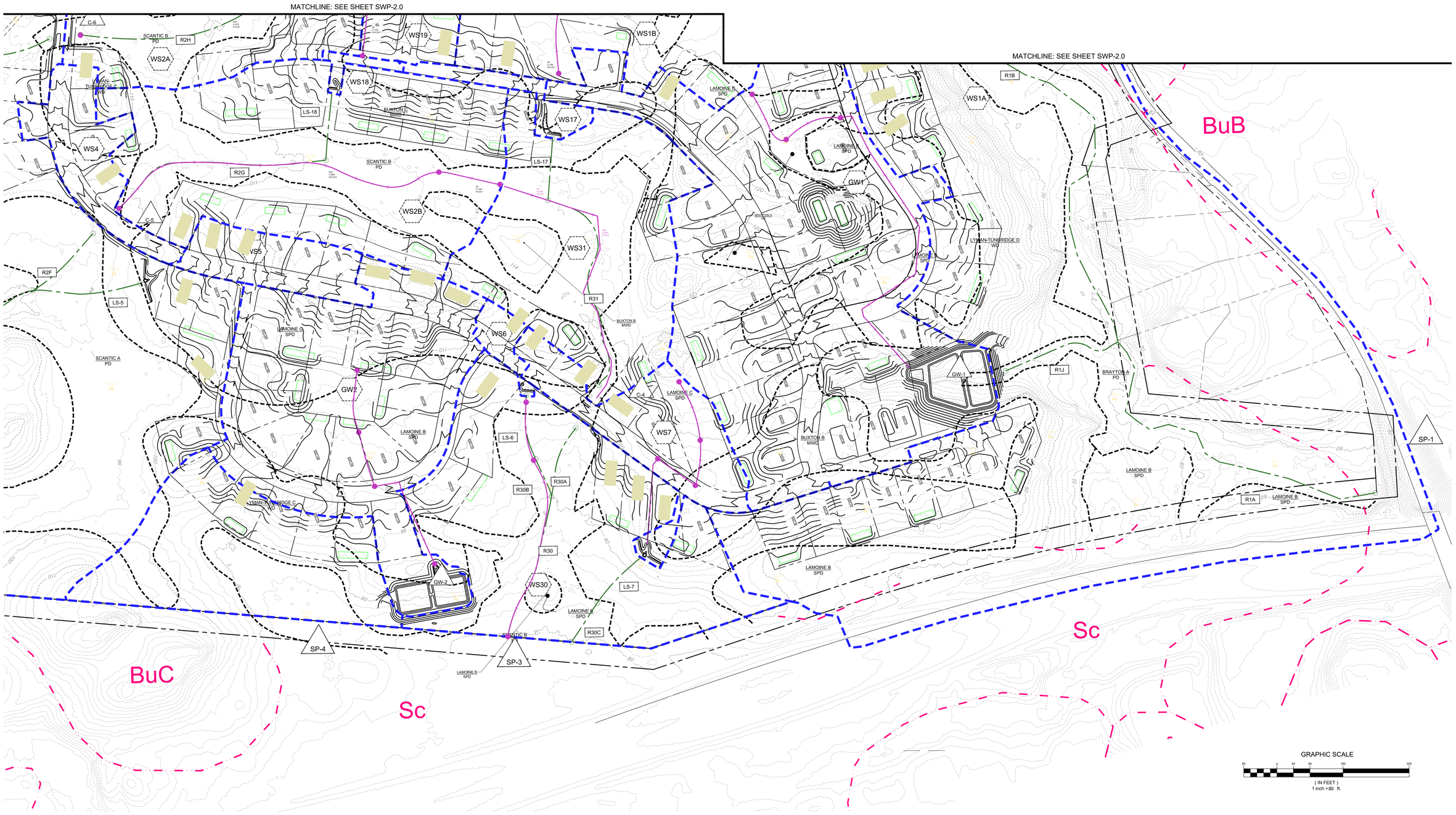

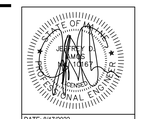

DATE: 8/17/2022

P.E.: JEFFREY D. AMOS, 10167

NO.	DATE	REVISION	BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	

REVISIONS

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting
565 CONGRESS STREET, SUITE 203
PORTLAND, ME 04102
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www.terradynconsultants.com
41 CAMPUS DRIVE, SUITE 203
NEW GLOUCESTER, ME 04260

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
POST-DEVELOPMENT WATERSHED MAP

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1"=80'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	SWP-2.1

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LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION
- PRE — WATERSHED LABEL
- 1 — REACH
- CB — CATCH BASIN
- HIGH INTENSITY SOIL BOUNDARY
- Dixfield C — HIGH INTENSITY SOIL NAME
- MEDIUM INTENSITY SOIL BOUNDARY
- DyB — MEDIUM INTENSITY SOIL NAME
- LEVEL SPREADER 1 AREA
- LEVEL SPREADER 2 AREA
- LEVEL SPREADER 3 AREA
- LEVEL SPREADER 4 AREA
- LEVEL SPREADER 5 AREA
- LEVEL SPREADER 6 AREA
- LEVEL SPREADER 7 AREA
- LEVEL SPREADER 8 AREA
- LEVEL SPREADER 9 AREA
- LEVEL SPREADER 10 AREA
- LEVEL SPREADER 11 AREA
- LEVEL SPREADER 12 AREA
- LEVEL SPREADER 13 AREA
- LEVEL SPREADER 14 AREA
- LEVEL SPREADER 15 AREA
- LEVEL SPREADER 16 AREA
- LEVEL SPREADER 17 AREA
- LEVEL SPREADER 18 AREA
- LEVEL SPREADER 19 AREA
- GRAVEL WETLAND #1 AREA
- GRAVEL WETLAND #2 AREA
- FORESTED BUFFER AREA
- ROOF DRAIN FILTER STRIP DRAINAGE AREA

SOILS NOTES:

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STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE:	11/16/2022
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PERMIT DRAWING
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
TREATMENT MAP

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1"=100'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	SWP-3.0

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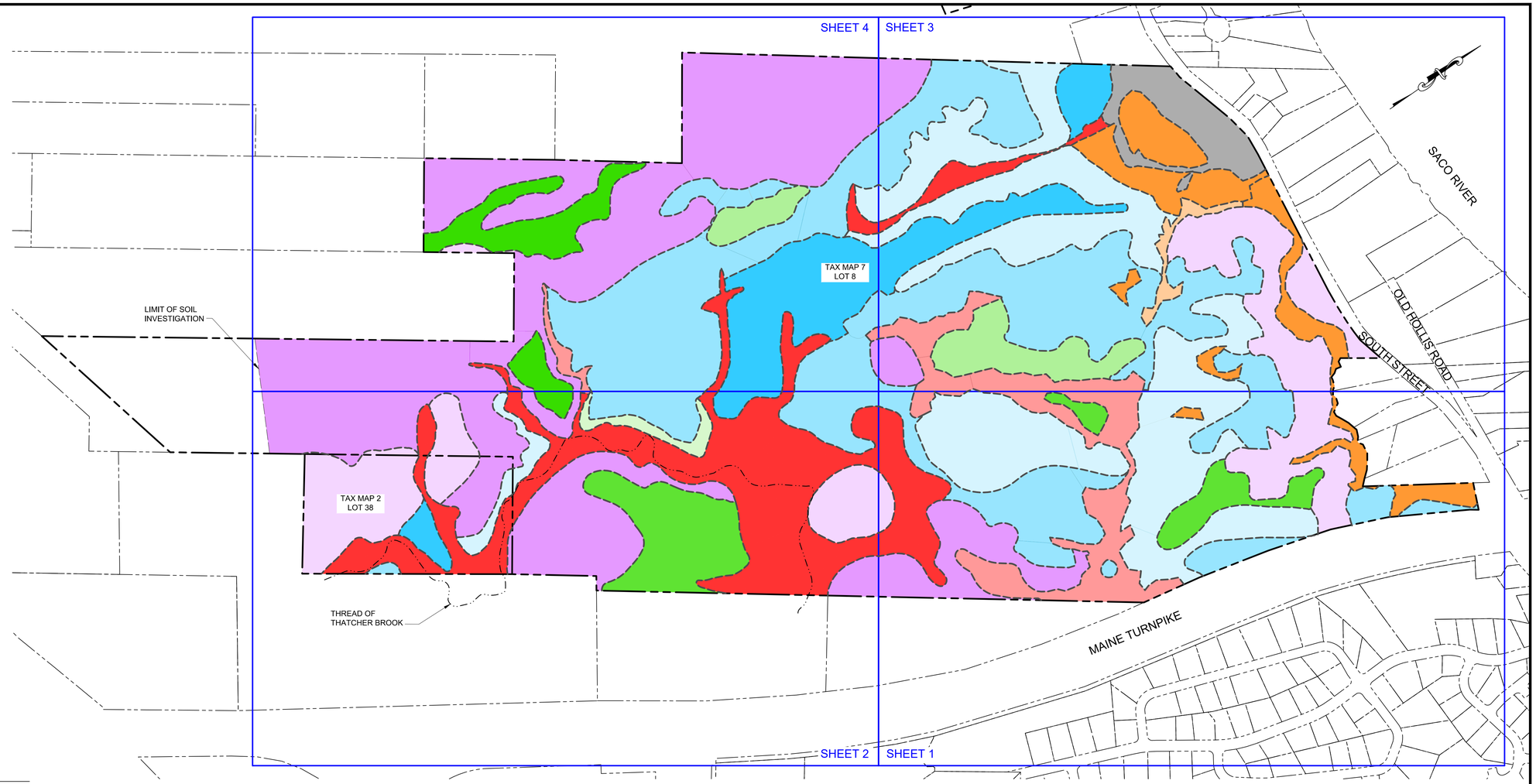
Attachment 9

High Intensity Soil Survey



SOIL COVERAGE

Soil Survey Area		Sq. Ft.	Acres	
		13,739,304	315.41	
SOIL TYPE	SLOPE	Sq. Ft.	Acres	%
Biddeford	A	239,951	5.51	1.7%
Biddeford Total				1.7%
Brayton	A	514,330	11.81	3.7%
	B	50,560	1.16	0.4%
Brayton Total				4.1%
Buxton	A	300,962	6.91	2.2%
	B	519,850	11.93	3.8%
	C	312,926	7.18	2.3%
	E	56,888	1.31	0.4%
Buxton Total				8.7%
Lamoine	A	812,025	18.64	5.9%
	B	2,775,443	63.72	20.2%
	C	1,858,372	42.66	13.5%
Lamoine Total				39.6%
Lyman-Tunbridge	C	3,077,843	70.66	22.4%
	D	1,240,765	28.48	9.0%
L-T Total				31.4%
Scantic	A	1,396,260	32.05	10.2%
	B	583,129	13.39	4.2%
Scantic Total				14.4%

SOIL CLASSIFICATION LEGEND

- BIDDEFORD A
- BRAYTON A
- BRAYTON B
- BUXTON A
- BUXTON B
- BUXTON C
- BUXTON E
- LAMOINE A
- LAMOINE B
- LAMOINE C
- LYMAN–TUNBRIDGE C
- LYMAN–TUNBRIDGE D
- SCANTIC A
- SCANTIC B

SOIL SURVEY GENERAL NOTES

1. SEE ACCOMPANYING SOIL SURVEY REPORT TITLED "CLASS B HIGH INTENSITY SOIL SURVEY REPORT, SOUTH STREET VILLAGE DATED JANUARY 20, 2021.
2. THE SOILS SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS AND THE MAINE BOARD OF CERTIFICATION OF GEOLOGISTS AND SOIL SCIENTISTS.
3. THE SURVEY IS CLASS B–HIGH INTENSITY SOIL SURVEY.

SOIL LEGEND

SCANTIC B
PD

DRAINAGE CLASS		SLOPE	DESIGNATION
EXCESSIVELY WELL DRAINED	EWD	0–3%	A
WELL DRAINED	WD	3–8%	B
MODERATELY WELL DRAINED	MWD	8–15%	C
SOMEWHAT POORLY DRAINED	SPD	15–25%	D
POORLY DRAINED	PD	> 25%	E
VERY POORLY DRAINED	VPD		

DRAWING LEGEND

- PARCEL PROPERTY LINE
- ABUTTER PROPERTY LINE
- SOILS BOUNDARY
- SCANTIC B / PD — SOILS DESIGNATION
- 100 — INDEX CONTOUR
- 101 — INTERMEDIATE CONTOUR
- THREAD OF BROOK

PARCEL PLAN

MARK HAMPTON ASSOCIATES, INC.
P.O. BOX 1931
PORTLAND, MAINE 04104

GRAPHIC SCALE

300 0 150 300 600 1200

1 inch = 300 ft.

DATE: MAY 6, 2021

SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE

CLASS B HIGH INTENSITY SOILS SURVEY

SOUTH STREET, BIDDEFORD, MAINE

MARK HAMPTON ASSOCIATES, INC.
P.O. BOX 1931
PORTLAND, MAINE 04104

GRAPHIC SCALE

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DATE: MAY 6, 2021

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SOUTH PORTLAND, MAINE

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GRAPHIC SCALE

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GRAPHIC SCALE

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SOUTH PORTLAND, MAINE

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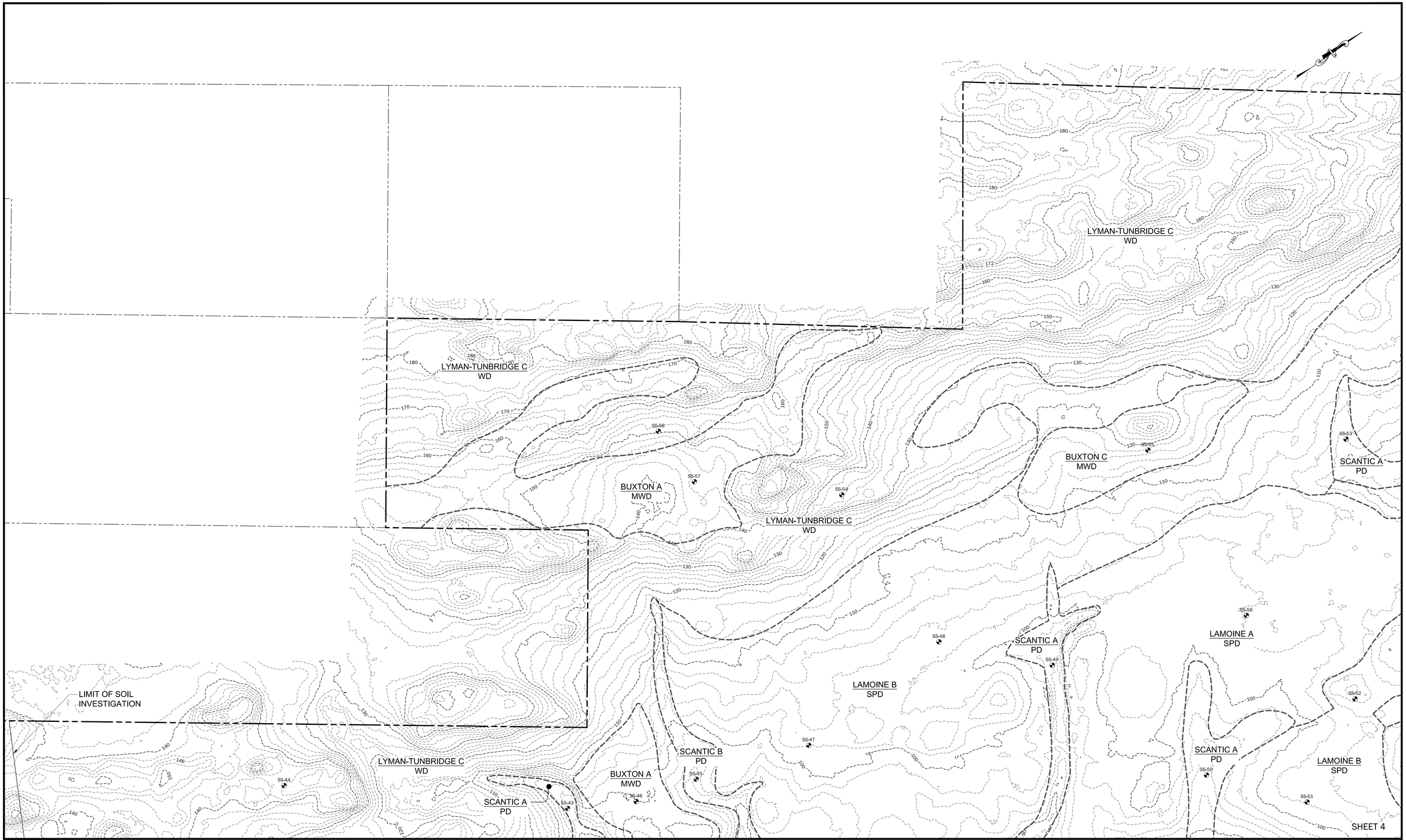
SOUTH STREET, BIDDEFORD, MAINE



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762 MAIN STREET
SOUTH PORTLAND, MAINE

CLASS B HIGH INTENSITY SOILS SURVEY

SOUTH STREET, BIDDEFORD, MAINE

5365
FORM F Rev. 11/09

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-1 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Sandy Loam	Friable	Dark Gray	
6–12	Sandy Loam	Friable	Gray	Common and Distinct
12–24	Sandy Loam	Firm	Olive	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Limiting Factor	Soil series/phase name:	Hydrologic Soil Group
3	E	0	4 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Brayton PD ☒ Hydric ☐ Non-hydric	

Exploration Symbol # SS-2 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
12–18	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Limiting Factor	Soil series/phase name:	Hydrologic Soil Group
8	D	6	12 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Lamoine SPD ☐ Hydric ☒ Non-hydric	

Exploration Symbol # SS-3 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
12–18	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Limiting Factor	Soil series/phase name:	Hydrologic Soil Group
8	D	4	11 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Lamoine SPD ☐ Hydric ☒ Non-hydric	

Exploration Symbol # SS-4 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Sandy Loam	Friable	Dark Brown	
6–12	Sandy Loam	Friable	Gray	Common and Distinct
12–24	Sandy Loam	Firm	Olive	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Limiting Factor	Soil series/phase name:	Hydrologic Soil Group
3	E	0	5 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Brayton PD ☒ Hydric ☐ Non-hydric	

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed: Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-5 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
⩘	Ledge	⩘	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2	AIII	16	16 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-6 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	8	24 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-7 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	4	20 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-8 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	12	12 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed: Mark Hampton	Cert/Lic/Reg. # 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-9 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Gray	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	6	10 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-10 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	12	13 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-11 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	15	11 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-12 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Gray	Common and Distinct
Sandy Loam	Firm	Olive	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
3	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Brayton PD ☒ Hydric ☐ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: South Street Village
Applicant Name: South Street Village LLC
Project Location (municipality): Biddeford

Exploration Symbol # SS-13 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____
_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Black	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
9	E	5	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD
☒ Hydric ☐ Non-hydric
Hydrologic Soil Group: _____

Exploration Symbol # SS-14 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____
_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
2	AIII	14	12 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD
☐ Hydric ☒ Non-hydric
Hydrologic Soil Group: _____

Exploration Symbol # SS-15 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____
_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
8	D	8	14 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Lamoine SPD
☐ Hydric ☒ Non-hydric
Hydrologic Soil Group: _____

Exploration Symbol # SS-16 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____
_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
8	D	2	11 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Lamoine SPD
☐ Hydric ☒ Non-hydric
Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark T. Hampton
Date: 1/21/21
Name Printed/typed: Mark Hampton
Cert/Lic/Reg. #: 263/216
Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: South Street Village
Applicant Name: South Street Village LLC
Project Location (municipality): Biddeford

Exploration Symbol # SS-17 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____
_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Black	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
9	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD
☒ Hydric ☐ Non-hydric
Hydrologic Soil Group: _____

Exploration Symbol # SS-18 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____
_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
2	AIII	15	14 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD
☐ Hydric ☒ Non-hydric
Hydrologic Soil Group: _____

Exploration Symbol # SS-19 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____
_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
8	D	4	12 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Lamoine SPD
☐ Hydric ☒ Non-hydric
Hydrologic Soil Group: _____

Exploration Symbol # SS-20 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____
_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Black	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
9	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD
☒ Hydric ☐ Non-hydric
Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark Hampton
Date: 1/21/21
Name Printed/typed: Mark Hampton
Cert/Lic/Reg. #: 263/216
Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-21 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Gray	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	4	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-22 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	6	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-23 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	10	20 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-24 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	4	10 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature		Date	1/21/21
Name Printed/typed	Mark Hampton	Cert/Lic/Reg. #	263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-25 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Black	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Limiting Factor	Soil series/phase name:	Hydrologic Soil Group
9	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Scantic PD	☒ Hydric ☐ Non-hydric

Exploration Symbol # SS-26 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Limiting Factor	Soil series/phase name:	Hydrologic Soil Group
2	AIII	12	16 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock	Lyman-Tunbridge WD	☐ Hydric ☒ Non-hydric

Exploration Symbol # SS-27 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Limiting Factor	Soil series/phase name:	Hydrologic Soil Group
8	D	3	14 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Lamoine SPD	☐ Hydric ☒ Non-hydric

Exploration Symbol # SS-28 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Limiting Factor	Soil series/phase name:	Hydrologic Soil Group
8	D	3	14 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Lamoine SPD	☐ Hydric ☒ Non-hydric

INVESTIGATOR INFORMATION AND SIGNATURE

Signature		Date	1/21/21
Name Printed/typed	Mark Hampton	Cert/Lic/Reg. #	263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-29 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Black	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
9	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-30 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
2	AIII	16	16 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-31 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Black	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
9	E	2	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-32 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
2	AIII	10	18 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

INVESTIGATOR INFORMATION AND SIGNATURE

Signature		Date	1/21/21
Name Printed/typed	Mark Hampton	Cert/Lic/Reg. #	263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-33 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Dark Brown	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
9	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-34 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
8	C	3	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-35 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
8	C	6	18 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-36 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
8	C	26	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-37 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Silt Loam	Friable	Black	
6–12	Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
9 (Profile)	E (Condition)	2 (Percent)	6 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD ☒ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-38 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Sandy Loam	Friable	Dark Brown	
6–12	Sandy Loam	Friable	Brown	
12–18		Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 (Profile)	AIII (Condition)	18 (Percent)	16 " (Depth)	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-39 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Silt Loam	Friable	Black	
6–12	Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
9 (Profile)	E (Condition)	2 (Percent)	6 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD ☒ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-40 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Sandy Loam	Friable	Dark Brown	
6–12	Sandy Loam	Friable	Brown	
12–24		Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 (Profile)	AIII (Condition)	4 (Percent)	24 " (Depth)	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed: Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-41 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	8 Percent	20 " Depth	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group _____

Exploration Symbol # SS-42 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	C Condition	2 Percent	20 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group _____

Exploration Symbol # SS-43 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Black	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
9 Profile	E Condition	0 Percent	6 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD ☒ Hydric ☐ Non-hydric

Hydrologic Soil Group _____

Exploration Symbol # SS-44 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	10 Percent	16 " Depth	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-45 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Silt Loam	Friable	Black	
6–12	Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater	Restrictive Layer	Bedrock
9	E	0	6 "	☒	☒	☐

Soil series/phase name: Scantic PD — ☒ Hydric ☐ Non-hydric — Hydrologic Soil Group

Exploration Symbol # SS-46 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
12–24	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater	Restrictive Layer	Bedrock
8	C	2	20 "	☒	☒	☐

Soil series/phase name: Buxton MWD — ☐ Hydric ☒ Non-hydric — Hydrologic Soil Group

Exploration Symbol # SS-47 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
12–18	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater	Restrictive Layer	Bedrock
8	C	4	18 "	☒	☒	☐

Soil series/phase name: Buxton MWD — ☐ Hydric ☒ Non-hydric — Hydrologic Soil Group

Exploration Symbol # SS-48 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
18–24	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater	Restrictive Layer	Bedrock
8	C	4	16 "	☒	☒	☐

Soil series/phase name: Buxton MWD — ☐ Hydric ☒ Non-hydric — Hydrologic Soil Group

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

INVESTIGATOR INFORMATION AND SIGNATURE

Signature		Date	1/21/21
Name Printed/typed	Mark Hampton	Cert/Lic/Reg. #	263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-49 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Dark Brown	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
9	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-50 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Black	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
9	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-51 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	6	14 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-52 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	6	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

STATE OF MAINE MARK J. HAMPTON 263 CERTIFIED SOIL SCIENTIST

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Mark J. Hampton	Date	1/21/21
Name Printed/typed	Mark Hampton	Cert/Lic/Reg. #	263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-53 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Silt Loam	Friable	Black	
6–12	Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
9	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-54 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Sandy Loam	Friable	Dark Brown	
6–12	Sandy Loam	Friable	Brown	
12–18		Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
2	AII	2	12 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-55 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
12–18	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
8	C	14	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-56 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
12–18	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
8	D	0	12 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

STATE OF MAINE MARK HAMPTON #216 CERTIFIED SOIL SCIENTIST

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Mark Hampton	Date	1/21/21
Name Printed/typed	Mark Hampton	Cert/Lic/Reg. #	263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-57 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	C Condition	2 Percent	20 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-58 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	16 Percent	18 " Depth	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-59 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	16 Percent	20 " Depth	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-60 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	10 Percent	22 " Depth	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed: Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON 263/216 CERTIFIED SOIL SCIENTIST

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-61 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Gray	
6–12	Fine Sandy Loam	Friable	Brown	
12–18	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	C Condition	4 Percent	16 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-62 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
12–18	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	C Condition	6 Percent	18 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-63 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
12–18	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	10 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-64 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
12–18	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	14 Percent	10 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

STATE OF MAINE MARK HAMPTON CERTIFIED SOIL SCIENTIST

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-65 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Black	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
9	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-66 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	8	18 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-67 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	12	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-68 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	0	13 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-69 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	4	10 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-70 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	12	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-71 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	14	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-72 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	6	18 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark Hampton	Date: 1/21/21
Name Printed/typed: Mark Hampton	Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-73 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
12–24	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 (Profile)	C (Condition)	6 (Percent)	20 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-74 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Mottling
0–6	Silt Loam	Friable	Black	
6–12	Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
9 (Profile)	E (Condition)	0 (Percent)	6 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD ☒ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-75 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Mottling
0–6	Sandy Loam	Friable	Dark Brown	
6–12	Sandy Loam	Friable	Brown	
12–18		Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 (Profile)	AII (Condition)	14 (Percent)	14 " (Depth)	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-76 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Mottling
0–6	Silt Loam	Friable	Black	
6–12	Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
9 (Profile)	E (Condition)	0 (Percent)	6 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD ☒ Hydric ☐ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature		Date	1/21/21
Name Printed/typed	Mark Hampton	Cert/Lic/Reg. #	263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-77 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Gray	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	16	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-78 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Gray	Common and Distinct
Sandy Loam	Firm	Olive	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
3	E	2	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Brayton PD ☒ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-79 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Gray	Common and Distinct
Sandy Loam	Firm	Olive	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
3	E	2	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Brayton PD ☒ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-80 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	8	10 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-81 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Gray	Common and Distinct
Sandy Loam	Firm	Olive	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
3	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Brayton PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-82 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2	AII	22	12 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-83 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Gray	Common and Distinct
Sandy Loam	Firm	Olive	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
3	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Brayton PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-84 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2	AII	16	12 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

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INVESTIGATOR INFORMATION AND SIGNATURE

Signature		Date	1/21/21
Name Printed/typed	Mark Hampton	Cert/Lic/Reg. #	263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-85 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2	AII	18	10 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-86 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Gray	Common and Distinct
Sandy Loam	Firm	Olive	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
3	D	4	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Brayton PD ☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-87 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Firm		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2	AII	20	10 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-88 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	4	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-89 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Gray	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	4	18 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-90 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	C	2	18 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-91 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	8	12 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-92 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	2	10 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 1/21/21
Name Printed/typed Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-93 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*: 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Silt Loam	Friable	Black	
Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
9	E	2	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Biddeford PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-94 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*: 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Dark Brown	
Fine Sandy Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
8	D	10	12 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-95 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*: 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
2	AIII	12	15 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-96 ☐ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*: 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
2	AII	20	14 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature		Date	1/21/21
Name Printed/typed	Mark Hampton	Cert/Lic/Reg. #	263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-97 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
18–24	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	2	14 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-98 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Sandy Loam	Friable	Dark Brown	
6–12	Sandy Loam	Friable	Brown	
18–24		Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2	AIII	18	16 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-99 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal Black

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Silt Loam	Friable	Black	
12–18	Silty Clay	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
9	E	0	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-100 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–6	Fine Sandy Loam	Friable	Dark Brown	
6–12	Fine Sandy Loam	Friable	Brown	
18–24	Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	D	3	14 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature		Date	1/21/21
Name Printed/typed	Mark Hampton	Cert/Lic/Reg. #	263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # SS-101 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*: 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	
⩘	Ledge	⩘	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 (Profile)	AIII (Condition)	8 (Percent)	16 " (Depth)	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # _____ ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*: 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
Profile	Condition	Percent	" Depth	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil series/phase name:

☐ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # _____ ☐ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*: 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
Profile	Condition	Percent	" Depth	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil series/phase name:

☐ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # _____ ☐ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*: 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
Profile	Condition	Percent	" Depth	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil series/phase name:

☐ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature		Date	1/21/21
Name Printed/typed	Mark Hampton	Cert/Lic/Reg. #	263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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Attachment 10

Septic System Test Pits

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

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April 29, 2022

Mr. Jeff Amos
Terradyn Consultants
41 Campus Drive #101
New Gloucester ME 04260

Re: Preliminary Soil Evaluation, South Street Village, South Street Biddeford, ME

Dear Jeff

I have completed a preliminary soil evaluation on the proposed South Street Subdivision for South Street Village LLC, Biddeford, ME. The soil evaluation was conducted in accordance with the Maine Subsurface Wastewater Disposal Rules dated August 2015, as amended. I evaluated one hand excavated soil test pit for each proposed septic system. The soil log descriptions are attached.

The soils as evaluated meet the minimum requirements of the state rules. In my opinion, there are suitable soils and area for septic systems to serve all proposed lots. Septic designs for the systems can be prepared at a future date.

If you have any questions or require additional information, please contact me.

Sincerely,

Mark J. Hampton C.S.S., L.S.E.
Certified Soil Scientist #216
Licensed Site Evaluator #263

Enc.

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

Quality services that meet your deadline

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FORM E Rev. 7/21

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name: South Street Village

Applicant Name: South Street Village LLC

Project Location (municipality): Biddeford

Lot No.	Exploration Symbol (TP 1, B 2, etc.)	☒ if at SSWD Field	Description of subsurface materials by: • Soil profile/condition (if by S.E.), • Soil series name (if by S.S.), or by • Geologic unit (if by C.G.)	Depths to (inches): Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
comm	TP-11	☒	Lamoine SPD	13	NA	13	36	6	
1-3	TP-5	☒	Lamoine SPD	14	NA	14	37	3	
4-6	TP-3	☒	Lamoine SPD	14	NA	14	38	4	
7-9	TP-4	☒	Lamoine SPD	13	NA	13	37	9	
10-11	TP-6	☒	Buxton MWD	15	NA	15	38	4	
12/18	TP-7	☒	Buxton MWD	16	NA	16	36	6	
13	TP-9	☒	Lamoine SPD	14	NA	14	38	4	
14-15	TP-10	☒	Lamoine SPD	14	NA	14	37	4	
16-17	TP-12	☒	Lamoine SPD	12	NA	12	36	8	
19-20	TP-8	☒	Buxton MWD	16	NA	16	36	4	
21-22	TP-13	☒	Lyman-Tunbridge WD	16	16	16	16	12	
23	TP-14	☒	Lyman-Tunbridge WD	15	15	15	15	8	
24-26	TP-20	☒	Lamoine SPD	12	NA	12	35	8	
27-28	TP-19	☒	Lamoine SPD	13	NA	13	34	4	
29-30	TP-18	☒	Lamoine SPD	13	NA	13	36	12	
31	TP-29	☒	Lamoine SPD	12	NA	12	35	2	
32-33	TP-15	☒	Lamoine SPD	13	NA	13	37	4	
34-35	TP-16	☒	Lamoine SPD	12	NA	12	37	8	
36-37	TP-17	☒	Lamoine SPD	13	NA	13	37	10	
38-39	TP-23	☒	Lamoine SPD	13	NA	13	34	4	
40-41	TP-24	☒	Lamoine SPD	12	NA	12	36	8	
42-44	TP-25	☒	Lamoine SPD	12	NA	12	34	8	
45-46	TP-40	☒	Lyman-Tunbridge WD	14	14	14	14	12	
47-48	TP-27	☒	Lamoine SPD	14	NA	14	34	4	
49-51	TP-26	☒	Lamoine SPD	13	NA	13	32	5	
52-53	TP-28	☒	Lamoine SPD	12	NA	12	36	12	
54-55	TP-30	☒	Lamoine SPD	10	NA	10	34	2	
56-58	TP-22	☒	Lamoine SPD	13	NA	13	34	12	
59	TP-21	☒	Lamoine SPD	12	NA	12	36	4	
60-62	TP-31	☒	Lamone SPD	10	NA	10	36	4	
63-64	TP-32	☒	Lamoine SPD	14	NA	14	36	12	
65-66	TP-33	☒	Lamoine SPD	12	NA	12	40		

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Mark J. Hampton
Name Printed

☒ Site Evaluator
☒ Soil Scientist
☐ Geologist
☐ Professional Engineer

4/20/22
Date

263/216
License No.

STATE OF MAINE
MARK J. HAMPTON
#216
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SOIL SCIENTIST

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FORM E Rev. 7/21

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name: South Street Village

Applicant Name: South Street Village LLC

Project Location (municipality): Biddeford

Lot No.	Exploration Symbol (TP 1, B 2, etc.)	✖ if at SSWD Field	Description of subsurface materials by: • Soil profile/condition (if by S.E.), • Soil series name (if by S.S.), or by • Geologic unit (if by C.G.)	Depths to (inches): Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
67-68	TP-34	☒	Buxton MWD	16	NA	16	36	4	
69-71	TP-39	☒	Buxton MWD	15	NA	15	36	4	
72-73	TP-38	☒	Lamoine SPD	13	NA	13	38	8	
74-75	TP-37	☒	Lamoine SPD	12	NA	12	37	10	
76-77	TP-36	☒	Lamoine SPD	14	NA	14	37	9	
78-79	TP-35	☒	Lamoine SPD	12	NA	12	38	4	
80-81	TP-1	☒	Lamoine SPD	14	NA	14	40	10	
82-83	TP-2	☒	Lamoine SPD	13	NA	13	36	9	
84-85	TP-45	☒	Lamoine SPD	10	NA	10	38	4	
86-87	TP-46	☒	Lamoine SPD	10	NA	10	36	8	
88-89	TP-41	☒	Lamoine SPD	14	NA	14	36	4	
90-91	TP-42	☒	Lamoine SPD	13	NA	13	37	8	
92-93	TP-43	☒	Lamoine SPD	13	NA	13	36	4	
94-96	TP-44	☒	Lamoine SPD	10	NA	10	36	4	
97-98	TP-47	☒	Lamoine SPD	14	NA	14	37	4	
99-100	TP-52	☒	Lamoine SPD	13	NA	13	35	6	
101-102	TP-53	☒	Lamoine SPD	14	NA	14	34	2	
103-105	TP-48	☒	Lamoine SPD	13	NA	13	37	2	
106-108	TP-49	☒	Lamoine SPD	14	NA	14	37	2	
109-111	TP-50	☒	Lamoine SPD	13	NA	13	36	2	
112	TP-58	☒	Lamoine SPD	14	NA	14	34	2	
113-114	TP-60	☒	Lamoine SPD	13	NA	13	34	8	
115-116	TP-61	☒	Lamoine SPD	12	NA	12	36	4	
117-118	TP-62	☒	Lamoine SPD	14	NA	14	34	2	
119-120	TP-63	☒	Lamoine SPD	14	NA	14	32	2	
121-123	TP-64	☒	Lamoine SPD	12	NA	12	34	8	
124-125	TP-65	☒	Lamoine SPD	12	NA	12	34	2	
126-127	TP-90	☒	Lamoine SPD	13	NA	13	34	2	
128-129	TP-66	☒	Lamoine SPD	12	NA	12	36	2	
130-131	TP-67	☒	Lamone SPD	13	NA	13	35	2	
132-134	TP-51	☒	Lamoine SPD	14	NA	14	34		
135-137	TP-55	☒	Lamoine SPD	14	NA	14	34		

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Mark J. Hampton
Name Printed

☒ Site Evaluator
☒ Soil Scientist
☐ Geologist
☐ Professional Engineer

4/20/22
Date

263/216
License No.

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MARK J. HAMPTON #216
CERTIFIED SOIL SCIENTIST
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FORM E Rev. 7/21

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name: South Street Village

Applicant Name: South Street Village LLC

Project Location (municipality): Biddeford

Lot No.	Exploration Symbol (TP 1, B 2, etc.)	☒ if at SSWD Field	Description of subsurface materials by: • Soil profile/condition (if by S.E.), • Soil series name (if by S.S.), or by • Geologic unit (if by C.G.)	Depths to (inches): Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
138-139	TP-56	☒	Lyman-Tunbridge WD	15	15	15	15	4	
140-141	TP-54	☒	Lyman-Tunbridge WD	14	14	14	14	2	
142-144	TP-68	☒	Lamoine SPD	12	NA	12	36	2	
145-146	TP-69	☒	Lamoine SPD	14	NA	14	34	6	
147-148	TP-70	☒	Lamoine SPD	13	NA	13	34	4	
149-150	TP-71	☒	Lamoine SPD	13	NA	13	35	6	
151-152	TP-57	☒	Lamoine SPD	13	NA	13	36	12	
153-154	TP-78	☒	Lamoine SPD	14	NA	14	32	10	
155-156	TP-79	☒	Lamoine SPD	10	NA	10	34	4	
157-158	TP-80	☒	Lamoine SPD	10	NA	10	34	4	
159-160	TP-72	☒	Lamoine SPD	12	NA	12	37	6	
161-162	TP-73	☒	Lamoine SPD	10	NA	10	32	2	
163-164	TP-74	☒	Lamoine SPD	13	NA	13	34	10	
165-166	TP-76	☒	Buxton MWD	16	NA	16	34	6	
167-168	TP-75	☒	Lamoine SPD	12	NA	12	32	6	
169-171	TP-85	☒	Lamoine SPD	14	NA	14	36	6	
172-174	TP-84	☒	Lamoine SPD	14	NA	14	33	4	
175-176	TP-83	☒	Lyman-Tunbridge WD	16	16	16	16	8	
177-178	TP-82	☒	Lyman-Tunbridge WD	17	17	17	17	10	
179-181	TP-81	☒	Lamoine SPD	14	NA	14	34	6	
182-184	TP-89	☒	Lamoine SPD	14	NA	14	32	6	
185-187	TP-77	☒	Lamoine SPD	14	NA	14	32	2	
188-189	TP-86	☒	Lamoine SPD	12	NA	12	34	2	
190-191	TP-87	☒	Lamoine SPD	14	NA	14	30	2	
192-193	TP-59	☒	Lamoine SPD	14	NA	14	36	2	
194-195	TP-88	☒	Buxton MWD	15	NA	15	30	4	
garage	TP-91	☒	Lamoine SPD	13	NA	13	34	2	
		☐							
		☐							
		☐							
		☐							
		☐							

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Mark J. Hampton
Name Printed

☒ Site Evaluator
☒ Soil Scientist
☐ Geologist
☐ Professional Engineer

4/20/22
Date

263/216
License No.

STATE OF MAINE
MARK J. HAMPTON #216
CERTIFIED SOIL SCIENTIST
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FORM E Rev. 7/21

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name: South Street Village

Applicant Name: South Street Village LLC

Project Location (municipality): Biddeford

Lot No.	Exploration Symbol (TP 1, B 2, etc.)	✖ if at SSWD Field	Description of subsurface materials by: • Soil profile/condition (if by S.E.), • Soil series name (if by S.S.), or by • Geologic unit (if by C.G.)	Depths to (inches): Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
80-81	TP-1	☒	Lamoine SPD	14	NA	14	40	10	
82-83	TP-2	☒	Lamoine SPD	13	NA	13	36	9	
4-6	TP-3	☒	Lamoine SPD	14	NA	14	38	4	
7-9	TP-4	☒	Lamoine SPD	13	NA	13	37	9	
1-3	TP-5	☒	Lamoine SPD	14	NA	14	37	3	
10-11	TP-6	☒	Buxton MWD	15	NA	15	38	4	
12/18	TP-7	☒	Buxton MWD	16	NA	16	36	6	
19-20	TP-8	☒	Buxton MWD	16	NA	16	36	4	
13	TP-9	☒	Lamoine SPD	14	NA	14	38	4	
14-15	TP-10	☒	Lamoine SPD	14	NA	14	37	4	
comm	TP-11	☒	Lamoine SPD	13	NA	13	36	6	
16-17	TP-12	☒	Lamoine SPD	12	NA	12	36	8	
21-22	TP-13	☒	Lyman-Tunbridge WD	16	16	16	16	12	
23	TP-14	☒	Lyman-Tunbridge WD	15	15	15	15	8	
32-33	TP-15	☒	Lamoine SPD	13	NA	13	37	4	
34-35	TP-16	☒	Lamoine SPD	12	NA	12	37	8	
36-37	TP-17	☒	Lamoine SPD	13	NA	13	37	10	
29-30	TP-18	☒	Lamoine SPD	13	NA	13	36	12	
27-28	TP-19	☒	Lamoine SPD	13	NA	13	34	4	
24-26	TP-20	☒	Lamoine SPD	12	NA	12	35	8	
59	TP-21	☒	Lamoine SPD	12	NA	12	36	4	
56-58	TP-22	☒	Lamoine SPD	13	NA	13	34	12	
38-39	TP-23	☒	Lamoine SPD	13	NA	13	34	4	
40-41	TP-24	☒	Lamoine SPD	12	NA	12	36	8	
42-44	TP-25	☒	Lamoine SPD	12	NA	12	34	8	
49-51	TP-26	☒	Lamoine SPD	13	NA	13	32	5	
47-48	TP-27	☒	Lamoine SPD	14	NA	14	34	4	
52-53	TP-28	☒	Lamoine SPD	12	NA	12	36	12	
31	TP-29	☒	Lamoine SPD	12	NA	12	35	2	
54-55	TP-30	☒	Lamoine SPD	10	NA	10	34	2	
60-61	TP-31	☒	Lamoine SPD	10	NA	10	36	4	
63-64	TP-32	☒	Lamoine SPD	14	NA	14	[illegible]	[illegible]	

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Mark J. Hampton
Name Printed

☒ Site Evaluator
☒ Soil Scientist
☐ Geologist
☐ Professional Engineer

4/20/22
Date

263/216
License No.

STATE OF MAINE
MARK J. HAMPTON
#216
affix professional seal
SOIL SCIENTIST

FORM E Rev. 7/21

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Lot No.	Exploration Symbol (TP 1, B 2, etc.)	✗ If at SSWD Field	Description of subsurface materials by: • Soil profile/condition (if by S.E.), • Soil series name (if by S.S.), or by • Geologic unit (if by C.G.)	Depths to (inches): Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
65-66	TP-33	☒	Lamoine SPD	12	NA	12	40	10	
67-68	TP-34	☒	Buxton MWD	16	NA	16	36	4	
79	TP-35	☒	Lamoine SPD	12	NA	12	38	4	
76-77	TP-36	☒	Lamoine SPD	14	NA	14	37	9	
74-75	TP-37	☒	Lamoine SPD	12	NA	12	37	10	
72-73	TP-38	☒	Lamoine SPD	13	NA	13	38	8	
69-71	TP-39	☒	Buxton MWD	15	NA	15	36	4	
45-46	TP-40	☒	Lyman-Tunbridge WD	14	14	14	14	12	
88-89	TP-41	☒	Lamoine SPD	14	NA	14	36	4	
90-91	TP-42	☒	Lamoine SPD	13	NA	13	37	8	
92-93	TP-43	☒	Lamoine SPD	13	NA	13	36	4	
94-96	TP-44	☒	Lamoine SPD	10	NA	10	36	4	
84-85	TP-45	☒	Lamoine SPD	10	NA	10	38	4	
86-87	TP-46	☒	Lamoine SPD	10	NA	10	36	8	
97-98	TP-47	☒	Lamoine SPD	14	NA	14	37	4	
103-105	TP-48	☒	Lamoine SPD	13	NA	13	37	2	
106-108	TP-49	☒	Lamoine SPD	14	NA	14	37	2	
109-111	TP-50	☒	Lamoine SPD	13	NA	13	36	2	
132-134	TP-51	☒	Lamoine SPD	14	NA	14	34	4	
99-100	TP-52	☒	Lamoine SPD	13	NA	13	35	6	
101-102	TP-53	☒	Lamoine SPD	14	NA	14	34	2	
140-141	TP-54	☒	Lyman-Tunbridge WD	14	14	14	14	2	
135-137	TP-55	☒	Lamoine SPD	14	NA	14	34	4	
138-139	TP-56	☒	Lyman-Tunbridge WD	15	15	15	15	4	
151-152	TP-57	☒	Lamoine SPD	13	NA	13	36	12	
112	TP-58	☒	Lamoine SPD	14	NA	14	34	2	
192-193	TP-59	☒	Lamoine SPD	14	NA	14	36	2	
113-114	TP-60	☒	Lamoine SPD	13	NA	13	34	8	
115-116	TP-61	☒	Lamoine SPD	12	NA	12	36	4	
117-118	TP-62	☒	Lamoine SPD	14	NA	14	34	2	
119-120	TP-63	☒	Lamoine SPD	14	NA	14	32	2	
121-123	TP-64	☒	Lamoine SPD	12	NA	12	34		

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Mark J. Hampton
Name Printed

☒ Site Evaluator
☒ Soil Scientist
☐ Geologist
☐ Professional Engineer

4/20/22
Date

263/216
License No.

STATE OF MAINE
MARK J. HAMPTON
#216
CERTIFIED SOIL SCIENTIST

5365

FORM E Rev. 7/21

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name: South Street Village

Applicant Name: South Street Village LLC

Project Location (municipality): Biddeford

Lot No.	Exploration Symbol (TP 1, B 2, etc.)	✗ if at SSWD Field	Description of subsurface materials by: • Soil profile/condition (if by S.E.), • Soil series name (if by S.S.), or by • Geologic unit (if by C.G.)	Depths to (inches): Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
124-125	TP-65	☒	Lamoine SPD	12	NA	12	34	2	
128-129	TP-66	☒	Lamoine SPD	12	NA	12	36	2	
130-131	TP-67	☒	Lamoine SPD	13	NA	13	35	2	
142-144	TP-68	☒	Lamoine SPD	12	NA	12	36	2	
145-146	TP-69	☒	Lamoine SPD	14	NA	14	34	6	
147-148	TP-70	☒	Lamoine SPD	13	NA	13	34	4	
149-150	TP-71	☒	Lamoine SPD	13	NA	13	35	6	
159-160	TP-72	☒	Lamoine SPD	12	NA	12	37	6	
161-162	TP-73	☒	Lamoine SPD	10	NA	10	32	2	
163-164	TP-74	☒	Lamoine SPD	13	NA	13	34	10	
167-168	TP-75	☒	Lamoine SPD	12	NA	12	32	6	
165-166	TP-76	☒	Buxton MWD	16	NA	16	34	6	
185-187	TP-77	☒	Lamoine SPD	14	NA	14	32	2	
153-154	TP-78	☒	Lamoine SPD	14	NA	14	32	10	
155-156	TP-79	☒	Lamoine SPD	10	NA	10	34	4	
157-158	TP-80	☒	Lamoine SPD	10	NA	10	34	4	
179-181	TP-81	☒	Lamoine SPD	14	NA	14	34	6	
177-178	TP-82	☒	Lyman-Tunbridge WD	17	17	17	17	10	
175-176	TP-83	☒	Lyman-Tunbridge WD	16	16	16	16	8	
172-174	TP-84	☒	Lamoine SPD	14	NA	14	33	4	
169-171	TP-85	☒	Lamoine SPD	14	NA	14	36	6	
188-189	TP-86	☒	Lamoine SPD	12	NA	12	32	4	
190-191	TP-87	☒	Lamoine SPD	14	NA	14	30	2	
194-195	TP-88	☒	Buxton MWD	15	NA	15	30	4	
182-184	TP-89	☒	Lamoine SPD	14	NA	14	32	6	
126-127	TP-90	☒	Lamoine SPD	13	NA	13	34	2	
garage	TP-91	☒	Lamoine SPD	13	NA	13	34	2	
		☐							
		☐							
		☐							
		☐							
		☐							

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Mark J. Hampton
Name Printed

☒ Site Evaluator
☒ Soil Scientist
☐ Geologist
☐ Professional Engineer

4/20/22
Date

263/216
License No.

STATE OF MAINE
MARK J. HAMPTON
#216
Certified Professional Soil Scientist

5365

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-1

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	10 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-2

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	9 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-3

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-4

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	9 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

5365

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-5

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 (Profile)	D (Condition)	3 (Percent)	14 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # TP-6

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 (Profile)	D (Condition)	4 (Percent)	15 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # TP-7

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 (Profile)	C (Condition)	6 (Percent)	16 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # TP-8

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 (Profile)	C (Condition)	4 (Percent)	16 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark Hampton	Date: 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

5365

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-9

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # TP-10

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # TP-11

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	6 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # TP-12

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	8 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date: 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE
MARK J. HAMPTON
#216
CERTIFIED SOIL SCIENTIST

5365

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-13

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	None Noted
LEDGE			

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 (Profile)	AIII (Condition)	12 (Percent)	16 " (Depth)	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil Series/Phase Name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-14

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	None Noted
LEDGE			

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 (Profile)	AIII (Condition)	8 (Percent)	15 " (Depth)	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil Series/Phase Name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-15

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 (Profile)	D (Condition)	4 (Percent)	13 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-16

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 (Profile)	D (Condition)	8 (Percent)	12 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date: 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE — MARK J. HAMPTON #216 — CERTIFIED SOIL SCIENTIST — Affix professional seal

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FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-17

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 (Profile)	D (Condition)	10 (Percent)	13 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-18

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 (Profile)	D (Condition)	12 (Percent)	13 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-19

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 (Profile)	D (Condition)	4 (Percent)	13 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-20

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 (Profile)	D (Condition)	8 (Percent)	12 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

Seal of professional

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FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-21 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-22 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	12 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-23 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-24 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	8 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature:	Date: 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

(or Professional Seal)

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-25 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	8 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-26 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	5 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-27 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-28 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	12 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-29 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-30 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	10 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-31 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	10 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-32 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	12 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-33

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	10 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-34

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	C Condition	4 Percent	16 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Buxton MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-35

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-36

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	12 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date: 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE
MARK J. HAMPTON
#216
CERTIFIED SOIL SCIENTIST

5365

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: South Street Village

Applicant Name: South Street Village LLC

Project Location (municipality): Biddeford

Exploration Symbol # TP-37

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	10 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-38

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	8 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-39

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	C Condition	4 Percent	15 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-40

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Sandy Loam	Friable	Dark Brown	
10	Sandy Loam	Friable	Brown	None Noted
20	LEDGE			
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AII Condition	12 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

STATE OF MAINE MARK J. HAMPTON 4216 CERTIFIED SOIL SCIENTIST

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-41

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-42

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	8 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-43

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-44

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Brown	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	10 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-45

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
	Silt Loam	Friable	Brown	
10				
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	10 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-46

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
	Silt Loam	Friable	Brown	
10				
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	8 Percent	10 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-47

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
	Silt Loam	Friable	Brown	
10				
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-48

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
	Silt Loam	Friable	Brown	
10				
20	Silty Clay Loam	Firm	Brown	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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MARK J. HAMPTON
#216
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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-49 ☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-50 ☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-51 ☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-52 ☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Brown	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	6 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-53

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
	Silt Loam	Friable	Brown	
10				
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-54

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Sandy Loam	Friable	Dark Brown	
	Sandy Loam	Friable	Brown	None Noted
10				
20		LEDGE		
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AII Condition	2 Percent	14 " Depth	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil Series/Phase Name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-55

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
	Silt Loam	Friable	Brown	
10				
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-56

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Sandy Loam	Friable	Dark Brown	
	Sandy Loam	Friable	Brown	None Noted
10				
20		LEDGE		
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	4 Percent	15 " Depth	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil Series/Phase Name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: South Street Village

Applicant Name: South Street Village LLC

Project Location (municipality): Biddeford

Exploration Symbol # TP-57

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	12 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-58

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	C Condition	2 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-59

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-60

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	C Condition	8 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark J. Hampton	Date: 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-61

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
	Silt Loam	Friable	Brown	
10				
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-62

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
	Silt Loam	Friable	Brown	
10				
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-63

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
	Silt Loam	Friable	Brown	
10				
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-64

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
	Silt Loam	Friable	Brown	
10				
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	8 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-65 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-66 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-67 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-68 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: South Street Village

Applicant Name: South Street Village LLC

Project Location (municipality): Biddeford

Exploration Symbol # TP-69

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	6 Percent	14" Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-70

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	13" Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-71

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	6 Percent	13" Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-72

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	6 Percent	12" Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: [signature]

Date: 4/16/2022

Name Printed: Mark J. Hampton

Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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#216
CERTIFIED SOIL SCIENTIST

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-73

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	10 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group ____

Exploration Symbol # TP-74

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	10 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group ____

Exploration Symbol # TP-75

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	6 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group ____

Exploration Symbol # TP-76

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	6 Percent	16 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Buxton MWD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group ____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-77 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-78 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	10 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-79 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	10 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-80 ☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	10 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

affix professional seal

5365

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-81

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	6 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-82

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	None Noted
	LEDGE		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	10 Percent	17 " Depth	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil Series/Phase Name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-83

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Brown	None Noted
	LEDGE		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	8 Percent	16 " Depth	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil Series/Phase Name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-84

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Silt Loam	Friable	Dark Brown	
Silt Loam	Friable	Brown	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark J. Hampton	Date: 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

affix professional seal

53605

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
South Street Village	South Street Village LLC	Biddeford

Exploration Symbol # TP-85 ☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	6 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-86 ☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	4 Percent	12 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-87 ☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-88 ☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	C Condition	4 Percent	15 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Buxton MWD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark J. Hampton	Date: 4/16/2022
Name Printed: Mark J. Hampton	Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

5365

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: South Street Village

Applicant Name: South Street Village LLC

Project Location (municipality): Biddeford

Exploration Symbol # TP-89

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Red Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	6 Percent	14 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-90

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Red Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # TP-91

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Silt Loam	Friable	Dark Brown	
10	Silt Loam	Friable	Red Brown	
20	Silty Clay Loam	Firm	Gray	Common and Distinct
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8 Profile	D Condition	2 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Lamoine SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # _____

☐ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0				
10				
20				
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
Profile	Condition	Percent	" Depth	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name:

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Date 4/16/2022

Name Printed Mark J. Hampton

Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

Attachment 11

Hydrogeologic Assessment

Mark Cenci
Geologic, Inc.

CERTIFIED GEOLOGIST/LICENSED SITE EVALUATOR

93 Mill Road • North Yarmouth, Maine 04097
Cell: 207.329.3524 • mark@markcenci.com
www.markcenci.com

Hydrogeological Assessment of the Hidden Hills Housing Park South Street, Biddeford

Date: August 9, 2022

Summary of the Assessment:

The proposed project meets the ground water quality requirements of the Site Location of Development Act.

Purpose of Assessment:

The purpose of the assessment is to predict the locations and extents of wastewater plumes on the property in order to meet the requirements of the Site Location of Development Act (the *SLODA*).

Project Summary:

The project is a residential subdivision of 195 two-bedroom mobile home units. Water will be provided by the public drinking water supply system. Wastewater will be disposed on site by 91 wastewater disposal systems. There are combined disposal areas for two and three residences. There are also disposal systems for the maintenance garage and the community center.

Information used in the assessment:

Information used includes soil descriptions, a high-intensity soil map and a wetlands delineation by Mark Hampton, LSS, LSE, a plan of the project with topographic contours by Terradyn Consultants, LLC, and a search of published geologic and hydrogeologic information,

Location of the project:

The site is located on a low knoll, or 'shelf", easterly of a northeasterly trending ridge, between Saco River and Thacher Brook (see Figure 1). Ground surface slopes are mostly gentle, on the order of 1 to 3% in the development area. There are some moderately steep slopes on the northerly portion of the property above a drainage swale. Drainage is to the Saco River, by way of flow through linear wetland troughs. Drainage is somewhat radial. There is a watershed divide on the property. Flow is northerly to an unnamed stream and southerly to Thacher Brook. Both features flow to the Saco.

Surficial and bedrock geology of the area:

The area is mapped (see Figure 2) as an association of thin glacial till over shallow bedrock and fine grained glacio-marine sediments of the Presumpscot Formation by Carol Hildreth on the *Surficial Geology of the Biddeford Quadrangle, York County Maine* (ME Geol. Surv, Open-File Report 99-109). The high-intensity soil survey by Hampton agrees with this generalized mapping. Hampton describes an association of Lyman-Tunbridge, Lamoine, Buxton, Brayton and Scantic soils. The Brayton and Scantic areas are most likely coincident with wetlands on the property. The Brayton being a low-lying, tilly soil and the Scantic being the low lying silty/clay soil.

Bedrock beneath the site is mapped by Arthur Hussey, *et al,* (see Figure 3) as granites of the Biddeford Pluton on the *Bedrock Geology of the Kittery 1:100,000 Quadrangle, Maine and New Hampshire* (ME Geol. Surv. Open-File Map 08-78). Depth to bedrock is shallow in portions of the property, as per Hampton. The Water Well Database of the Maine Geological Survey shows no water wells in the vicinity of the parcel (see Figure 4).

Nearly all the wastewater disposal systems will be located on soils classified by Hampton as Lamoine. Lamoine is a soil formed in glacio-marine sediments that are fine grained, with silts and clays in the substratum. They tend to be coarser in the upper soil horizons, but the textures do not become predominately sand.

Hydrogeology of the site:

The source of groundwater on this site is precipitation. Precipitation falling on the site seeps into the soil and descends until restrictive soil layers or the water table is encountered. Thereupon the flow of groundwater is down gradient towards wetlands and points of discharge into streams. The property is not mapped as a Significant Sand and Gravel Aquifer by the Maine Geological Survey

Slopes are gentle and soil textures are fine grained. Recharge is average to below average on this site. According to the recharge estimates in Part II, Section 17. of the *SLODA*, soil recharge should be no more than 20% of annual precipitation.

The hydraulic conductivity of the soil is estimated to be 4 feet per day. The hydraulic gradient is estimated to be 2%. The effective porosity is estimated to be 25%. Dispersivity should be higher than average, because of the tendency to have seasonally varying vertical flow in the soils. In times of soil saturation, ground water flow will take place faster in the upper soil horizons, but under seasonally dry conditions, flow will largely be within the unsaturated substrata. These flow variations cause the suspended nutrients to be dispersed in three dimensions.

The groundwater flow directions can be discerned from topography. Analysis of flow patterns reveals a highly variable flow regime, from the small knolls and side slopes to linear troughs, occupied by wetlands.

Impact on groundwater quality:

Nitrate-nitrogen (NO3-N) is the chemical to assess for impact on groundwater. NO3-N is generated by subsurface wastewater disposal systems. It is a conservative contaminant, meaning it does not readily degrade in groundwater, nor does it attenuate, or attach itself to soil particles. Nitrate-nitrogen is limited to 10 mg/liter in public drinking water supplies by the Primary Drinking Water Standard. The *SLODA* requires NO3-N to be at concentrations below 10 mg/liter at the project property line in order to safeguard the groundwater on abutting properties.

The analysis of NO3-N impacts was calculated by SOLUTRANS, a 32-bit Windows program for modeling three-dimensional solute transport written by Dr. Charles R. Fitts of Fitts Geosolutions and the University of Southern Maine. The program is based on the analytical solutions of Liej *et al* (1991, 1993). The solutions in SOLUTRANS assume a uniform, one-dimensional flow field, and allows three-dimensional dispersion, retardation and first-order decay. The model is not a dilution/mass balance model, so the requirement that drought conditions be assumed is met.

Variables entered into the calculations that are site specific include an estimated seepage velocity of 0.3 feet per day, a hydraulic gradient of 2% (0.02), an effective porosity of 25% (0.25), an initial nitrogen concentration of 40 mg/liter, retardation of 1, a decay constant of zero, longitudinal, lateral and vertical dispersivities of 15, 5 and 0.5 feet respectively. A depth corrector to simulate three-dimensional effects, based on hydraulic factors and the gallons per day disposed was also entered.

Calculations were performed and the results indicate the 10 mg/liter NO3-N plumes will be approximately 75 feet in length, measured from the disposal areas. The curve of the results is attached. Using the inferred groundwater flow directions at each disposal site, the plumes were

drawn by Mark Cenci Geologic at a length of 80 feet and provided to Terradyn Consultants to be included on a plan. The plumes were evaluated with respect to the project property lines. No plumes exist the project at concentrations in excess of 10 mg/liter. All plumes, but the systems arrayed adjacent to the Maine Turnpike, move to wetlands where bio-chemical processes will effectively remove nitrogen from groundwater.

The cleansing capacity of wetlands is well known and used as a primary, secondary and tertiary treatment in constructed wetlands. Wetlands are particularly effective for septic systems, where treatment in tanks, disposal areas and downgradient soils nitrify ammonia to nitrite and nitrate. The stripping of the oxygen in the carbon-rich and anoxic wetlands and release of nitrogen gases to the atmosphere, as well as plant uptake of nutrients, is effective.

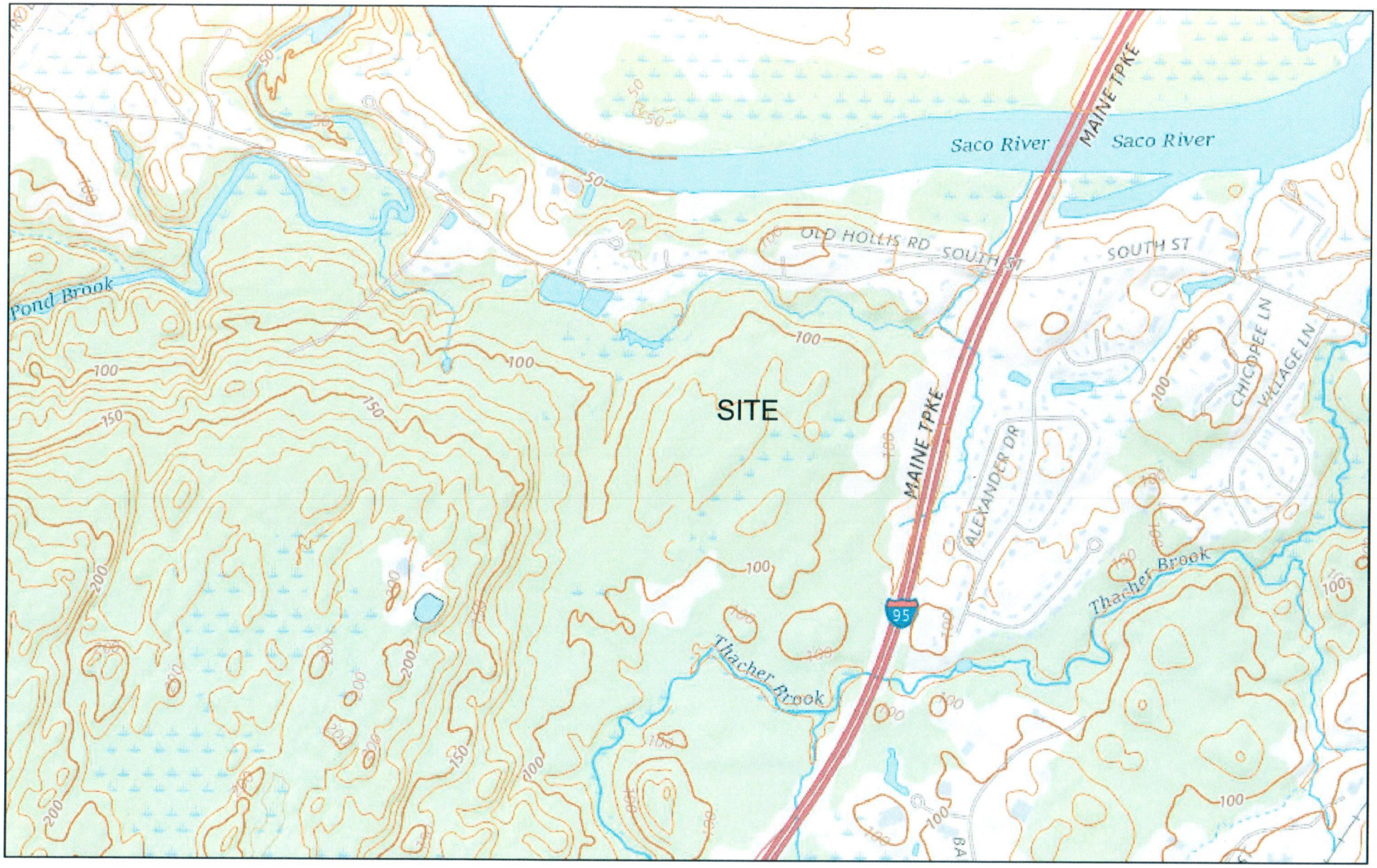
Conclusions:

The array of wastewater disposal areas presented on the plan of the project meets the requirements of the *SLODA* that NO3-N in groundwater remain at concentrations below 10 mg/liter at the project property lines.

Favorable factors on this site include the spatial array of the systems, the size of the parcel and the distances to property lines, the presence of wetland areas below nearly all the systems and the available supply of public water for potable use.

Mark Cenci, LG # 467

FIGURE 1



8/5/2022, 1:35:17 PM

Normal Intermediate Contours

Normal Index Contours

1:18,056

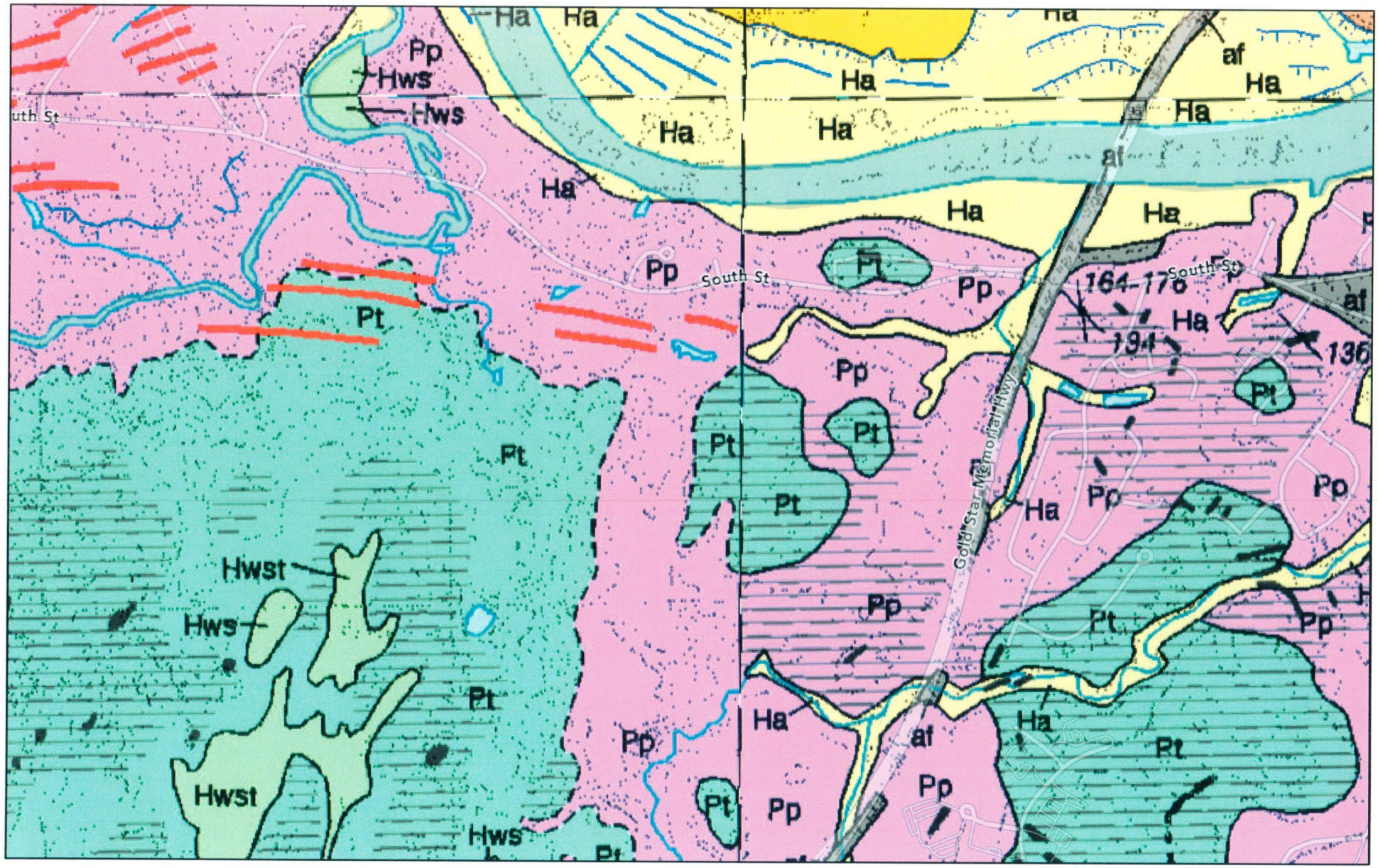
0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography

USGS
2021 USGS

FIGURE 2. Surficial Geology 1:24,000



8/5/2022, 1:40:36 PM

Image

Red: Band_1

Green: Band_2

Blue: Band_3

1:18,056

0 0.1 0.2 0.4 mi

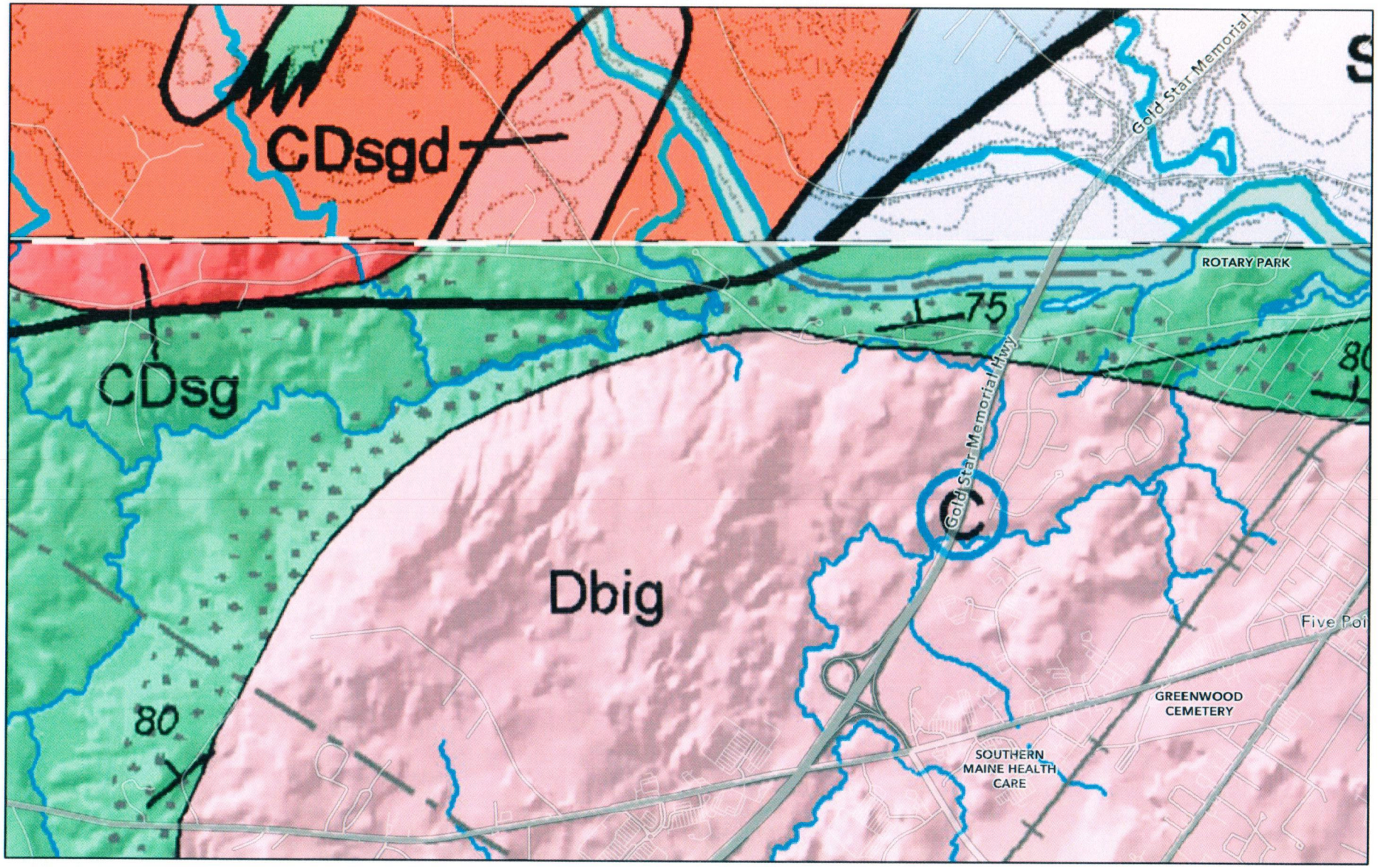
0 0.17 0.35 0.7 km

Esri Community Maps Contributors, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau,

Maine Geological Survey

Maine Geological Survey | Esri Community Maps Contributors, City of Biddeford, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA | Esri Community Maps Contributors,

FIGURE 3. Bedrock Geology 100K



8/5/2022, 1:56:37 PM

Image

Red: Band_1

Green: Band_2

1:36,112

0 0.23 0.45 0.9 mi

0 0.35 0.7 1.4 km

Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Maine Geological Survey

Maine Geological Survey

Maine Geological Survey | Esri Community Maps Contributors, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA | Esri Community Maps Contributors, Esri, HERE, Garmin, SafeGraph,

FIGURE 4. Maine Well Database

8/5/2022, 2:36:20 PM

Well Depth (ft)
- 50.1 - 100
- 100.1 - 150
- 200.1 - 250
- 250.1 - 300
- 300.1 - 400
- 400.1 - 500

Well Yield (gpm)
- 1.1 - 2
- 4.1 - 6
- 6.1 - 8
- 15.1 - 20
- 25.1 - 50

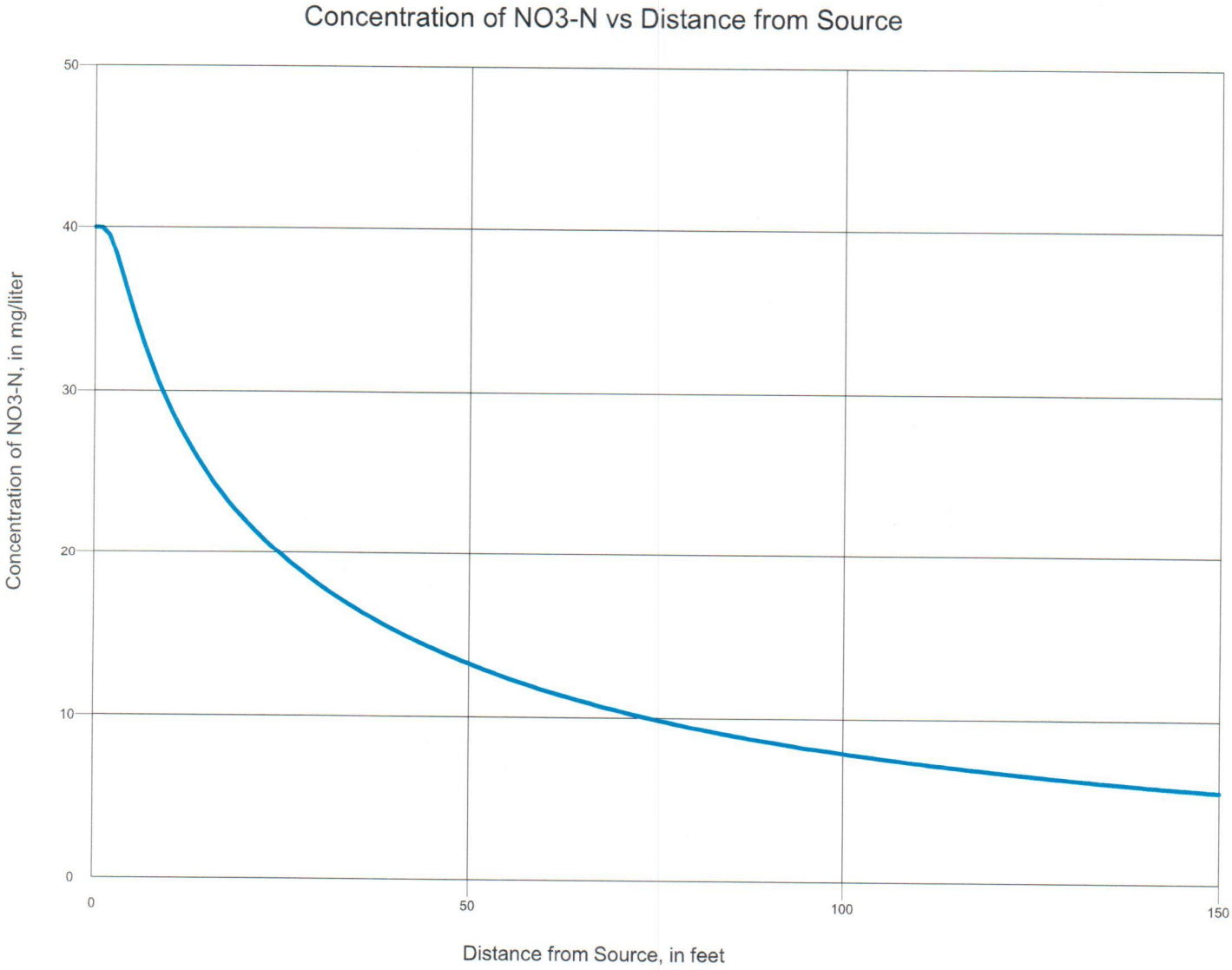
1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

Esri, HERE, Garmin, GeoTechnologies, Inc., NGA, USGS

Maine Geological Survey
2015


Concentration of NO3-N vs Distance from Source
Concentration of NO3-N, in mg/liter
50
40
30
20
10
0
0
50
100
150
Distance from Source, in feet

Attachment 12

Traffic Impact Study

Barton & Loguidice

TRAFFIC IMPACT STUDY

FOR PROPOSED

HIDDEN HILLS HOUSING PARK

WATERWORKS DRIVE, BIDDEFORD, MAINE

Prepared For: South Street Village, LLC

Prepared By: William Bray, P.E., Senior Managing Engineer
Jacob Sirois, Engineer 1

August 12,2022

Introduction

South Street Village, LLC, is proposing development of Hidden Hills Housing Park, an age restricted senior adult housing development, located on Waterworks Drive in the City of Biddeford (refer to Image 1 for location of the proposed project). The proposed site is located in the southeast quadrant of the intersection of South Street and Waterworks Drive. The site is 312.1 acres with frontage on South Street. The proposed development will provide 195-units of senior adult housing on individual lots. The site will be served by two proposed 20-foot-wide entrances located on the eastern side of Waterworks Drive named Topaz Drive and Lozolite Lane, located 750-feet and 1,230-feet; respectively, away from the existing intersection of South Street and Waterworks Drive. Access to the site will be provided from South Street via Waterworks drive.

The proposed site features 195 individual lots which are provided access by internal roadways which circulate throughout the site, a Maintenance Garage, and a Community Center with outdoor facilities for the residents. The internal roadways which circulate throughout the site are identified as Topaz Drive, Lozolite Lane, Garnet Drive, Ruby Road, Griffinite Way, and Onyx Circle. The internal access roadways are bi-directional and 20-feet wide with a 5-foot-wide sidewalk provided throughout the site.

The purpose of this traffic impact study is to examine existing traffic conditions in the general vicinity of the proposed project, estimate the total number of site trips generated by the project, and make a determination as to whether the existing transportation system can safely accommodate the added traffic demand generated by the project.

Image 1 Proposed Development Site

Existing Traffic Conditions

Manual turning movement traffic counts were conducted at the intersection of River Road and South Street, located approximately 0.72 miles west of the site intersection at Waterworks Drive to establish existing "*peak*" travel conditions at the intersection of Waterworks Drive and South Street. The morning and evening traffic data was collected on October 12th, 2021. All vehicular traffic entering the intersection was recorded in 15-minute intervals between the hours of 7:00 and 9:00 AM and, again,

between 3:00 and 6:00 PM. From a summary of the data, peak hour times were established for both "*peak*" commuter travel periods. The morning peak hour occurs between 7:15 and 8:15 AM, and the evening peak hour falls between 3:15 and 4:15 PM. Copies of the peak hour summary reports for the intersection at River Road and South Street are attached for reference.

Traffic data collected during the month of September requires an adjustment to reflect "*peak*" travel conditions found during the summer months of July and August. MaineDOT provides weekly mean factors for adjusting traffic data collected during other periods of time. MaineDOT utilizes highway classifications of I, II, or III for all State and Local roadways. MaineDOT's 2019 Count Book classifies South Street in the vicinity of the project as a Group I roadway which is defined as: "*urban roadways or those roads that typically see commuter traffic and experience little fluctuation from week to week throughout the year*". Given the Group I classification, minimal seasonal variation occurs throughout a typical year. Utilizing MaineDOT's Weekly Group Mean Factors we receive a seasonal adjustment factor of 1.047 which will be applied to the through volumes at the study intersection.

Given that the traffic counts have been projected from the intersection at River Road and South Street to the intersection of Waterworks drive and South Street, we have estimated the peak hour traffic turning onto and out of Waterworks Drive to be 5 vehicles in both directions, based on observed field conditions.

Figure 1, located in the Appendix, depicts the estimated 2021 design hour traffic conditions at the site intersection.

Future Traffic Growth

This traffic study has been prepared based upon a projected build-out year of 2024. MaineDOT's historical traffic data at the intersection of Main Street and South Street, east of the site, shows a negative annual growth of approximately 0.5% per year has occurred each year between 2016 and 2019.

To conservatively estimate future travel conditions at the study intersection, we have applied an annual growth rate of 1% per year to the 2021 design hour traffic to estimate 2024 design hour traffic conditions. Figure 2 attached in the Appendix of this report depicts the estimated 2024 Design Hour Traffic.

Site Trip Generation

Site Trip Generation: Trip generation for the proposed Hidden Hills Housing Park development was estimated based upon the latest edition (11th) of the Institute of Transportation Engineer's (ITE) Trip Generation Manual (TGM). The expected trip generation for the proposed development was estimated using the relevant land use code from the TGM, **LUC #251 – Senior Adult Housing – Single-Family**, which is described in the ITE TGM as: *a development with a specific age restriction for its residents, typically a minimum of 55 years of age for at least one resident of the household. The dwelling units can be either detached or attached.*

Site Trip Distribution: Vehicle Trips generated by the proposed site were assigned to/from Waterworks Drive based upon the directional splits presented in the ITE TGM for LUC #251.

Table 1 summarizes the trip generation calculations and travel distributions.

Table 1 ITE Trip Generation Calculations						
Land Use	Senior Adult Housing-Single Family - LUC 251					
Time Period	Dwelling Units	Trip Generation Rate Trips/Dwelling Units	Trips Generated	Distribution Entering / Exiting	Enter	Exit
Weekday	195	4.31	840	50% / 50%	420	420
AM Weekday Peak Hour (Street)	195	0.24	47	33% / 67%	16	31
PM Weekday Peak Hour (Street)	195	0.30	59	61% / 39%	36	23
AM Weekday Peak Hour (Generator)	195	0.34	66	43% / 57%	28	38
PM Weekday Peak Hour (Generator)	195	0.39	76	56% / 44%	43	33

The proposed project is projected to generate 47 trips during the AM peak hour of the (street) and 59 trips in the evening peak hour of the street. Peak hour trip generation values forecast for the peak hour of the site (generator) are slightly higher at 66 trips in the AM peak hour and 76 trips in the PM peak hour.

Site Trip Assignment

Peak hour site trips generated by the proposed Waterworks Drive senior adult housing development during both the morning and evening peak hours were assigned through the intersection of Waterworks Drive and South Street based upon existing directional distribution patterns collected at the intersection of River Road and South Street on October 12th, 2021. Copies of the peak hour summary sheets are attached for reference.

Figure 3 in the Appendix depicts the site generated trips following the existing travel patterns.

2024 Pre-Development Traffic

Other Development Traffic: Traffic generated by projects that have been approved by the planning board and/or the Maine Department of Transportation, yet are not opened, must be included in the estimate of pre-development traffic. The City of Biddeford was consulted to identify any and all development projects whose peak hour trips potentially impact the study area. Based on discussions with the City Planners office there are no other projects being reviewed or approved that will impact this intersection.

2024 Pre-Development Traffic: Given that there are no additional trips produced by other developments in the vicinity of the project, the pre-development trips don't vary from the 2024 design hour traffic shown in Figure 2.

2024 Post-Development Traffic

2024 Post-Development Traffic: 2024 post-development traffic estimates were prepared for the study intersection by combining the 2024 design hour traffic (2024 pre-development traffic), shown in Figure

2, with the site generated trips, shown in Figure 3. Figure 4 presents the 2024 post-development traffic forecast for the study intersection.

Left-Turn Lane Warrant Analysis

The National Cooperative Highway Research Program (NCHRP) report 457 provides a process to determine if projected traffic conditions at an intersection warrant a dedicated left-turn lane from the major street to the lower volume roadway. The NCHRP process uses four traffic inputs in determining if a dedicated left-turn lane is warranted: 1) posted speed limit; 2) advancing volume of traffic (both left-turn and through volumes); 3) opposing volume of through traffic and 4) percent of left-turns in the advancing volume.

The NCHRP report stipulates that where applicable the traffic volumes used for the analysis represent "*average*" travel conditions. The 2024 pre-development through traffic volumes were adjusted accordingly applying MaineDOT seasonal adjustment factors. The entry left-turn volumes from the east approach of South Street, used in the analysis, represent 2024 post-development conditions; without adjustment, as depicted on Figure 4. The following table, Table 2, summarizes the inputs and outputs of the analysis.

Table 2
NCHRP Report 457 Analysis: South Street WB at Waterworks Drive

Time Period	Advancing Volume (Va)	Opposing Volume (Vo)	Percent Left-Turns	Warrant Met (Yes/No)
Weekday AM Peak Hour	115	296	11%	No
Weekday PM Peak Hour	242	161	7%	No

As highlighted in the preceding table, a left-turn lane is not warranted at the intersection of South Street and Waterworks Drive. The graph produced by the NCHRP tool, attached at the end of the study, shows that the projected post-development average condition volumes are significantly lower than the minimum volumes which would warrant a left-turn lane.

Capacity Analysis

Capacity analyses of both 2024 Pre- and Post-development traffic conditions were performed for the study intersection at South Street and Waterworks Drive utilizing the Synchro and SimTraffic computer traffic models.

Levels of Service rankings are similar to the academic grading system, where an "A" is very good with little delay and "F" represents very poor conditions.

The following table present the relationship between delay and Level of Service for unsignalized intersections:

Level of Service Criteria for Unsignalized Intersections

Level of Service	Total Control Delay (sec/veh)
A	Up to 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

Table 3 summarizes the results of the capacity analysis completed for the intersection at South Street and Waterworks Drive. The chart compares the results determined for both peak hour time periods based upon 2024 pre- and post-development travel conditions.

Table 3
Level of Service Summary
2024 Pre- and Post-Development Conditions

	2024 Pre-Development				2024 Post-Development			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection/Approach	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS
South Street @ Waterworks Drive								
- South Street EB - Through	0.4	A	0.2	A	0.5	A	0.6	A
- South Street EB - Right	1.2	A	1.3	A	1.1	A	1.3	A
- South Street WB - left	0	A	1.7	A	3.3	A	2.3	A
- South Street WB - Through	0.1	A	0.3	A	0.3	A	0.5	A
- Waterworks Drive - Left	2.5	A	5.5	A	7.0	A	6.7	A
- Waterworks Drive - Right	3.3	A	3.4	A	3.5	A	3.4	A
- **Overall Intersection**	**0.4**	**A**	**0.3**	**A**	**0.9**	**A**	**0.9**	**A**

As shown in the preceding table, the intersection capacity analysis of both 2024 pre- and post-development traffic conditions clearly demonstrates the proposed 195-unit development project has no measurable impact on traffic operations at the intersection of South Street and Waterworks Drive. Each approach of the intersection operates with minimal vehicle delay during both peak hours, representative of Level of Service A conditions; defined as the "best" operating condition. A similar operating condition is predicted for the 2024 post-development conditions, where the Level of Service remains at an A.

Vehicle Sight Distance

The Maine Department of Transportation's Highway Entrance and Driveway Rules require the following sight distances for a non-mobility roadway:

Sight Distance Standards

Speed Limit	Sight Distance
25 mph	**200 feet**
30 mph	250 feet
35 mph	**305 feet**
40 mph	360 feet
45 mph	425 feet
50 mph	495 feet

MaineDOT's Rules and Regulations require sight distance to be measured in accordance with the following procedures: *"Sight distance is measured to and from the point on the centerline of the proposed access that is located 10-feet from the edge of traveled way. The height of the hypothetical person's view is considered to be 3½ feet above the pavement and the height of the object being viewed is considered to be 4¼ feet above the pavement."*

Vehicle sight distance measurements were field determined for the Waterworks Drive approach at South Street, and the proposed site driveway entrances located on Waterworks Drive. The measured distances are listed as follows:

Waterworks Drive @ South Street
Looking Left =375'+
Looking Right = 375'+

Topaz Drive (Northern Site Entrance) @ Waterworks Drive
Looking Left = 700'+
Looking Right = 750' – Can see through intersection with South Street

Lozolite Lane (Southern Site Entrance) @ Waterworks Drive
Looking Left = 500'+
Looking Right = 1,235' – Can see through intersection with South Street

The official speed limit on South Street at Waterworks Drive is 35mph. The Standard Sight Distance required for a speed limit of 35mph is 305-feet. Based upon our field investigation acceptable sight distance is provided in both directions of travel on South Street well in excess of the minimum standard for a posted speed limit of 35mph.

The speed limit on Waterworks Drive at the two site entrances is presently unposted and assumed to be 25mph which requires an unobstructed sight distance of 200-feet. The existing sight distance at both site driveway entrances looking left and right exceeds this requirement.

Existing Road Safety Conditions

Existing site conditions at both proposed driveway locations on Waterworks Drive presently exceed MaineDOT's driveway grade standards of a maximum grade of 10% for a length of 150-feet. The grade of the proposed entrances must meet MaineDOT's driveway standards upon construction

The Maine Department of Transportation's (MaineDOT) Accident Records Section provided the latest three-year (2019 through 2021) crash data for the section of South Street between and including River Road, easterly to the intersection at Main Street for a distance of approximately 1.70 miles. Their report is presented as follows.

2019 - 2021 Crash Summary
South Street between River Road & Main Street

Location	Number of Accidents	Critical Rate Factor
1. South Street @ Hollis Road	1	0.47
2. South Street @ Cathedral Oaks Drive	1	0.40
3. South Street @ Main Street	3	1.16
4. South Street @ Glenview Drive	1	0.55
5. South Street @ River Road	1	0.53
6. South Street btw. Main Street and Cathedral Oaks Drive	2	0.39
7. South Street from Cathedral Oaks Drive, west for 0.12 miles	1	0.35
8. South Street from Old Hollis Road, west for 0.18 miles	1	0.26
9. South Street from Glenview Drive, east for 0.28 miles	2	0.63
10. South Street btw. River Road and Fox Hollow Drive	**9**	**1.06**

The MDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents and,***
- ***A Critical Rate Factor greater than 1.00***

As the data presented in the chart shows, there is one location within the defined study area that meets both of MaineDOT's criteria as a high crash location, located on South Street between River Road and Fox Hollow Drive.

MaineDOT's Safety office prepared a detailed vehicle collision diagram for the high crash location, illustrating the cause and location of each crash. The collision diagram shows that eight (8) out of the nine crashes were single vehicle accidents, with four (4) crashes caused by "reckless driving", and the other four were caused by speed, sleep, oversteering, and a deer in the road.

Summary

1. The proposed Hidden Hills Housing Park, a 195-Unit Development, is expected to produce approximately 47 trips during the morning peak hour, and an additional 59 trips during the evening peak hour.

2. A left-turn lane analysis was completed on the westbound approach of South Street. Separate analyses were completed for both peak hour time periods. The analysis was conducted using the national Cooperative Highway Research program (NCHRP) report 457 and shows a dedicated left-turn lane is not warranted on the westbound approach of South Street at the intersection with Waterworks Drive.

3. A capacity analysis was performed for the study intersection of South Street and Waterworks Drive. The analysis shows the proposed 195-unit development project has no measurable impact on traffic operations at the intersection of South Street and Waterworks Drive. Each approach of the intersection presently operates with minimal vehicle delay during the peak hours, representative of Level of Service A conditions; defined as the "best" operating condition. A similar operating condition is predicted for the 2024 post-development condition, where the Level of Service remains at an A.

4. South Street at the intersection of Waterworks Drive is presently 35mph which requires an unobstructed sight distance of 305-feet. Field measurements indicate sight distance looking left and right from the Waterworks Drive approach exceed 375-feet, well in excess of the minimum standard for a posted speed limit of 35mph.

5. Sight distance measurements looking left and right from the proposed site entrances at Waterworks Drive were measured to be in excess of the requirements for an assumed speed limit of 25mph, with sight distance measurements exceeding 500-feet directionally at both proposed driveway entrances.

William J. Bray, P.E. Date: 08/09/2022

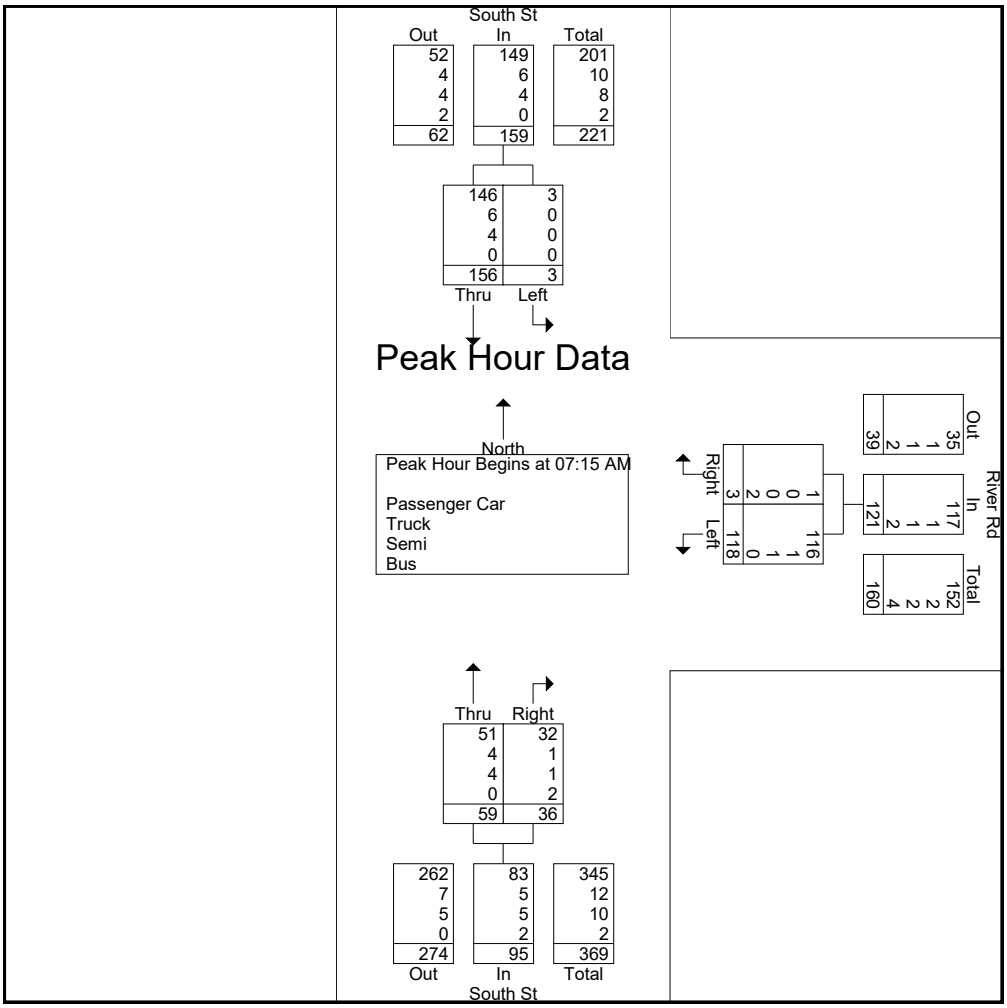
APPENDIX

Traffic Solutions

17 Mount View Dr
Gorham, ME 04038

File Name : Biddeford South St & River Rd 10-12-21 AM
Site Code : 01012211
Start Date : 10/12/2021
Page No : 4

	South St From North			River Rd From East			South St From South			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	33	0	33	0	25	25	10	**17**	**27**	85
07:30 AM	**48**	**1**	**49**	0	28	28	4	16	20	97
07:45 AM	37	1	38	1	28	29	**13**	12	25	92
08:00 AM	38	1	39	**2**	**37**	**39**	9	14	23	**101**
Total Volume	156	3	159	3	118	121	36	59	95	375
% App. Total	98.1	1.9		2.5	97.5		37.9	62.1		
PHF	.813	.750	.811	.375	.797	.776	.692	.868	.880	.928
Passenger Car	146	3	149	1	116	117	32	51	83	349
% Passenger Car	93.6	100	93.7	33.3	98.3	96.7	88.9	86.4	87.4	93.1
Truck	6	0	6	0	1	1	1	4	5	12
% Truck	3.8	0	3.8	0	0.8	0.8	2.8	6.8	5.3	3.2
Semi	4	0	4	0	1	1	1	4	5	10
% Semi	2.6	0	2.5	0	0.8	0.8	2.8	6.8	5.3	2.7
Bus	0	0	0	2	0	2	2	0	2	4
% Bus	0	0	0	66.7	0	1.7	5.6	0	2.1	1.1

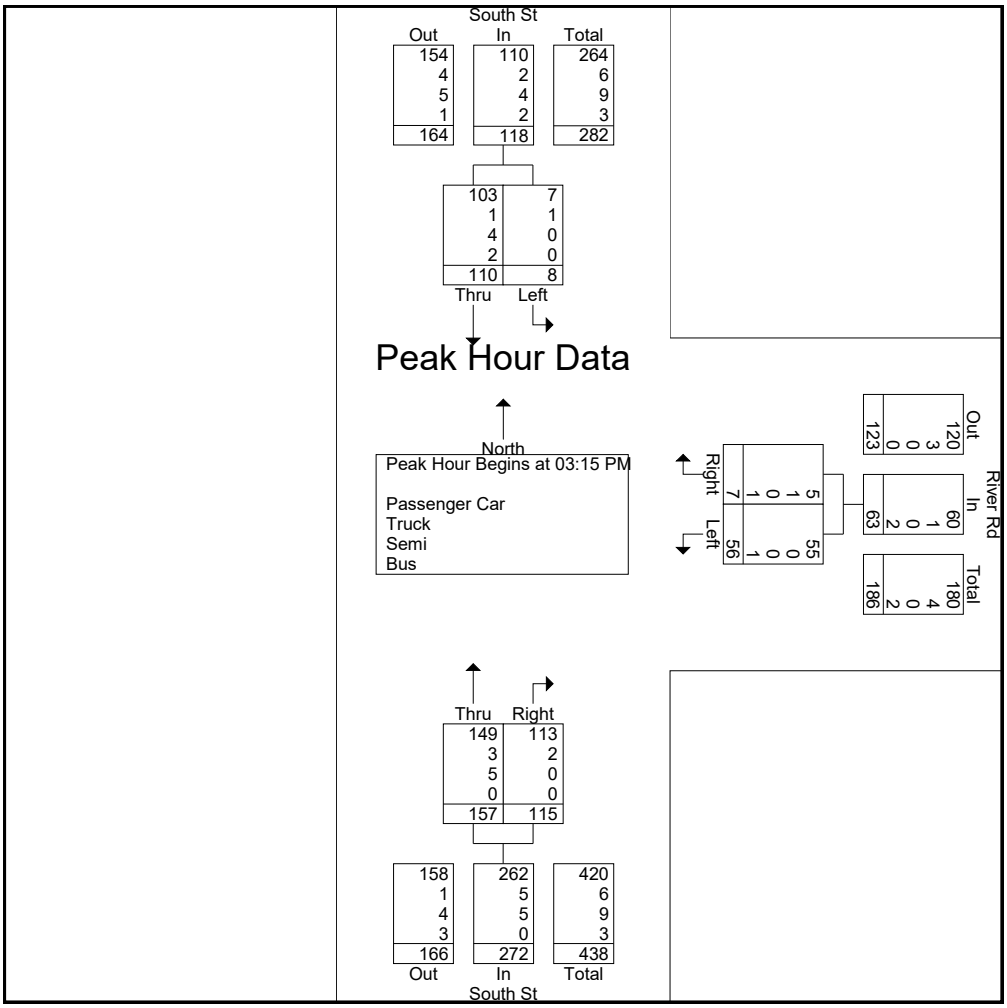


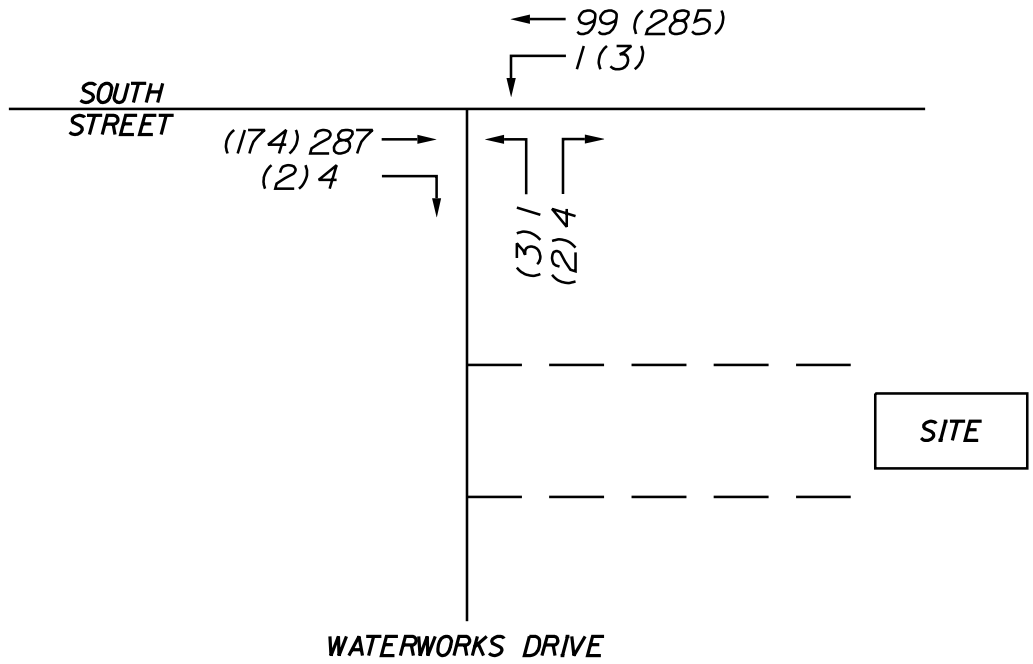
Traffic Solutions

17 Mount View Dr
Gorham, ME 04038

File Name : Biddeford South St & River Rd 10-12-21 PM
Site Code : 01012212
Start Date : 10/12/2021
Page No : 4

	South St From North			River Rd From East			South St From South			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:15 PM										
03:15 PM	26	1	27	**4**	14	18	27	41	68	113
03:30 PM	28	1	29	0	12	12	26	30	56	97
03:45 PM	26	**4**	30	0	13	13	**34**	41	**75**	118
04:00 PM	**30**	2	**32**	3	**17**	**20**	28	**45**	73	**125**
Total Volume	110	8	118	7	56	63	115	157	272	453
% App. Total	93.2	6.8		11.1	88.9		42.3	57.7		
PHF	.917	.500	.922	.438	.824	.788	.846	.872	.907	.906
Passenger Car	103	7	110	5	55	60	113	149	262	432
% Passenger Car	93.6	87.5	93.2	71.4	98.2	95.2	98.3	94.9	96.3	95.4
Truck	1	1	2	1	0	1	2	3	5	8
% Truck	0.9	12.5	1.7	14.3	0	1.6	1.7	1.9	1.8	1.8
Semi	4	0	4	0	0	0	0	5	5	9
% Semi	3.6	0	3.4	0	0	0	0	3.2	1.8	2.0
Bus	2	0	2	1	1	2	0	0	0	4
% Bus	1.8	0	1.7	14.3	1.8	3.2	0	0	0	0.9





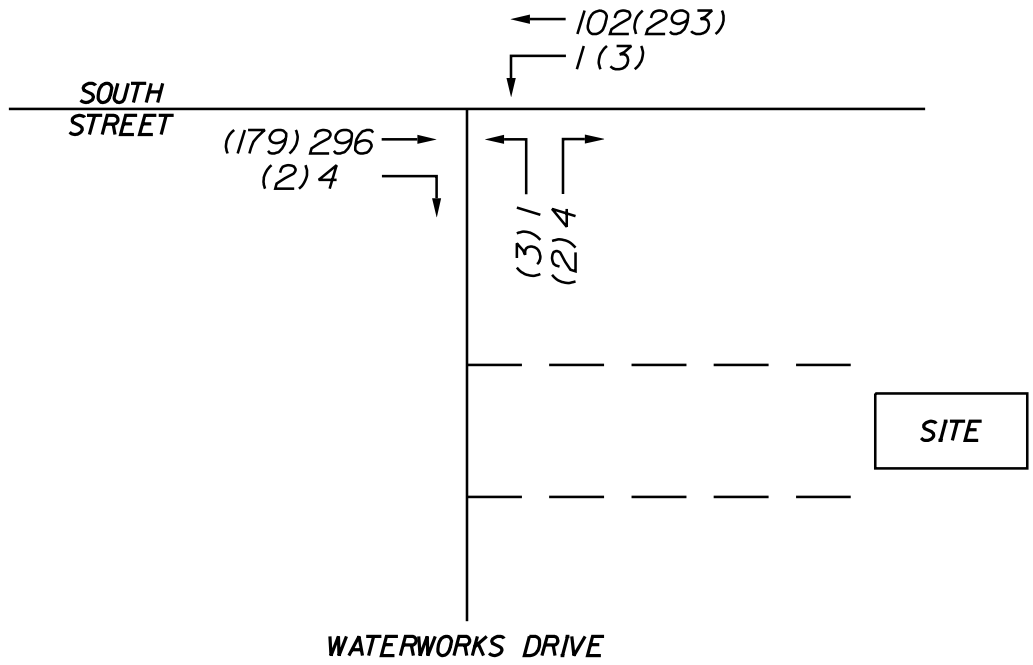
LEGEND
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

2021 DESIGN HOUR TRAFFIC
WEEKDAY AM & PM PEAK HOUR
FIGURE 1

HIDDEN HILLS
HOUSING PARK
BIDDEFORD, MAINE

DATE: JULY, 2022

Barton & Loguidice

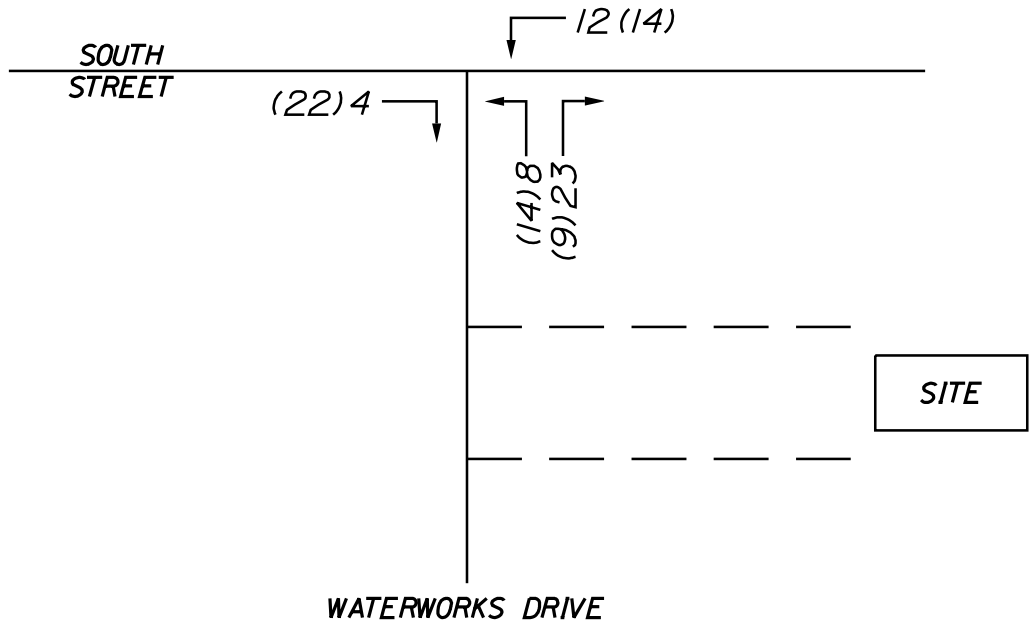


LEGEND
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

2024 DESIGN HOUR TRAFFIC
WEEKDAY AM & PM PEAK HOURS
FIGURE 2

HIDDEN HILLS
HOUSING PARK
BIDDEFORD, MAINE
DATE: JULY, 2022

Barton & Loguidice

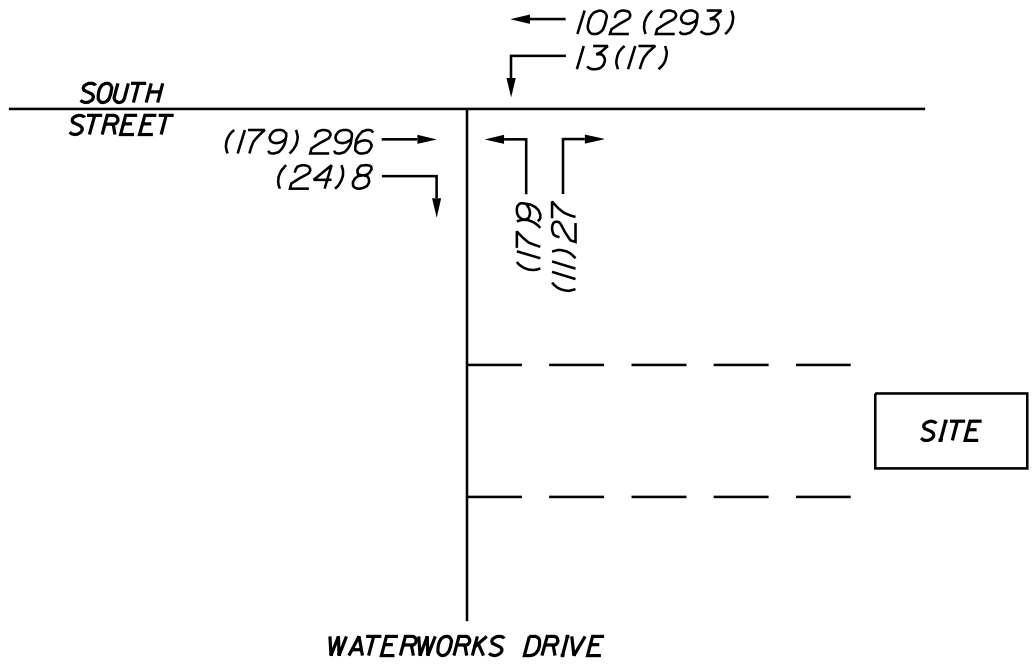


LEGEND
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

SITE TRIP ASSIGNMENT
WEEKDAY AM & PM PEAK HOURS
FIGURE 3

HIDDEN HILLS
HOUSING PARK
BIDDEFORD, MAINE
DATE: JULY, 2022

Barton & Loguidice



LEGEND
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

2024 POST-DEVELOPMENT
WEEKDAY AM & PM PEAK HOURS
FIGURE 4

HIDDEN HILLS
HOUSING PARK
BIDDEFORD, MAINE
DATE: JULY, 2022

Barton & Loguidice

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

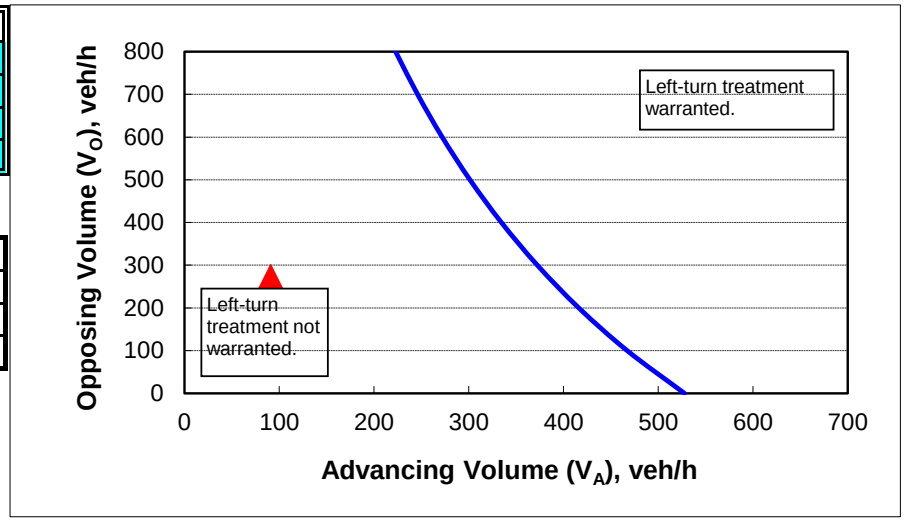
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	14%
Advancing volume (V_A), veh/h:	91
Opposing volume (V_O), veh/h:	274

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	383
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

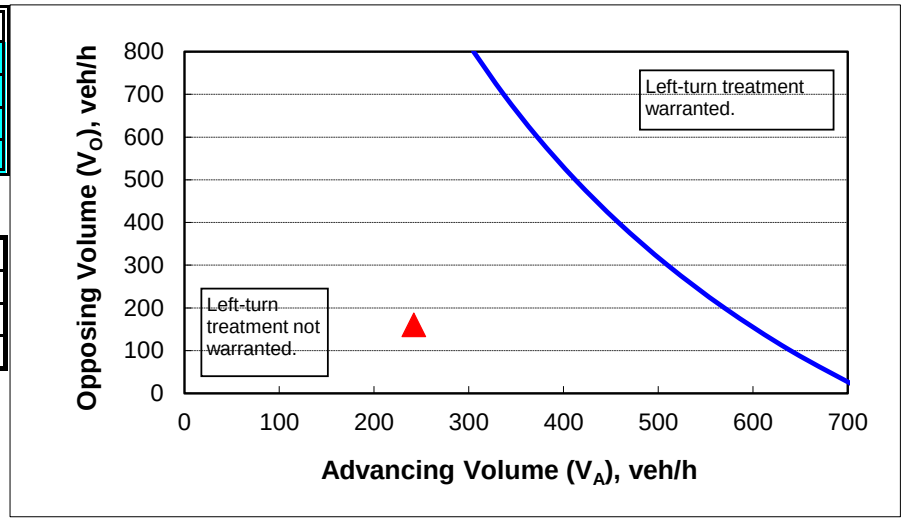
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	7%
Advancing volume (V_A), veh/h:	242
Opposing volume (V_O), veh/h:	161

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	596
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	399	448	408	393	380	406
Vehs Exited	400	445	409	389	382	405
Starting Vehs	4	1	4	1	4	3
Ending Vehs	3	4	3	5	2	3
Travel Distance (mi)	107	120	110	105	103	109
Travel Time (hr)	3.7	4.2	3.8	3.7	3.6	3.8
Total Delay (hr)	0.1	0.1	0.1	0.1	0.1	0.1
Total Stops	12	3	6	3	4	6
Fuel Used (gal)	3.2	3.5	3.2	3.1	3.0	3.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	399	448	408	393	380	406
Vehs Exited	400	445	409	389	382	405
Starting Vehs	4	1	4	1	4	3
Ending Vehs	3	4	3	5	2	3
Travel Distance (mi)	107	120	110	105	103	109
Travel Time (hr)	3.7	4.2	3.8	3.7	3.6	3.8
Total Delay (hr)	0.1	0.1	0.1	0.1	0.1	0.1
Total Stops	12	3	6	3	4	6
Fuel Used (gal)	3.2	3.5	3.2	3.1	3.0	3.2

2: Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.3	0.2		0.2	0.1	0.1	0.2
Total Del/Veh (s)	0.4	1.2		0.1	2.5	3.3	0.4

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	0.7

Intersection: 2:

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	31
Average Queue (ft)	0	5
95th Queue (ft)	4	24
Link Distance (ft)	677	430
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:12	3:12	3:12	3:12	3:12	3:12
End Time	4:15	4:15	4:15	4:15	4:15	4:15
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	488	516	511	494	435	490
Vehs Exited	490	512	506	493	437	488
Starting Vehs	8	3	1	3	5	3
Ending Vehs	6	7	6	4	3	5
Travel Distance (mi)	132	139	137	133	117	131
Travel Time (hr)	4.6	4.8	4.8	4.6	4.1	4.6
Total Delay (hr)	0.1	0.1	0.1	0.1	0.1	0.1
Total Stops	5	7	7	2	4	5
Fuel Used (gal)	3.8	4.1	4.0	3.9	3.4	3.8

Interval #0 Information Seeding

Start Time	3:12
End Time	3:15
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	3:15
End Time	4:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	488	516	511	494	435	490
Vehs Exited	490	512	506	493	437	488
Starting Vehs	8	3	1	3	5	3
Ending Vehs	6	7	6	4	3	5
Travel Distance (mi)	132	139	137	133	117	131
Travel Time (hr)	4.6	4.8	4.8	4.6	4.1	4.6
Total Delay (hr)	0.1	0.1	0.1	0.1	0.1	0.1
Total Stops	5	7	7	2	4	5
Fuel Used (gal)	3.8	4.1	4.0	3.9	3.4	3.8

2: Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.2	0.2	0.1	0.2	0.1	0.1	0.2
Total Del/Veh (s)	0.2	1.3	1.7	0.3	5.5	3.4	0.3

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	0.7

Intersection: 2:

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	32
Average Queue (ft)	0	5
95th Queue (ft)	4	22
Link Distance (ft)	677	430
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	442	454	474	450	423	449
Vehs Exited	441	452	474	444	423	447
Starting Vehs	2	3	5	1	4	2
Ending Vehs	3	5	5	7	4	5
Travel Distance (mi)	117	119	126	118	111	118
Travel Time (hr)	4.2	4.3	4.4	4.3	4.0	4.2
Total Delay (hr)	0.2	0.2	0.2	0.2	0.2	0.2
Total Stops	35	49	34	48	42	42
Fuel Used (gal)	3.6	3.6	3.8	3.6	3.4	3.6

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	442	454	474	450	423	449
Vehs Exited	441	452	474	444	423	447
Starting Vehs	2	3	5	1	4	2
Ending Vehs	3	5	5	7	4	5
Travel Distance (mi)	117	119	126	118	111	118
Travel Time (hr)	4.2	4.3	4.4	4.3	4.0	4.2
Total Delay (hr)	0.2	0.2	0.2	0.2	0.2	0.2
Total Stops	35	49	34	48	42	42
Fuel Used (gal)	3.6	3.6	3.8	3.6	3.4	3.6

2: Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.2	0.3	0.2	0.2	0.1	0.1	0.2
Total Del/Veh (s)	0.5	1.1	3.3	0.3	7.0	3.5	0.9

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	1.3

Intersection: 2:

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	45	53
Average Queue (ft)	4	24
95th Queue (ft)	27	50
Link Distance (ft)	677	430
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:12	3:12	3:12	3:12	3:12	3:12
End Time	4:15	4:15	4:15	4:15	4:15	4:15
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	552	587	561	542	495	548
Vehs Exited	551	584	559	540	498	547
Starting Vehs	6	4	4	3	5	3
Ending Vehs	7	7	6	5	2	6
Travel Distance (mi)	145	154	147	143	131	144
Travel Time (hr)	5.2	5.5	5.4	5.1	4.7	5.2
Total Delay (hr)	0.3	0.3	0.3	0.2	0.2	0.2
Total Stops	37	45	30	31	28	34
Fuel Used (gal)	4.5	4.7	4.6	4.4	4.0	4.4

Interval #0 Information Seeding

Start Time	3:12
End Time	3:15
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	3:15
End Time	4:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	552	587	561	542	495	548
Vehs Exited	551	584	559	540	498	547
Starting Vehs	6	4	4	3	5	3
Ending Vehs	7	7	6	5	2	6
Travel Distance (mi)	145	154	147	143	131	144
Travel Time (hr)	5.2	5.5	5.4	5.1	4.7	5.2
Total Delay (hr)	0.3	0.3	0.3	0.2	0.2	0.2
Total Stops	37	45	30	31	28	34
Fuel Used (gal)	4.5	4.7	4.6	4.4	4.0	4.4

2: Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.2	0.2	0.3	0.3	0.1	0.1	0.2
Total Del/Veh (s)	0.6	1.3	2.3	0.5	6.7	3.4	0.9

Total Network Performance

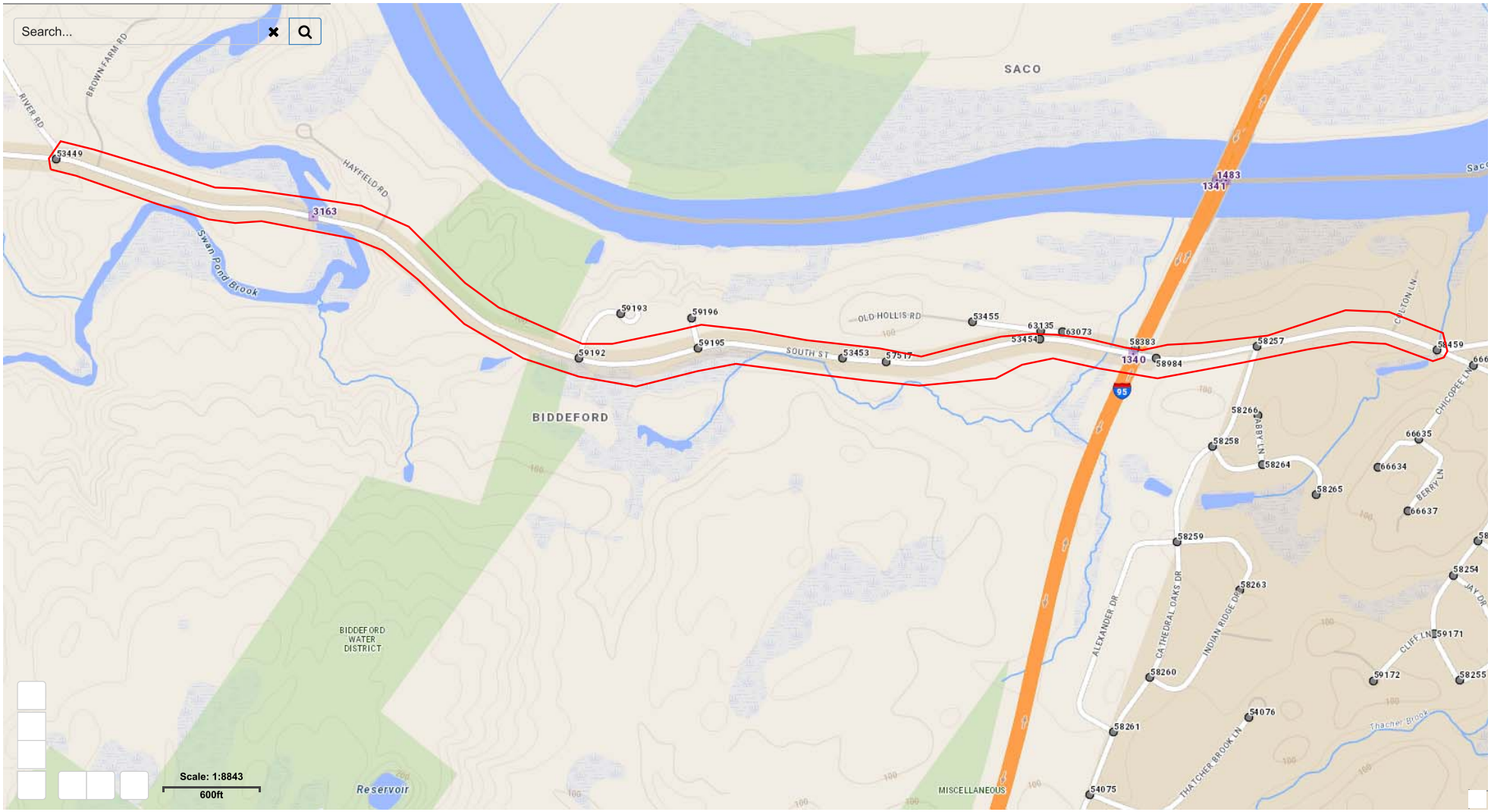
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	1.4

Intersection: 2:

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	39	41
Average Queue (ft)	3	20
95th Queue (ft)	21	45
Link Distance (ft)	677	430
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0


Search...
SACO
BIDDEFORD
RIVER RD
BROWN FARM RD
HAYFIELD RD
Swan Pond Brook
OLD HOLLIS RD
SOUTH ST
CLEVELAND LN
CHICOPEE LN
ABBY LN
BERRY LN
ALEXANDER DR
CATHEDRAL OAKS DR
INDIAN RIDGE DR
CLIFF LN
JAY DR
THATCHER BROOK LN
Thacher Brook
BIDDEFORD WATER DISTRICT
Reservoir
MISCELLANEOUS
95
53449
3163
59193
59196
59192
59195
53453
57517
53455
63135
53454
63073
58383
1340
58984
58257
53459
1483
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59171
59172
58255
58260
58261
54076
54075
Scale: 1:8843
600ft

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☐ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☐ **1320 Summary**

REPORT DESCRIPTION

Biddeford
South St. from Main St. to River Rd.

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2021 End Month: 12

Route: **3110151**	Start Node: **58459**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **57517**	End Offset: **0**	☐ **Exclude Last Node**
Route: **3110891**	Start Node: **57517**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **53449**	End Offset: **0**	☐ **Exclude Last Node**

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
53454	3110151 - 1.91	Int of OLD HOLLIS RD SOUTH ST	2	1	0	0	0	1	0	100.0	1.592	0.21	0.45	0.00
												Statewide Crash Rate:	0.13	
58257	3110151 - 1.65	Int of CATHEDRAL OAKS DR SOUTH ST	2	1	0	0	0	0	1	0.0	1.930	0.17	0.43	0.00
												Statewide Crash Rate:	0.13	
57517	3110151 - 2.09	Non Int SOUTH ST	2	0	0	0	0	0	0	0.0	1.499	0.00	0.46	0.00
												Statewide Crash Rate:	0.13	
58459	3110151 - 1.43	Int of MAIN ST SOUTH ST	2	3	0	1	0	0	2	33.3	2.038	0.49	0.42	1.16
												Statewide Crash Rate:	0.13	
58984	3110151 - 1.77	Non Int SOUTH ST	2	0	0	0	0	0	0	0.0	1.591	0.00	0.45	0.00
												Statewide Crash Rate:	0.13	
53453	3110891 - 0.05	Non-Int SOUTH ST	2	0	0	0	0	0	0	0.0	1.356	0.00	0.47	0.00
												Statewide Crash Rate:	0.13	
59195	3110891 - 0.22	Int of GLENNVIEW DR SOUTH ST	2	1	0	0	0	0	1	0.0	1.286	0.26	0.47	0.00
												Statewide Crash Rate:	0.13	
59192	3110891 - 0.36	Int of FOX HOLLOW DR SOUTH ST	2	0	0	0	0	0	0	0.0	1.266	0.00	0.47	0.00
												Statewide Crash Rate:	0.13	
53449	3110891 - 1.02	Int of RIVER RD SOUTH ST	2	1	0	0	1	0	0	100.0	1.310	0.25	0.47	0.00
												Statewide Crash Rate:	0.13	
Study Years:	3.00	**NODE TOTALS:**		7	0	1	1	1	4	42.9	13.868	0.17	0.26	0.64

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
58257	58459	3939981	0 - 0.22	3110151 - 1.43	0.22	2	2	0	0	0	0	2	0.0	0.00418	159.35	410.50	0.00
Int of CATHEDRAL OAKS DR SOUTH ST				RD INV 31 10151											Statewide Crash Rate: 159.73		
58257	58984	3122829	0 - 0.12	3110151 - 1.65	0.12	2	1	0	0	0	0	1	0.0	0.00191	174.59	502.61	0.00
Int of CATHEDRAL OAKS DR SOUTH ST				RD INV 31 10151											Statewide Crash Rate: 159.73		
53454	58984	3119837	0 - 0.14	3110151 - 1.77	0.14	2	0	0	0	0	0	0	0.0	0.00223	0.00	483.17	0.00
Int of OLD HOLLIS RD SOUTH ST				RD INV 31 10151											Statewide Crash Rate: 159.73		
53454	57517	3139364	0 - 0.18	3110151 - 1.91	0.18	2	1	0	0	1	0	0	100.0	0.00283	117.63	454.02	0.00
Int of OLD HOLLIS RD SOUTH ST				RD INV 31 10151											Statewide Crash Rate: 159.73		
53453	57517	241543	0 - 0.05	3110891 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00071	0.00	630.09	0.00
Non-Int SOUTH ST				RD INV 31 10891											Statewide Crash Rate: 159.73		
59195	53453	1951279	0 - 0.17	3110891 - 0.05	0.17	2	2	0	0	0	0	2	0.0	0.00219	304.45	485.30	0.00
Int of GLENNVIEW DR SOUTH ST				RD INV 31 10891											Statewide Crash Rate: 159.73		
59192	59195	3139365	0 - 0.14	3110891 - 0.22	0.14	2	0	0	0	0	0	0	0.0	0.00179	0.00	510.78	0.00
Int of FOX HOLLOW DR SOUTH ST				RD INV 31 10891											Statewide Crash Rate: 159.73		
53449	59192	5076691	0 - 0.66	3110891 - 0.36	0.66	2	9	0	1	2	0	6	33.3	0.00817	367.03	347.25	1.06
Int of RIVER RD SOUTH ST				RD INV 31 10891											Statewide Crash Rate: 159.73		
Study Years:	3.00			**Section Totals:**	1.68		15	0	1	3	0	11	26.7	0.02402	208.15	274.07	0.76
				Grand Totals:	1.68		22	0	2	4	1	15	31.8	0.02402	305.29	371.74	0.82

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
58257	58459	3939981	0 - 0.22	3110151 - 1.43	2	0	0	0	0	2	2019-42502	02/17/2019	1.55	PD
											2021-5408	02/27/2021	1.64	PD
58257	58984	3122829	0 - 0.12	3110151 - 1.65	1	0	0	0	0	1	2019-2179	01/08/2019	1.73	PD
53454	58984	3119837	0 - 0.14	3110151 - 1.77	0	0	0	0	0	0				
53454	57517	3139364	0 - 0.18	3110151 - 1.91	1	0	0	1	0	0	2019-64943	09/16/2019	2.08	B
53453	57517	241543	0 - 0.05	3110891 - 0	0	0	0	0	0	0				
59195	53453	1951279	0 - 0.17	3110891 - 0.05	2	0	0	0	0	2	2021-20850	08/08/2021	0.08	PD
											2021-16251	06/24/2021	0.16	PD
59192	59195	3139365	0 - 0.14	3110891 - 0.22	0	0	0	0	0	0				
53449	59192	5076691	0 - 0.66	3110891 - 0.36	9	0	1	2	0	6	2019-75573	12/05/2019	0.53	PD
											2019-75639	10/23/2019	0.59	A
											2019-55369	06/11/2019	0.63	PD
											2021-34866	12/08/2021	0.81	PD
											2020-16988	07/18/2020	0.82	PD
											2019-62328	08/20/2019	0.94	PD
											2021-8073	03/31/2021	0.94	PD
											2021-34872	12/04/2021	0.98	B
											2020-20539	08/28/2020	1.01	B
				Totals:	15	0	1	3	0	11				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM													
	Hour of Day																									
Day Of Week	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**Un**	**Tot**
SUNDAY	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	3
MONDAY	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0	0	0	0	4
WEDNESDAY	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	4
THURSDAY	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
FRIDAY	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	1	0	0	0	0	4
Totals	1	0	0	0	0	0	2	0	1	1	0	0	2	2	1	1	4	2	0	2	2	0	1	0	0	**22**

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	18	23-Bicyclist	1
2-(Sport) Utility Vehicle	3	24-Witness	3
3-Passenger Van	0	25-Other	0
4-Cargo Van (10K lbs or Less)	0	26-Construction	0
5-Pickup	8	27-Farm Vehicle	0
6-Motor Home	0	**Total**	**34**
7-School Bus	0		
8-Transit Bus	0		
9-Motor Coach	0		
10-Other Bus	0		
11-Motorcycle	1		
12-Moped	0		
13-Low Speed Vehicle	0		
14-Autocycle	0		
15-Experimental	0		
16-Other Light Trucks (10,000 lbs or Less)	0		
17-Medium/Heavy Trucks (More than 10,000 lbs)	0		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	0		

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	3	6	1	0	0	0	10
Ran Off Roadway	3	0	0	0	0	0	3
Failed to Yield Right-of-Way	1	0	0	0	0	0	1
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	1	0	0	0	0	0	1
Drove Too Fast For Conditions	4	0	0	0	0	0	4
Improper Turn	0	0	0	0	0	0	0
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	2	0	0	0	0	0	2
Failed to Keep in Proper Lane	1	0	0	0	0	0	1
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	6	0	0	0	0	0	6
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	1	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0
Total	**22**	**6**	**1**	**0**	**0**	**0**	**29**

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	19	6	1	0	0	0	26
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	1	0	0	0	0	0	1
Under the Influence of Medications/Drugs/Alcohol	1	1	0	0	0	0	2
Other	1	0	0	0	0	0	1
Total	**22**	**7**	**1**	**0**	**0**	**0**	**30**

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	4	0	0	0	0	4
20-24	6	0	0	0	0	6
25-29	4	0	0	0	0	4
30-39	8	0	0	0	0	8
40-49	2	0	0	0	0	2
50-59	3	0	0	0	0	3
60-69	2	0	0	0	0	2
70-79	0	0	0	0	0	0
80-Over	0	0	0	0	0	0
Unknown	1	1	0	0	0	2
Total	**30**	**1**	**0**	**0**	**0**	**31**

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total
1-Overturn / Rollover	2
2-Fire / Explosion	0
3-Immersion	0
4-Jackknife	0
5-Cargo / Equipment Loss Or Shift	0
6-Fell / Jumped from Motor Vehicle	0
7-Thrown or Falling Object	0
8-Other Non-Collision	1
9-Pedestrian	0
10-Pedalcycle	1
11-Railway Vehicle - Train, Engine	0
12-Animal	1
13-Motor Vehicle in Transport	13
14-Parked Motor Vehicle	0
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	1
16-Work Zone / Maintenance Equipment	0
17-Other Non-Fixed Object	2
18-Impact Attenuator / Crash Cushion	0
19-Bridge Overhead Structure	0
20-Bridge Pier or Support	0
21-Bridge Rail	0
22-Cable Barrier	0
23-Culvert	1
24-Curb	0
25-Ditch	0
26-Embankment	0
27-Guardrail Face	1
28-Guardrail End	0
29-Concrete Traffic Barrier	0
30-Other Traffic Barrier	0
31-Tree (Standing)	3
32-Utility Pole / Light Support	2
33-Traffic Sign Support	0
34-Traffic Signal Support	0
35-Fence	1
36-Mailbox	1
37-Other Post, Pole, or Support	0
38-Other Fixed Object (wall, building, tunnel, etc.)	0
39-Unknown	0
40-Gate or Cable	0
41-Pressure Ridge	0
Total	**30**

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	0
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	9
6-Yield Sign	0
7-Curve Warning Sign	2
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	11
14-Other	0
Total	**22**

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	2	2
B	4	4
C	1	4
PD	15	0
Total	**22**	**10**

Road Character

Road Grade	Total
1-Level	12
2-On Grade	9
3-Top of Hill	1
4-Bottom of Hill	0
5-Other	0
Total	**22**

Light

Light Condition	Total
1-Daylight	14
2-Dawn	1
3-Dusk	0
4-Dark - Lighted	5
5-Dark - Not Lighted	2
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	**22**

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2019	2020	2021	Total
JANUARY	1	1	0	2
FEBRUARY	1	0	1	2
MARCH	0	0	1	1
APRIL	0	1	0	1
MAY	0	0	0	0
JUNE	1	2	1	4
JULY	0	1	0	1
AUGUST	1	1	1	3
SEPTEMBER	1	1	0	2
OCTOBER	1	0	0	1
NOVEMBER	0	1	0	1
DECEMBER	1	1	2	4
Total	**7**	**9**	**6**	**22**

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	0	1	3	0	0	0	0	0	0	0	0	0	0	0	4
Head-on - Sideswipe	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Intersection Movement	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	5	6	2	0	0	0	0	0	0	0	0	0	0	0	13
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**6**	**9**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22**

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	3	1	0	0	0	0	0	0	0	0	0	4
Dark - Not Lighted	1	0	0	0	0	0	0	0	0	0	1	2
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	12	1	0	0	0	0	0	0	0	0	1	14
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	1	0	0	0	0	0	0	0	0	0	0	1
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	1	0	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**17**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**22**

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **YORK** TOWN: **BIDDEFORD**

LOW NODE: **53449** HIGH NODE: **59192** REGION: **1** U/R: **URBAN**

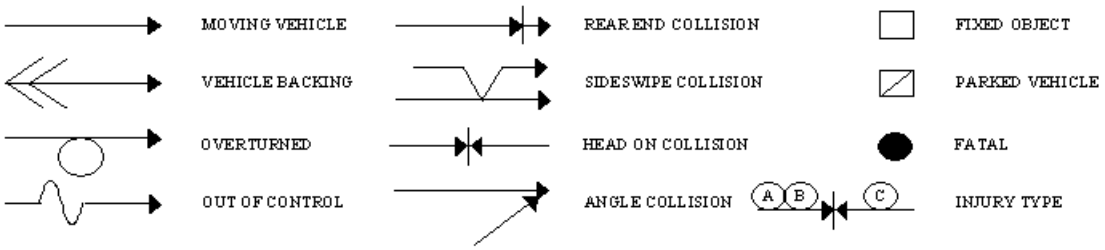
DESCRIPTION: **South St from River Rd to Fox Hollow Dr**

RTE # / RD #: **3100891** DATE DRAWN: **6/27/2022** DRAWN BY: **Michelle**

STUDY FROM: **1/1/2019** STUDY TO: **12/31/2021**

CRASH RATE: **367.03** CRF: **1.6** % INJURY: **33.3** TOTAL CRASHES: **9**

LEGEND



- - - - - - **PATH OF**: P PEDESTRIAN B BICYCLE A ANIMAL S SLED

PAVEMENT: D - DRY, I - ICY, W - WET, S - SNOW

WEATHER: C - CLEAR, F - FOG, R - RAIN, SL - SLEET, S - SNOW, CL - CLOUDY

TIME: A - AM, P - PM

Biddeford

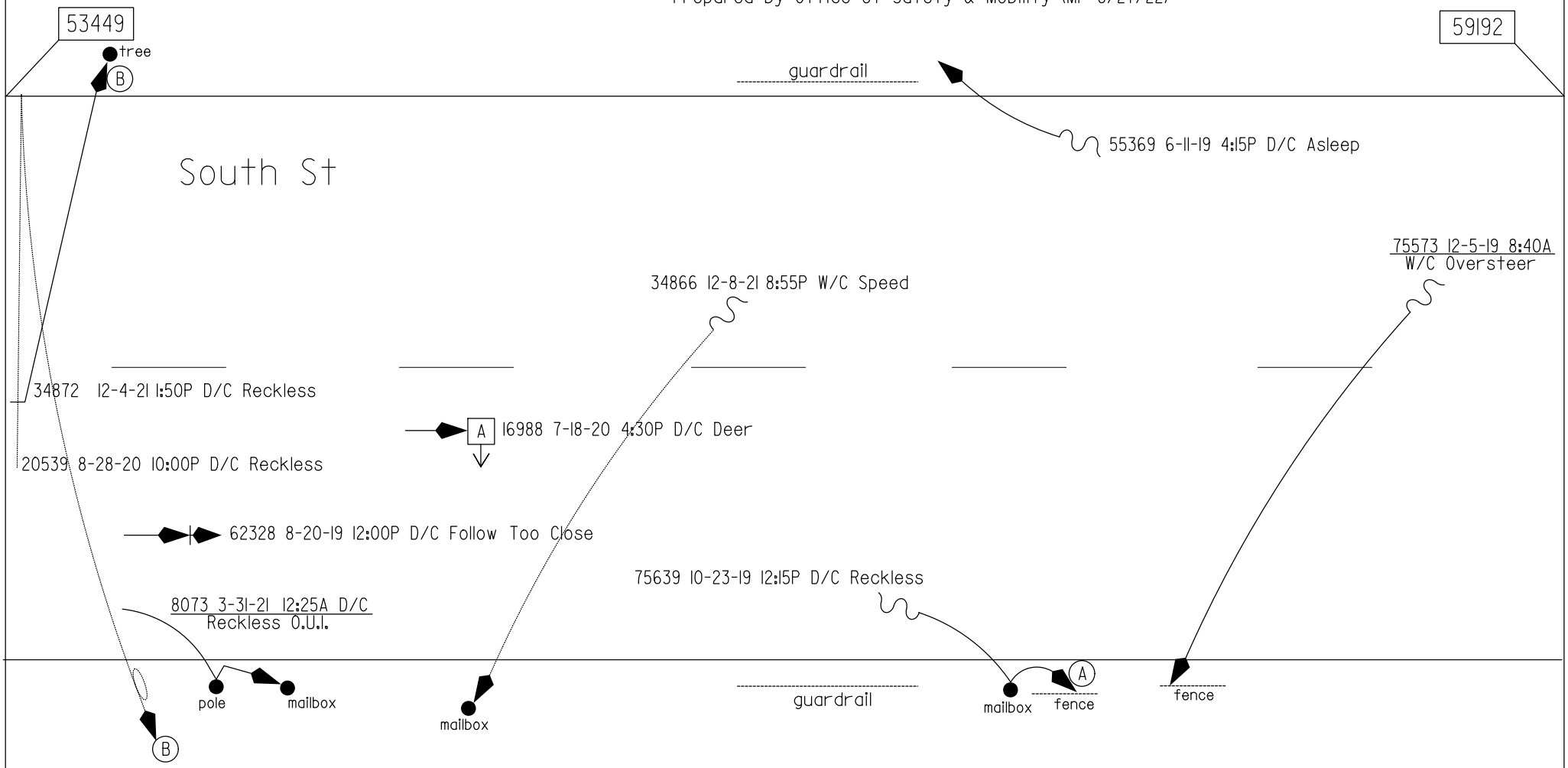
Link: 53449-59192

Element: 5076691

Study Period: 2019-2021

# of Crashes: 9 / CRF: 1.06

Prepared by Office of Safety & Mobility (MP 6/27/22)



Search...
BOOM RD
SACO
RIVER RD
BROWN FARM RD
Swan Pond Brook
HAYFIELD RD
53449
59193
59196
59195
59192
53455
63135
63073
53454
58383
53453
57517
SOUTH ST
95
BIDDEFO
BIDDEFORD WATER DISTRICT
ALEXANDER DR
58260
58261
MISCELLANEOUS
54075
72514
Scale: 1:13236
1000ft

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

- [x] Crash Summary I - Single Element
- [ ] Section Detail
- [x] Crash Summary II
- [ ] 1320 Public
- [ ] 1320 Private
- [ ] 1320 Summary

REPORT DESCRIPTION

Biddeford
South St from River Rd to Fox Hollow Drive

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2021 End Month: 12

Route: 3110891	Start Node: 59192	Start Offset: 0	[x] Exclude First Node
	End Node: 53449	End Offset: 0	[x] Exclude Last Node

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
53449	59192	5076691	0 - 0.66	3110891 - 0.36	0.66	2	9	0	1	2	0	6	33.3	0.00817	367.03	347.25	1.06
Int of RIVER RD	SOUTH ST			RD INV 31 10891											Statewide Crash Rate: 159.73		
Study Years:	3.00			Section Totals:	0.66		9	0	1	2	0	6	33.3	0.00817	367.03	347.25	1.06

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
53449	59192	5076691	0 - 0.66	3110891 - 0.36	9	0	1	2	0	6	2019-75573	12/05/2019	0.53	PD
											2019-75639	10/23/2019	0.59	A
											2019-55369	06/11/2019	0.63	PD
											2021-34866	12/08/2021	0.81	PD
											2020-16988	07/18/2020	0.82	PD
											2019-62328	08/20/2019	0.94	PD
											2021-8073	03/31/2021	0.94	PD
											2021-34872	12/04/2021	0.98	B
											2020-20539	08/28/2020	1.01	B
				Totals:	9	0	1	2	0	6				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												Hour of Day													
													PM													
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2
WEDNESDAY	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	3
THURSDAY	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2
Totals	1	0	0	0	0	0	0	0	1	0	0	0	2	1	0	0	2	0	0	0	1	0	1	0	0	9

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	6	23-Bicyclist	0
2-(Sport) Utility Vehicle	1	24-Witness	1
3-Passenger Van	0	25-Other	0
4-Cargo Van (10K lbs or Less)	0	26-Construction	0
5-Pickup	3	27-Farm Vehicle	0
6-Motor Home	0	Total	11
7-School Bus	0		
8-Transit Bus	0		
9-Motor Coach	0		
10-Other Bus	0		
11-Motorcycle	0		
12-Moped	0		
13-Low Speed Vehicle	0		
14-Autocycle	0		
15-Experimental	0		
16-Other Light Trucks (10,000 lbs or Less)	0		
17-Medium/Heavy Trucks (More than 10,000 lbs)	0		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	0		

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	1	0	0	0	0	2
Ran Off Roadway	1	0	0	0	0	0	1
Failed to Yield Right-of-Way	0	0	0	0	0	0	0
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	1	0	0	0	0	0	1
Improper Turn	0	0	0	0	0	0	0
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	1	0	0	0	0	0	1
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	5	0	0	0	0	0	5
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0
Total	9	1	0	0	0	0	10

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	6	1	0	0	0	0	7
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	1	0	0	0	0	0	1
Under the Influence of Medications/Drugs/Alcohol	1	0	0	0	0	0	1
Other	1	0	0	0	0	0	1
Total	9	1	0	0	0	0	10

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	2	0	0	0	0	2
20-24	3	0	0	0	0	3
25-29	2	0	0	0	0	2
30-39	1	0	0	0	0	1
40-49	1	0	0	0	0	1
50-59	0	0	0	0	0	0
60-69	1	0	0	0	0	1
70-79	0	0	0	0	0	0
80-Over	0	0	0	0	0	0
Unknown	0	0	0	0	0	0
Total	10	0	0	0	0	10

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total
1-Overturn / Rollover	1
2-Fire / Explosion	0
3-Immersion	0
4-Jackknife	0
5-Cargo / Equipment Loss Or Shift	0
6-Fell / Jumped from Motor Vehicle	0
7-Thrown or Falling Object	0
8-Other Non-Collision	0
9-Pedestrian	0
10-Pedalcycle	0
11-Railway Vehicle - Train, Engine	0
12-Animal	1
13-Motor Vehicle in Transport	2
14-Parked Motor Vehicle	0
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0
16-Work Zone / Maintenance Equipment	0
17-Other Non-Fixed Object	0
18-Impact Attenuator / Crash Cushion	0
19-Bridge Overhead Structure	0
20-Bridge Pier or Support	0
21-Bridge Rail	0
22-Cable Barrier	0
23-Culvert	1
24-Curb	0
25-Ditch	0
26-Embankment	0
27-Guardrail Face	0
28-Guardrail End	0
29-Concrete Traffic Barrier	0
30-Other Traffic Barrier	0
31-Tree (Standing)	2
32-Utility Pole / Light Support	1
33-Traffic Sign Support	0
34-Traffic Signal Support	0
35-Fence	1
36-Mailbox	1
37-Other Post, Pole, or Support	0
38-Other Fixed Object (wall, building, tunnel, etc.)	0
39-Unknown	0
40-Gate or Cable	0
41-Pressure Ridge	0
Total	10

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	0
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	2
6-Yield Sign	0
7-Curve Warning Sign	2
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	5
14-Other	0
Total	9

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	1	1
B	2	2
C	0	0
PD	6	0
Total	9	3

Road Character

Road Grade	Total
1-Level	4
2-On Grade	4
3-Top of Hill	1
4-Bottom of Hill	0
5-Other	0
Total	9

Light

Light Condition	Total
1-Daylight	6
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	1
5-Dark - Not Lighted	2
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	9

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2019	2020	2021	Total
JANUARY	0	0	0	0
FEBRUARY	0	0	0	0
MARCH	0	0	1	1
APRIL	0	0	0	0
MAY	0	0	0	0
JUNE	1	0	0	1
JULY	0	1	0	1
AUGUST	1	1	0	2
SEPTEMBER	0	0	0	0
OCTOBER	1	0	0	1
NOVEMBER	0	0	0	0
DECEMBER	1	0	2	3
Total	4	2	3	9

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	2	5	0	0	0	0	0	0	0	0	0	0	0	0	7
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	7	0	0	0	0	0	0	0	0	0	0	0	0	9

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Not Lighted	1	0	0	0	0	0	0	0	0	0	1	2
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	5	0	0	0	0	0	0	0	0	0	1	6
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	7	0	0	0	0	0	0	0	0	0	2	9

Attachment 13

Habitat Assessment

BASSWOOD ENVIRONMENTAL

January 9, 2022

Mr. Jeff Amos, P.E.
Terradyn Consultants, LLC
41 Campus Drive, Suite 101
New Gloucester, ME 04260

Re: South Street Village, Biddeford: Rare Plant Habitat Assessment

Mr. Amos,

An experienced botanist with Basswood Environmental LLC (Basswood) visited the parcel identified on Biddeford Tax Maps as Lot 8 on Map 7, located on the south side of South Street, west of I-95. The purpose of the site visit was to assess the area for potential habitat for endangered plant species with an emphasis on those identified by the Maine Natural Areas program (MNAP) in their review dated November 10, 2021.

Review and Background

The approximately 160-acre site is located in Biddeford, Maine, which overlaps the northern extent of the range for many plant species considered rare by MNAP. This site is also in close proximity to a large red maple swamp that is considered by MNAP to be an exemplary natural community and contains a high potential for rare plant species. The MNAP review identified 44 occurrences of 31 total species considered rare, threatened or endangered, as well as 8 rare or exemplary natural communities that have been located by past surveys within 4 miles of the parcel. It should be noted that this proximity includes some well-known habitats for rare species that are not relevant to this survey, such as the Saco Heath (raised level bog ecosystem, Atlantic white cedar bog, pitch pine bog), the Saco River (freshwater tidal marsh), and The Kennebunk Plains (sand barren habitat, pitch pine woodland).

A 2007 survey was performed by the Biddeford Conservation Commission of the lands to the west of the site that are associated with the exemplary red maple swamp identified on the MNAP review. This survey also included a portion of the current project area (identified as the Claire Property). The reviewer indicates that much of the site is in an early-successional state and lacks the diversity of the lands to the west, but may provide good habitat for wildlife species. The extent to which the surveyor explored all areas of the site in question is unclear from this report, however it does appear that at least some evaluation was performed across much of the parcel.

Site Description

The site possesses an interspersion of upland and wetland habitats throughout the area surveyed. Broad wetland swales are present in the areas between often dramatic local relief consisting of large bedrock outcrops and hills scattered throughout the site. The majority of the site has been disturbed at some point, with the southern portions having been recently cleared for timber harvesting. Exceptions to this are areas around small streams and drainages, and stands of small diameter trees, often hemlock (*Tsuga canadensis*) that were not cut. Other small pockets of intact forest are present surrounding Thacher Brook, which passes through the eastern portion of the site.

The northern half of the site has received more disturbance and has been maintained as a patchwork of cleared fields and unmaintained roads. This portion of the site exhibits old and ongoing excavations, an old farm pond/impoundment, a development site, and a small transmission line. Having been subject to greater disturbance over a longer period of time, these areas also exhibit greater infestation from invasive plant species such as Asian bittersweet (*Celastrus orbiculatus*) and multiflora rose (*Rosa multiflora*) than recently cleared areas in the south.

The wetlands on site are typically dominated by herbaceous vegetation consisting of disturbance tolerant species such as woolly bulrush (*Scirpus cyperinus*), fringed sedge (*Carex crinita*), loosened soft rush (*Juncus effusus* ssp. *solutus*), creeping bentgrass (*Agrostis stolonifera*), and sensitive fern (*Onoclea sensibilis*). Permanently saturated areas also commonly supported broad-leaved cattail (*Typha latifolia*), blue vervain (*Verbena hastata*), and marsh fern (*Thelypteris palustris* var. *pubescens*). Some scrub-shrub wetlands are present, most notable in the floodplain area around Thacher Brook. These are dominated by a mixture of speckled alder (*Alnus incana* ssp. *rugosa*), silky dogwood (*Cornus amomum* var. *amomum*), smooth arrowwood (*Viburnum dentatum* var. *lucidum*), and meadowsweet (*Spiraea alba* var. *latifolia*). Red maple (*Acer rubrum*) saplings are common throughout both upland and wetland portions of the site in association with the recently cleared areas as well.

Uplands in the recently cleared areas are dominated by typical pioneer species such as common blackberry (*Rubus allegheniensis*), sapling red maple, quaking aspen (*Populus tremuloides*), and intermittent stands of small diameter hemlock. Intact upland forested areas, such as those surrounding some portions of Thacher Brook and other small streams on site, consist of a mixed canopy of hemlock, white pine (*Pinus strobus*), red maple, red oak (*Quercus rubra*), and balsam fir (*Abies balsamea*). Upland forests in the northern portion of the site do not appear to have been subject to a recent harvest, however the species composition is that of pioneer and secondary species such as red maple and quaking aspen, indicating that much of this area is currently in an early-successional phase. Blue Ridge sedge (*Carex lucorum*) and New England sedge (*Carex novae-angliae*) are well represented throughout the uplands on site, as well as lowbush blueberry (*Vaccinium angustifolium*) and bristly blackberry (*Rubus hispidus*).

Maintained fields are composed of typical field species including an array of goldenrods (*Solidago* spp.), asters (*Symphyotricum* and *Doellingeria* spp., in part) and grasses such as lace lovegrass (*Eragrostis capillaris*), field meadow-foxtail (*Alopecurus pratensis*), common Timothy (*Phleum pratense*), and orchard grass (*Dactylis glomerata*). Wet swales within the fields exhibit similar marsh vegetation found elsewhere on site

RTE Plant Habitat Survey Results

Of the 8 natural communities identified by MNAP as rare or exemplary, none were located during the course of the site walk. An area of mapped Adams loamy sand in the northwestern interior portion of the site was investigated for sand barren habitat but none was located. Additionally, no peatland systems were located during the course of the site walk despite the large amount of wetland areas present. Some of the wetland areas that have been subject to tree clearing may have been dominated by a red maple overstory, however these do not exhibit any discernible direct connection to the exemplary red maple swamp to the west of the site, and no other indicators of rare or exemplary habitat were found within them. Of the 31 species thus identified by MNAP as occurring in the vicinity of the project area, 19 are associated with habitat that is not present on site. The remaining 12 species documented from the area cannot be ruled out due to either the presence of their typical habitat within the project area (e.g. old fields), or because they are a generalist species at the northern edge of their natural range, such as clothed sedge (*Carex vestita*), which is found in disturbed, open areas in southern Maine. Table 1 summarizes the species that would require a formal field survey during the appropriate time to locate on site. Note that several species, including button sedge, Long's bulrush, and sweet pepper-bush are included on this list, although it is in the author's opinion that the likelihood of these species being on this site are very low due to a lack of ideal habitat.

Table 1: Species Identified by MNAP with Suitable Habitat On-site

Scientific Name	Common Name	Optimal Survey Window	Comments
Carex bullata	Button sedge	June-October	Open wetlands, acidic bogs, unlikely to occur but possible
Carex vestita	Clothed sedge	May-July	Disturbed areas, ATV trails, transmission corridors
Selaginella apoda	Creeping spike moss	May-October	Open wetlands, roadsides, disturbed wet areas
Scirpus georgianus	Georgia bulrush	June-August	Open wetlands
Scirpus longii	Long's bulrush	May-October	Unlikely - associated with fen habitat
Kalmia latifolia*	Mountain laurel	Year-round	Rocky woodland species
Platanthera flava var. herbiola	Pale green orchis	July	Wetlands throughout site may support species
Scirpus pendulus	Pendulous bulrush	July-August	Open wetlands, found associated with disturbance
Quercus coccinea	Scarlet oak	May-October	Potentially found in intact woodlands

Calamagrostis cinnoides	Small reed grass	August-October	Wetlands in old fields may provide habitat
Ilex laevigata*	Smooth winterberry holly	May-October	Suitable habitat along Thacher Brook
Clethra alnifolia	Sweet pepper-bush	July-September	Associated with calcareous soils - unlikely to occur on site

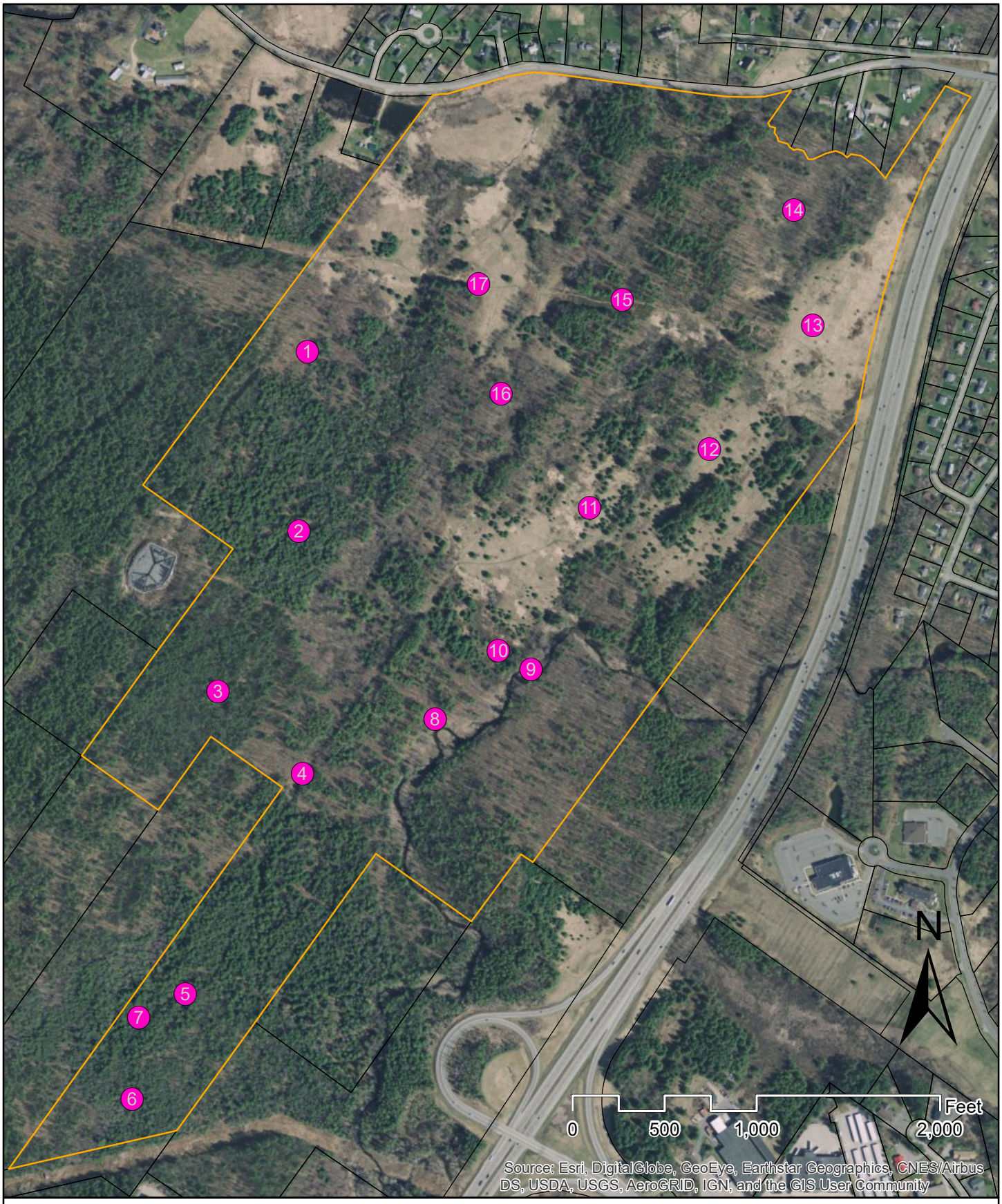
**Kalmia latifolia* is an evergreen shrub that is identifiable year-round, but was not observed during the initial site walk.
**It is possible to identify *Ilex laevigata* as long as fruit are present (through early January), although none were located during the site walk. Survey during the growing season is preferred for better possible detection.

If there is additional detail or clarity that Basswood can provide regarding the summary report, please do not hesitate to contact Erik Lema at erik@basswoodenv.com.

Best regards,

Erik Lema NHCWS#286, Owner/Principal
Basswood Environmental LLC

Attachments:
1: Index Map and Photolog
2: MNAP Review.



Proposed South Street Village

Rare Plant Species Habitat Survey

Parcel Boundary (MEGIS)

Photo Locations

Note: Aerial image taken circa 2019, prior to extensive tree clearing

BASSWOOD ENVIRONMENTAL

	Photo 1: Recently logged area, early successional shrub and forb vegetation.

	Photo 2: Typical wet swale area in the recently harvested portion of the property. Highly disturbed. Many of these areas were likely not wetlands prior to harvest and disturbance.

	Photo 3: Inundated portion of harvested area, potential vernal pool.

Photo 4: Former seldom used ATV trail according to the 2007 Biddeford Conservation Commission report, now approximately 25-foot-wide logging road.

Photo 5: Potential vernal pool, low quality, likely too shallow.

Photo 6: Naturally occurring wetland at far southern end of property, some sphagnum/peat development.

	Photo 7: Wetland impounded by adjacent logging road, some amphibian habitat.

	Photo 8: Thacher Brook from intact buffer area. Note scrub-shrub floodplain around brook.

	Photo 9: View of harvested area across Thacher Brook at crossing point. Inaccessible by foot at time of survey.

	Photo 10: Logged area in foreground leading to Thacher Brook, extensive alder swamp in rear of photo around the brook itself.

	Photo 11: Maintained field in northern portion of the site, view south.

	Photo 12: View northeast toward I-95 across maintained field.

	Photo 13: Extensive field adjacent to the transmission line.

	Photo 14: Early-mid successional forest in the northeast portion of the site.

	Photo 15: Wetland along transmission line, structurally diverse.

		Photo 16: Disturbed area with past excavations, facing south into the recently harvested areas.

		Photo 17: Old road adjacent to the transmission line. This area is highly disturbed and is under current use in conjunction with the maintained area along South Street in the northwest corner of the site.

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

November 10, 2021

Jeff Amos
Terradyn Consultants
565 Congress Street, Suite 201
Portland, ME04101

Via email: jeff@terradynconsultants.com

Re: Rare and exemplary botanical features in proximity to: Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Dear Mr. Amos:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received October 20, 2021 for information on the presence of rare or unique botanical features documented from the vicinity of the property in Biddeford, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, the property is in close proximity to a mapped Red Maple Swamp. Activities within 250-feet of wetlands associated with this Red Maple Swamp can adversely impact this exemplary wetland. MNAP recommends avoiding development activity within 250-feet of the Red Maple Swamp and its associated mapped wetlands. Please see the table below, attached map, and attached factsheet for more information.

Feature	State Status	State Rank	Global Rank	Occurrence Rank	Site
Red Maple Swamp (*Red Maple – Sensitive Fern Swamp*)	N/A	S5	G3G5	A Excellent	West Biddeford Black Gum Swamp

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

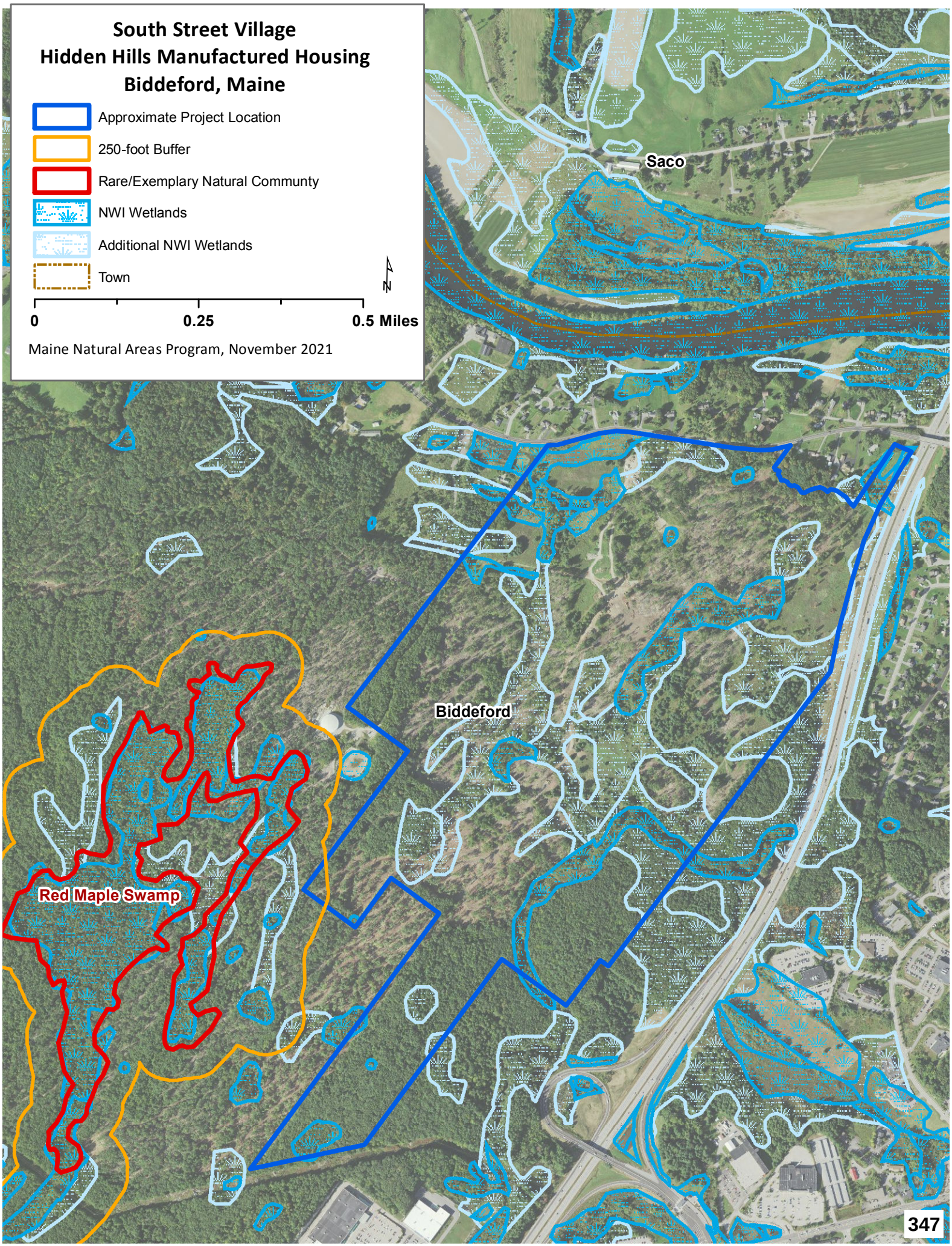
The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $225.00 for three hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov


South Street Village
Hidden Hills Manufactured Housing
Biddeford, Maine
Approximate Project Location
250-foot Buffer
Rare/Exemplary Natural Community
NWI Wetlands
Additional NWI Wetlands
Town
N
0
0.25
0.5 Miles
Maine Natural Areas Program, November 2021
Saco
Biddeford
Red Maple Swamp

Red Maple Swamp

State Rank S5

Community Description

Red maple dominates the somewhat open to nearly closed canopy (20-90% closure), sometimes with a relatively large component (up to 40% cover) of balsam fir, red spruce, or northern white cedar. Green ash and yellow birch are common, but rarely abundant, associates. The maples may be widely spaced with multiple trunks and arching crowns. The shrub layer is patchy; winterberry is common and various other shrubs may be locally abundant. The herb layer is well developed and dominated by herbs, with dwarf shrubs <20% of herb cover. Bluejoint and sensitive fern are characteristic herbs. The bryoid layer is usually <35% cover; peat mosses are typical but do not form extensive, deep carpets as they do in peatlands.

Soil and Site Characteristics

Sites occupy mineral soils or well decomposed organic material over mineral soil on flats or gentle slopes in small basins, often on floodplains of streams to small rivers. Soils are typically 30-60 cm deep, loamy to silty in texture, sometimes with well decomposed muck over the mineral fraction, and pH 4.8-5.4.

Diagnostics

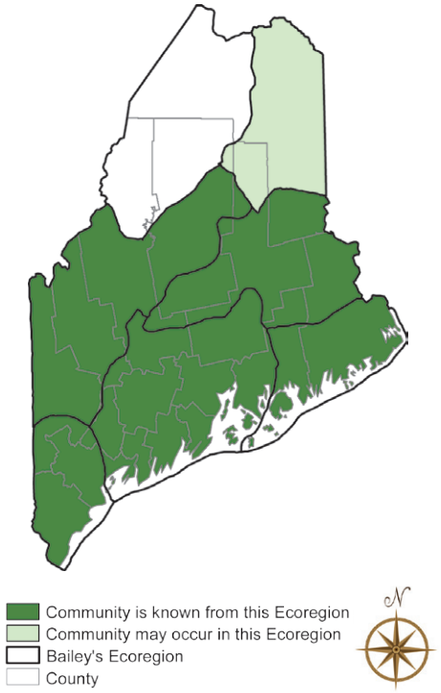
These are mineral soil wetlands in which red maple dominates the canopy or is co-dominant with conifers other than black spruce or larch. The seasonally flooded soils usually remain saturated through the growing season.

Red Maple Flowers

Similar Types

Red Maple Wooded Fens are similar, but either occur in association with large peatlands or occupy small somewhat peaty basins; they do not occur on mineral soils. Some small Northern White Cedar Swamps and Spruce - Fir - Cinnamon Fern Forests, particularly along the coast, include a fair amount of red maple but have cedar or spruce/fir, respectively, as the most abundant canopy species. Silver Maple Floodplain Forests are dominated by silver maple and generally occur along larger rivers, but the two types can intergrade on some floodplains.

Location Map



Red Maple Swamp

Conservation, Wildlife, and Management Considerations

Maintaining the hydrologic integrity of these stream drainages with upland buffers is key. These swamps typically have had few conflicting uses, although some have been recently harvested. ATV use has been observed at some sites.

Red maple swamps often provide habitat in which spotted turtles hibernate. If wet Sphagnum hummocks are present, four-toed salamanders may breed in this community. Examples that occur on floodplains of streams and small rivers may contain wood turtles, which overwinter in the stream channel and forage in the floodplain. The silver-haired bat often roosts in riparian habitats in trees with loose bark. The northern waterthrush is a common associate of this community type. In the southern part of the state, the Louisiana waterthrush and yellow-throated vireo may be associates if the canopy is closed or nearly so.

Distribution

Statewide, but most common in the southern half of state. Extends southward and southwestward from Maine; eastward distribution unknown.

Landscape Pattern: Large Patch

Characteristic Plants

These plants are frequently found in this community type. Those with an asterisk are often diagnostic of this community.

Canopy
Balsam fir
Gray birch
Northern white cedar
Red maple*
Red spruce

Sapling/shrub
Arrowwood*
Balsam fir
Gray birch*
Red spruce
Speckled alder*
Winterberry*

Herb
Bluejoint*
Flat-topped white aster*
Interrupted fern
Tussock sedge
Royal fern*
Sensitive fern*

Bryoid
Sphagnum mosses*

Associated Rare Plants

Smooth winterberry holly
Spicebush
Swamp saxifrage
Swamp white oak
Sweet pepper-bush

Associated Rare Animals

Spotted turtle
Wood turtle

Examples on Conservation Lands You Can Visit

- Kennebunk Plains Preserve – York Co.
- Mt Agamenticus – York Co.
- Steep Falls Wildlife Management Area – Cumberland Co.
- Waterboro Barrens Preserve – York Co.

Rare and Exemplary Botanical Features within 4 miles of
Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Atlantic White Cedar						
	SC	S2	G4	2017-07-26	3	Forested wetland
Atlantic White Cedar Bog						
	<null>	S1	G3G4	2017-07-26	3	Forested wetland
Beach Plum						
	E	S1	G4	1932-09	12	Rocky coastal (non-forested, upland)
	E	S1	G4	1933-06-21	9	Rocky coastal (non-forested, upland)
Brackish Tidal Marsh						
	<null>	S3	GNR	2009-07-29	1	Tidal wetland (non-forested, wetland)
Button Sedge						
	SC	S2	G5	1880-09-06	2	<null>
	SC	S2	G5	2017-07-26	5	<null>
	SC	S2	G5	2000-08-15	3	<null>
Clothed Sedge						
	E	S1	G5	2006-06-07	7	Dry barrens (partly forested, upland)
	E	S1	G5	2006-06-16	8	Dry barrens (partly forested, upland)
Creeping Spike-moss						
	E	S2	G5	1920-07-30	6	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Estuary Bur-marigold						
	SC	S3	G4	2009-07-30	35	Tidal wetland (non-forested, wetland)
Freshwater Tidal Marsh						
	<null>	S2	G4?	2009-07-30	1	Tidal wetland (non-forested, wetland)

Rare and Exemplary Botanical Features within 4 miles of
Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Georgia bulrush						
	SC	SU	G5	2007-08-22	4	<null>
Horned Pondweed						
	SC	S2	G5	1907-08-18	10	Tidal wetland (non-forested, wetland)
	SC	S2	G5	2000-08-28	15	Tidal wetland (non-forested, wetland)
Lilaeopsis						
	SC	S2	G5	2012-10-21	10	Tidal wetland (non-forested, wetland)
Long's Bulrush						
	T	S2	G3	2017-07-26	10	Open wetland, not coastal nor rivershore (non-forested, wetland)
Long-spined Sandbur						
	PE	SH	G5	1984	1	Rocky coastal (non-forested, upland)
Mountain-laurel						
	SC	S2	G5	1991-09-28	11	Conifer forest (forest, upland),Hardwood to mixed forest (forest, upland)
Mudwort						
	SC	S3	G5	2009-07-30	35	Tidal wetland (non-forested, wetland)
Northern Blazing Star						
	T	S1	G5?T3	1916-08-10	3	Dry barrens (partly forested, upland)
Pale Green Orchis						
	SC	S2	G4?T4Q	2008-06-27	52	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
	SC	S2	G4?T4Q	2008-06-27	53	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
	SC	S2	G4?T4Q	2008-06-27	54	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
Parker's Pipewort						

Rare and Exemplary Botanical Features within 4 miles of
Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
	SC	S3	G3	2017-08-31	33	Tidal wetland (non-forested, wetland)
Pendulous Bulrush						
	SC	S2	G5	2008-06-28	8	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Pitch Pine Bog						
	<null>	S2	G3G5	2017-07-26	4	Forested wetland,Coastal non-tidal wetland (non-forested, wetland)
	<null>	S2	G3G5	2015-09-29	20	Forested wetland,Coastal non-tidal wetland (non-forested, wetland)
Pitch Pine Woodland						
	<null>	S3	G2	2016-08-09	30	Rocky summits and outcrops (non-forested, upland)
Pocket Swamp						
	<null>	S2	G5	2004	18	Forested wetland,Hardwood to mixed forest (forest, upland)
Pygmyweed						
	SC	S2S3	G5	2009-07-29	25	Open water (non-forested, wetland)
Raised Level Bog Ecosystem						
	<null>	S4	GNR	2017-07-26	3	Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland)
Red Maple Swamp						
	<null>	S5	G3G5	2007-06-05	17	Forested wetland
Saltmarsh False-foxglove						
	SC	S3	G5	1982	8	Tidal wetland (non-forested, wetland)
	SC	S3	G5	1982	12	Tidal wetland (non-forested, wetland)
	SC	S3	G5	1982	9	Tidal wetland (non-forested, wetland)
Scarlet Oak						
	E	S1	G5	1916-08	4	Hardwood to mixed forest (forest, upland)

Rare and Exemplary Botanical Features within 4 miles of
Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Schreber's Wood-aster						
	PE	SX	G4	1894-09	1	Rocky coastal (non-forested, upland)
Slender Blue Flag						
	T	S2	G4G5	1879-08	4	Tidal wetland (non-forested, wetland)
Small Reed Grass						
	SC	S3	G5	1998-01-01	9	Old field/roadside (non-forested, wetland or upland)
	SC	S3	G5	2000-08-15	12	Old field/roadside (non-forested, wetland or upland)
Smooth Winterberry Holly						
	SC	S3	G5	1916-08-10	10	Forested wetland
	SC	S3	G5	2018-09-15	24	Forested wetland
	SC	S3	G5	2009-07-05	39	Forested wetland
	SC	S3	G5	2004	36	Forested wetland
Southern Slender Ladies'-tresses						
	PE	SH	G5T4T5	1918-08-27	1	Dry barrens (partly forested, upland)
Spongy-leaved Arrowhead						
	SC	S3	G5T4	2012-10-21	42	Tidal wetland (non-forested, wetland)
Stiff Arrowhead						
	SC	S2	G5	2006-06-16	15	Tidal wetland (non-forested, wetland)
Sweet Pepper-bush						
	SC	S2	G5	1917-09	9	Hardwood to mixed forest (forest, upland),Forested wetland
Water Pimpernel						
	SC	S3	G5T5	2012-10-21	26	Tidal wetland (non-forested, wetland)

Rare and Exemplary Botanical Features within 4 miles of

Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
White-topped Aster						
	E	S1	G5	1916-08-10	4	Dry barrens (partly forested, upland)
Yellow Wild Indigo						
	PE	SH	G5	1960-06-21	2	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of 1 to 5. Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 **G1**	**Critically Imperiled** – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 **G2**	**Imperiled** – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 **G3**	**Vulnerable** – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 **G4**	**Apparently Secure** – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 **G5**	**Secure** – At very low risk or extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX **GX**	**Presumed Extinct** – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH **GH**	**Possibly Extinct** – Known from only historical occurrences but still some hope of rediscovery.
S#S# **G#G#**	**Range Rank** – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU **GU**	**Unrankable** – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR **SNR**	**Unranked** – Global or subnational conservation status not yet assessed.
SNA **GNA**	**Not Applicable** – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems.
Qualifier	**Definition**
S#? **G#?**	**Inexact Numeric Rank** – Denotes inexact numeric rank.
Q	**Questionable taxonomy that may reduce conservation priority** – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The "Q" modifier is only used at a global level.
T#	**Infraspecific Taxon (trinomial)** – The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	**Endangered** – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	**Threatened** – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	**Special Concern** – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	**Potentially Extirpated** – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	**Excellent** – Excellent estimated viability/ecological integrity.
B	**Good** – Good estimated viability/ecological integrity.
C	**Fair** – Fair estimated viability/ecological integrity.
D	**Poor** – Poor estimated viability/ecological integrity.
E	**Extant** – Verified extant, but viability/ecological integrity not assessed.
H	**Historical** – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	**Extirpated** – Documented loss of population/destruction of habitat.
U	**Unrankable** – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	**Not Ranked** – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information
http://www.maine.gov/dacf/mnap

Attachment 14

MDIF & Unusual Natural Areas Correspondence

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

December 16, 2021

Craig Sweet
Terradyn
565 Congress Street, Suite 201
Portland, ME 04101

RE: Information Request – Hidden Hills Manufactured Housing Park Project, Biddeford

Dear Craig:

Per your request received on November 08, 2021, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Hidden Hills Manufactured Housing Park* project in Biddeford. Please note that as project details are lacking our comments should be considered preliminary. Per your letter, no Significant Vernal Pools were found on site; note that all survey forms should be submitted to our Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bat Species – Of the eight species of bats that occur in Maine, the three *Myotis* species are protected under Maine's Endangered Species Act (MESA) and are afforded special protection under 12 M.R.S §12801 - §12810. The three *Myotis* species include little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are listed as Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during migration and/or the breeding season. However, our Agency does not anticipate significant impacts to any of the bat species as a result of this project.

Blanding's Turtle - Multiple occurrences of Blanding's turtles, a State Endangered species, have been documented in the immediate vicinity and within the proposed project area. In Maine, Blanding's turtles are found most frequently in complexes of small, vernal pools, acidic wetlands and larger marsh complexes in large blocks of forested habitat. Development activity that compromises riparian integrity or migration permeability among seasonally critical wetlands can lead to degradation of habitat quality and potential loss of local populations. Additionally, development projects that lead to significant increases in local traffic volume will likely lead to increased roadkill and possible extirpation of the local population. If these habitats are present in the project area, we recommend that they be avoided and adequately buffered with a 250-foot undisturbed, intact vegetative cover. MDIFW is willing to work closely with the applicant to design a project that attempts to limit potential impacts to this listed species.

Significant Wildlife Habitat

Deer Wintering Areas (DWAs) – The project search area intersects with a DWA. DWAs contain habitat cover components that provide conditions where deer find protection from deep snow and cold wind, which is important for overwinter survival. MDIFW recommends that development projects be designed to avoid losses or impacts to the continued availability of coniferous winter shelter. Any removal of vegetation should be conducted in such a way that improves the quality and vigor of the coniferous species providing this winter shelter.

Fisheries Habitat

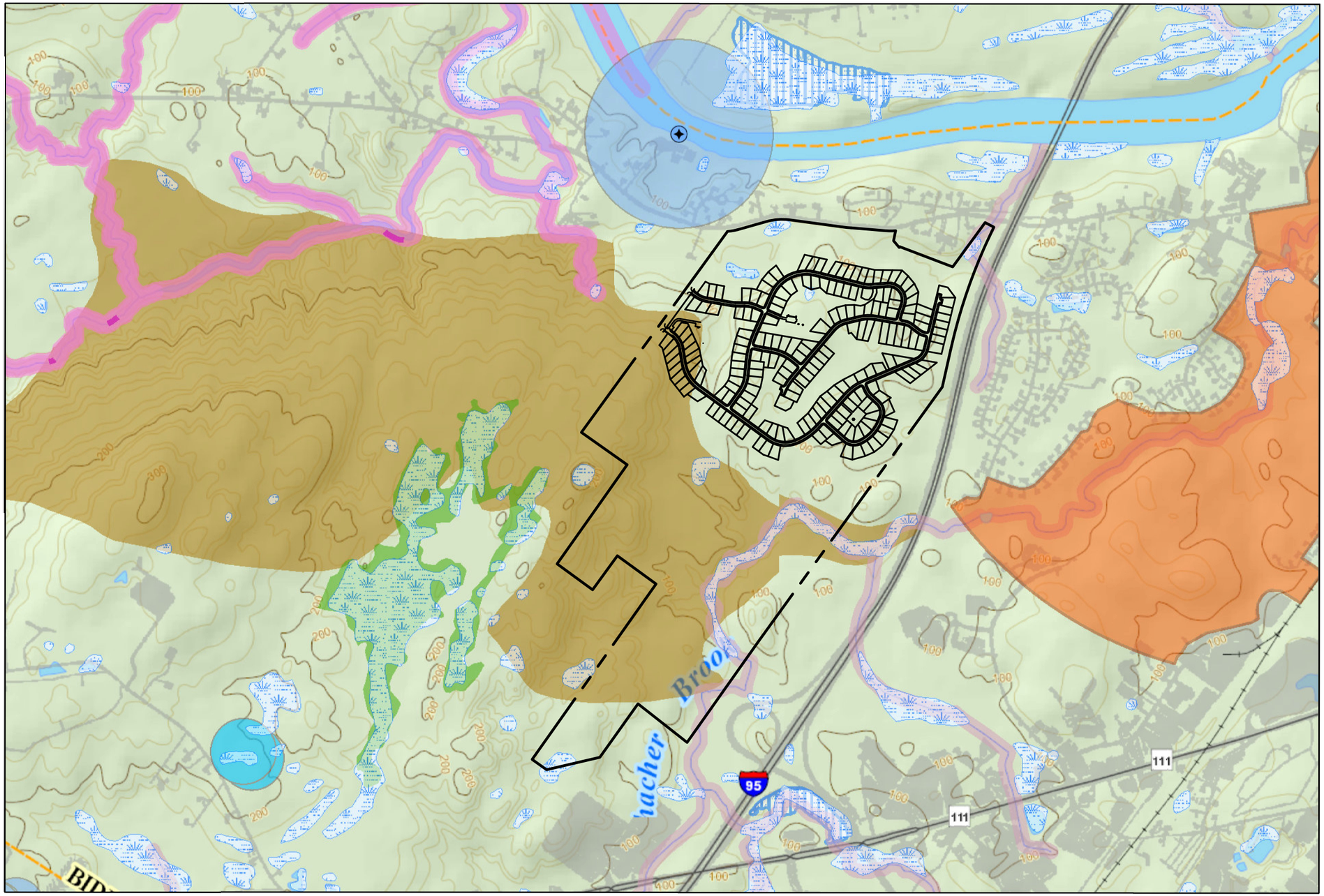
We recommend that 100-foot undisturbed vegetated buffers be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining and enhancing buffers along streams that support coldwater fisheries is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support conditions required by many fish species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide full fish passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis and undersized crossings may inhibit these functions. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in not only providing habitat connectivity for fish but also for other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fisheries and aquatic habitat. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Becca Settele
Wildlife Biologist



BEGINNING WITH HABITAT

Legend

- City/Township
- 1
- 2
- Watershed Divide (HUC 12)
- Watershed Divide (HUC 10)
- Watershed Divide (HUC 8)
- Watershed Divide (HUC 6)
- Wetlands
- Great Ponds
- Stream_Buffers_75ft
- Shellfish Beds
- Public Water Supply Wells
- Source Protection
- Aquifers
- ETSC Animal Habitat Buffers
- Rare Plants and Natural Communities
- Natural Communities
- Wild Brook Trout Habitat
- Atlantic Salmon Rearing Habitat
- Atlantic Salmon Spawning Habitat
- Roseate Tern, Piping Plover or Least Tern Nesting Areas
- Deer Wintering
- Inland Wading Bird and Waterfowl Habitat
- Wildlife Wetlands
- Seabird Nesting Island
- Shorebird Habitat
- Tidal Wading Bird and Waterfowl Habitat
- Significant Vernal Pools
- Less than 2000 Vehicles/Day
- More than 2000 Vehicles/Day
- Less than 2000 Vehicles/Day
- More than 2000 Vehicles/Day
- Undeveloped Habitat Blocks
- Highway Bridge Connectors
- Maine Conserved Lands
- Federal
- Municipal
- Water Dist., etc.
- Private
- State
- Conserved Lands Easements
- Focus

State of Maine

The Nature Conservancy — Protecting nature. Preserving life.

Maine Audubon

Maine Coast Heritage Trust — A Statewide Land Conservation Organization

MaineDOT

N W E S

0 1,300 2,600 5,200 7,800 ft

Supported in part by Maine Outdoor Heritage Fund lottery ticket sales

Map Prepared by Maine Department of Inland Fisheries & Wildlife
October 2021

Supported in part by Loon Conservation Plate funds

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

Portland
565 Congress Street, Suite 201
Portland, ME 04101

October 20, 2021 2113

Lisa St. Hilaire, Information Manager
Maine Natural Areas Program
Department of Agriculture, Conservation and Forestry
93 State House Station
Augusta, ME 04333

REQUEST FOR PROJECT REVIEW
HIDDEN HILLS MANUFACTURED HOUSING PARK
413 SOUTH STREET, BIDDEFORD, MAINE

Dear Lisa:

Terradyn Consultants, LLC has been retained by South Street Village, LLC to prepare civil-site plans and permit applications for a proposed manufactured housing park on a portion of their property in Biddeford, Maine located on the south side of South Street, just west of the Maine Turnpike. The applicant's property is approximately 312 acres and is shown as Lot 8 on the City of Biddeford Tax Map 7, but the project is limited to approximately 160 acres that is located within a manufactured housing park overlay zone. The project will include the development of approximately 190 manufactured housing lots as well as the associated road network, utilities, stormwater facilities & amenities.

Freshwater wetlands and streams as well as a vernal pool assessment were identified on the project site by Mark Hampton Associates, Inc. There were no significant vernal pools found on the project site. Thatcher Brook is located on the back portion of the property but is not located within the development area.

We are requesting an environmental site review to determine if the project will have an impact on resources or habitat in the vicinity of the proposed project. Attached is an excerpt of the USGS topographic map with the project site identified.

Please contact me at jeff@terradynconsultants.com or (207) 272-7571 if you have any questions or if you need additional information to complete your review.

Sincerely,
TERRADYN CONSULTANTS, LLC

Jeff Amos, P.E.

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

November 10, 2021

Jeff Amos
Terradyn Consultants
565 Congress Street, Suite 201
Portland, ME04101

Via email: jeff@terradynconsultants.com

Re: Rare and exemplary botanical features in proximity to: Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Dear Mr. Amos:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received October 20, 2021 for information on the presence of rare or unique botanical features documented from the vicinity of the property in Biddeford, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, the property is in close proximity to a mapped Red Maple Swamp. Activities within 250-feet of wetlands associated with this Red Maple Swamp can adversely impact this exemplary wetland. MNAP recommends avoiding development activity within 250-feet of the Red Maple Swamp and its associated mapped wetlands. Please see the table below, attached map, and attached factsheet for more information.

Feature	State Status	State Rank	Global Rank	Occurrence Rank	Site
Red Maple Swamp (*Red Maple – Sensitive Fern Swamp*)	N/A	S5	G3G5	A Excellent	West Biddeford Black Gum Swamp

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

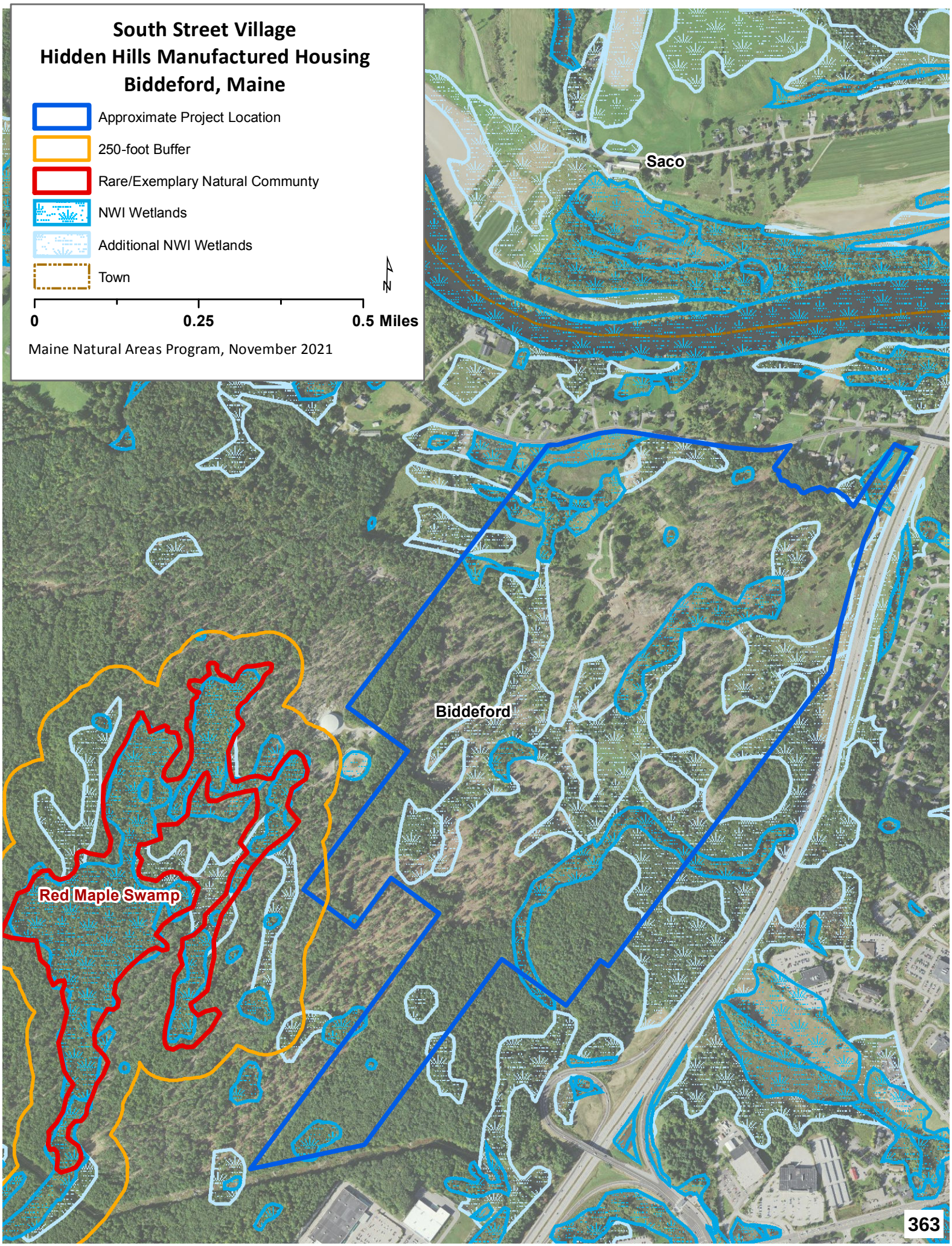
The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $225.00 for three hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov


South Street Village
Hidden Hills Manufactured Housing
Biddeford, Maine
Approximate Project Location
250-foot Buffer
Rare/Exemplary Natural Community
NWI Wetlands
Additional NWI Wetlands
Town
N
0
0.25
0.5 Miles
Maine Natural Areas Program, November 2021
Saco
Biddeford
Red Maple Swamp

Red Maple Swamp

State Rank S5

Community Description

Red maple dominates the somewhat open to nearly closed canopy (20-90% closure), sometimes with a relatively large component (up to 40% cover) of balsam fir, red spruce, or northern white cedar. Green ash and yellow birch are common, but rarely abundant, associates. The maples may be widely spaced with multiple trunks and arching crowns. The shrub layer is patchy; winterberry is common and various other shrubs may be locally abundant. The herb layer is well developed and dominated by herbs, with dwarf shrubs <20% of herb cover. Bluejoint and sensitive fern are characteristic herbs. The bryoid layer is usually <35% cover; peat mosses are typical but do not form extensive, deep carpets as they do in peatlands.

Soil and Site Characteristics

Sites occupy mineral soils or well decomposed organic material over mineral soil on flats or gentle slopes in small basins, often on floodplains of streams to small rivers. Soils are typically 30-60 cm deep, loamy to silty in texture, sometimes with well decomposed muck over the mineral fraction, and pH 4.8-5.4.

Diagnostics

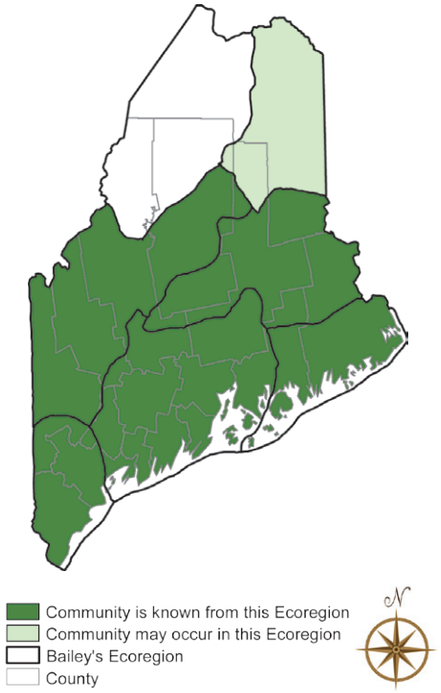
These are mineral soil wetlands in which red maple dominates the canopy or is co-dominant with conifers other than black spruce or larch. The seasonally flooded soils usually remain saturated through the growing season.

Red Maple Flowers

Similar Types

Red Maple Wooded Fens are similar, but either occur in association with large peatlands or occupy small somewhat peaty basins; they do not occur on mineral soils. Some small Northern White Cedar Swamps and Spruce - Fir - Cinnamon Fern Forests, particularly along the coast, include a fair amount of red maple but have cedar or spruce/fir, respectively, as the most abundant canopy species. Silver Maple Floodplain Forests are dominated by silver maple and generally occur along larger rivers, but the two types can intergrade on some floodplains.

Location Map



Red Maple Swamp

Conservation, Wildlife, and Management Considerations

Maintaining the hydrologic integrity of these stream drainages with upland buffers is key. These swamps typically have had few conflicting uses, although some have been recently harvested. ATV use has been observed at some sites.

Red maple swamps often provide habitat in which spotted turtles hibernate. If wet Sphagnum hummocks are present, four-toed salamanders may breed in this community. Examples that occur on floodplains of streams and small rivers may contain wood turtles, which overwinter in the stream channel and forage in the floodplain. The silver-haired bat often roosts in riparian habitats in trees with loose bark. The northern waterthrush is a common associate of this community type. In the southern part of the state, the Louisiana waterthrush and yellow-throated vireo may be associates if the canopy is closed or nearly so.

Distribution

Statewide, but most common in the southern half of state. Extends southward and southwestward from Maine; eastward distribution unknown.

Landscape Pattern: Large Patch

Characteristic Plants

These plants are frequently found in this community type. Those with an asterisk are often diagnostic of this community.

Canopy
Balsam fir
Gray birch
Northern white cedar
Red maple*
Red spruce

Sapling/shrub
Arrowwood*
Balsam fir
Gray birch*
Red spruce
Speckled alder*
Winterberry*

Herb
Bluejoint*
Flat-topped white aster*
Interrupted fern
Tussock sedge
Royal fern*
Sensitive fern*

Bryoid
Sphagnum mosses*

Associated Rare Plants

Smooth winterberry holly
Spicebush
Swamp saxifrage
Swamp white oak
Sweet pepper-bush

Associated Rare Animals

Spotted turtle
Wood turtle

Examples on Conservation Lands You Can Visit

- Kennebunk Plains Preserve – York Co.
- Mt Agamenticus – York Co.
- Steep Falls Wildlife Management Area – Cumberland Co.
- Waterboro Barrens Preserve – York Co.

Rare and Exemplary Botanical Features within 4 miles of

Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Atlantic White Cedar						
	SC	S2	G4	2017-07-26	3	Forested wetland
Atlantic White Cedar Bog						
	<null>	S1	G3G4	2017-07-26	3	Forested wetland
Beach Plum						
	E	S1	G4	1932-09	12	Rocky coastal (non-forested, upland)
	E	S1	G4	1933-06-21	9	Rocky coastal (non-forested, upland)
Brackish Tidal Marsh						
	<null>	S3	GNR	2009-07-29	1	Tidal wetland (non-forested, wetland)
Button Sedge						
	SC	S2	G5	1880-09-06	2	<null>
	SC	S2	G5	2017-07-26	5	<null>
	SC	S2	G5	2000-08-15	3	<null>
Clothed Sedge						
	E	S1	G5	2006-06-07	7	Dry barrens (partly forested, upland)
	E	S1	G5	2006-06-16	8	Dry barrens (partly forested, upland)
Creeping Spike-moss						
	E	S2	G5	1920-07-30	6	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Estuary Bur-marigold						
	SC	S3	G4	2009-07-30	35	Tidal wetland (non-forested, wetland)
Freshwater Tidal Marsh						
	<null>	S2	G4?	2009-07-30	1	Tidal wetland (non-forested, wetland)

Rare and Exemplary Botanical Features within 4 miles of
Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Georgia bulrush						
	SC	SU	G5	2007-08-22	4	<null>
Horned Pondweed						
	SC	S2	G5	1907-08-18	10	Tidal wetland (non-forested, wetland)
	SC	S2	G5	2000-08-28	15	Tidal wetland (non-forested, wetland)
Lilaeopsis						
	SC	S2	G5	2012-10-21	10	Tidal wetland (non-forested, wetland)
Long's Bulrush						
	T	S2	G3	2017-07-26	10	Open wetland, not coastal nor rivershore (non-forested, wetland)
Long-spined Sandbur						
	PE	SH	G5	1984	1	Rocky coastal (non-forested, upland)
Mountain-laurel						
	SC	S2	G5	1991-09-28	11	Conifer forest (forest, upland),Hardwood to mixed forest (forest, upland)
Mudwort						
	SC	S3	G5	2009-07-30	35	Tidal wetland (non-forested, wetland)
Northern Blazing Star						
	T	S1	G5?T3	1916-08-10	3	Dry barrens (partly forested, upland)
Pale Green Orchis						
	SC	S2	G4?T4Q	2008-06-27	52	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
	SC	S2	G4?T4Q	2008-06-27	53	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
	SC	S2	G4?T4Q	2008-06-27	54	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
Parker's Pipewort						

Rare and Exemplary Botanical Features within 4 miles of
Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
	SC	S3	G3	2017-08-31	33	Tidal wetland (non-forested, wetland)
Pendulous Bulrush						
	SC	S2	G5	2008-06-28	8	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Pitch Pine Bog						
	<null>	S2	G3G5	2017-07-26	4	Forested wetland,Coastal non-tidal wetland (non-forested, wetland)
	<null>	S2	G3G5	2015-09-29	20	Forested wetland,Coastal non-tidal wetland (non-forested, wetland)
Pitch Pine Woodland						
	<null>	S3	G2	2016-08-09	30	Rocky summits and outcrops (non-forested, upland)
Pocket Swamp						
	<null>	S2	G5	2004	18	Forested wetland,Hardwood to mixed forest (forest, upland)
Pygmyweed						
	SC	S2S3	G5	2009-07-29	25	Open water (non-forested, wetland)
Raised Level Bog Ecosystem						
	<null>	S4	GNR	2017-07-26	3	Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland)
Red Maple Swamp						
	<null>	S5	G3G5	2007-06-05	17	Forested wetland
Saltmarsh False-foxglove						
	SC	S3	G5	1982	8	Tidal wetland (non-forested, wetland)
	SC	S3	G5	1982	12	Tidal wetland (non-forested, wetland)
	SC	S3	G5	1982	9	Tidal wetland (non-forested, wetland)
Scarlet Oak						
	E	S1	G5	1916-08	4	Hardwood to mixed forest (forest, upland)

Rare and Exemplary Botanical Features within 4 miles of
Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Schreber's Wood-aster						
	PE	SX	G4	1894-09	1	Rocky coastal (non-forested, upland)
Slender Blue Flag						
	T	S2	G4G5	1879-08	4	Tidal wetland (non-forested, wetland)
Small Reed Grass						
	SC	S3	G5	1998-01-01	9	Old field/roadside (non-forested, wetland or upland)
	SC	S3	G5	2000-08-15	12	Old field/roadside (non-forested, wetland or upland)
Smooth Winterberry Holly						
	SC	S3	G5	1916-08-10	10	Forested wetland
	SC	S3	G5	2018-09-15	24	Forested wetland
	SC	S3	G5	2009-07-05	39	Forested wetland
	SC	S3	G5	2004	36	Forested wetland
Southern Slender Ladies'-tresses						
	PE	SH	G5T4T5	1918-08-27	1	Dry barrens (partly forested, upland)
Spongy-leaved Arrowhead						
	SC	S3	G5T4	2012-10-21	42	Tidal wetland (non-forested, wetland)
Stiff Arrowhead						
	SC	S2	G5	2006-06-16	15	Tidal wetland (non-forested, wetland)
Sweet Pepper-bush						
	SC	S2	G5	1917-09	9	Hardwood to mixed forest (forest, upland),Forested wetland
Water Pimpernel						
	SC	S3	G5T5	2012-10-21	26	Tidal wetland (non-forested, wetland)

Rare and Exemplary Botanical Features within 4 miles of

Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
White-topped Aster						
	E	S1	G5	1916-08-10	4	Dry barrens (partly forested, upland)
Yellow Wild Indigo						
	PE	SH	G5	1960-06-21	2	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of 1 to 5. Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 **G1**	**Critically Imperiled** – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 **G2**	**Imperiled** – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 **G3**	**Vulnerable** – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 **G4**	**Apparently Secure** – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 **G5**	**Secure** – At very low risk or extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX **GX**	**Presumed Extinct** – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH **GH**	**Possibly Extinct** – Known from only historical occurrences but still some hope of rediscovery.
S#S# **G#G#**	**Range Rank** – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU **GU**	**Unrankable** – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR **SNR**	**Unranked** – Global or subnational conservation status not yet assessed.
SNA **GNA**	**Not Applicable** – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems.
Qualifier	**Definition**
S#? **G#?**	**Inexact Numeric Rank** – Denotes inexact numeric rank.
Q	**Questionable taxonomy that may reduce conservation priority** – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The "Q" modifier is only used at a global level.
T#	**Infraspecific Taxon (trinomial)** – The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	**Endangered** – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	**Threatened** – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	**Special Concern** – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	**Potentially Extirpated** – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	**Excellent** – Excellent estimated viability/ecological integrity.
B	**Good** – Good estimated viability/ecological integrity.
C	**Fair** – Fair estimated viability/ecological integrity.
D	**Poor** – Poor estimated viability/ecological integrity.
E	**Extant** – Verified extant, but viability/ecological integrity not assessed.
H	**Historical** – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	**Extirpated** – Documented loss of population/destruction of habitat.
U	**Unrankable** – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	**Not Ranked** – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information
http://www.maine.gov/dacf/mnap

BASSWOOD ENVIRONMENTAL

January 9, 2022

Mr. Jeff Amos, P.E.
Terradyn Consultants, LLC
41 Campus Drive, Suite 101
New Gloucester, ME 04260

Re: South Street Village, Biddeford: Rare Plant Habitat Assessment

Mr. Amos,

An experienced botanist with Basswood Environmental LLC (Basswood) visited the parcel identified on Biddeford Tax Maps as Lot 8 on Map 7, located on the south side of South Street, west of I-95. The purpose of the site visit was to assess the area for potential habitat for endangered plant species with an emphasis on those identified by the Maine Natural Areas program (MNAP) in their review dated November 10, 2021.

Review and Background

The approximately 160-acre site is located in Biddeford, Maine, which overlaps the northern extent of the range for many plant species considered rare by MNAP. This site is also in close proximity to a large red maple swamp that is considered by MNAP to be an exemplary natural community and contains a high potential for rare plant species. The MNAP review identified 44 occurrences of 31 total species considered rare, threatened or endangered, as well as 8 rare or exemplary natural communities that have been located by past surveys within 4 miles of the parcel. It should be noted that this proximity includes some well-known habitats for rare species that are not relevant to this survey, such as the Saco Heath (raised level bog ecosystem, Atlantic white cedar bog, pitch pine bog), the Saco River (freshwater tidal marsh), and The Kennebunk Plains (sand barren habitat, pitch pine woodland).

A 2007 survey was performed by the Biddeford Conservation Commission of the lands to the west of the site that are associated with the exemplary red maple swamp identified on the MNAP review. This survey also included a portion of the current project area (identified as the Claire Property). The reviewer indicates that much of the site is in an early-successional state and lacks the diversity of the lands to the west, but may provide good habitat for wildlife species. The extent to which the surveyor explored all areas of the site in question is unclear from this report, however it does appear that at least some evaluation was performed across much of the parcel.

Site Description

The site possesses an interspersion of upland and wetland habitats throughout the area surveyed. Broad wetland swales are present in the areas between often dramatic local relief consisting of large bedrock outcrops and hills scattered throughout the site. The majority of the site has been disturbed at some point, with the southern portions having been recently cleared for timber harvesting. Exceptions to this are areas around small streams and drainages, and stands of small diameter trees, often hemlock (*Tsuga canadensis*) that were not cut. Other small pockets of intact forest are present surrounding Thacher Brook, which passes through the eastern portion of the site.

The northern half of the site has received more disturbance and has been maintained as a patchwork of cleared fields and unmaintained roads. This portion of the site exhibits old and ongoing excavations, an old farm pond/impoundment, a development site, and a small transmission line. Having been subject to greater disturbance over a longer period of time, these areas also exhibit greater infestation from invasive plant species such as Asian bittersweet (*Celastrus orbiculatus*) and multiflora rose (*Rosa multiflora*) than recently cleared areas in the south.

The wetlands on site are typically dominated by herbaceous vegetation consisting of disturbance tolerant species such as woolly bulrush (*Scirpus cyperinus*), fringed sedge (*Carex crinita*), loosened soft rush (*Juncus effusus* ssp. *solutus*), creeping bentgrass (*Agrostis stolonifera*), and sensitive fern (*Onoclea sensibilis*). Permanently saturated areas also commonly supported broad-leaved cattail (*Typha latifolia*), blue vervain (*Verbena hastata*), and marsh fern (*Thelypteris palustris* var. *pubescens*). Some scrub-shrub wetlands are present, most notable in the floodplain area around Thacher Brook. These are dominated by a mixture of speckled alder (*Alnus incana* ssp. *rugosa*), silky dogwood (*Cornus amomum* var. *amomum*), smooth arrowwood (*Viburnum dentatum* var. *lucidum*), and meadowsweet (*Spiraea alba* var. *latifolia*). Red maple (*Acer rubrum*) saplings are common throughout both upland and wetland portions of the site in association with the recently cleared areas as well.

Uplands in the recently cleared areas are dominated by typical pioneer species such as common blackberry (*Rubus allegheniensis*), sapling red maple, quaking aspen (*Populus tremuloides*), and intermittent stands of small diameter hemlock. Intact upland forested areas, such as those surrounding some portions of Thacher Brook and other small streams on site, consist of a mixed canopy of hemlock, white pine (*Pinus strobus*), red maple, red oak (*Quercus rubra*), and balsam fir (*Abies balsamea*). Upland forests in the northern portion of the site do not appear to have been subject to a recent harvest, however the species composition is that of pioneer and secondary species such as red maple and quaking aspen, indicating that much of this area is currently in an early-successional phase. Blue Ridge sedge (*Carex lucorum*) and New England sedge (*Carex novae-angliae*) are well represented throughout the uplands on site, as well as lowbush blueberry (*Vaccinium angustifolium*) and bristly blackberry (*Rubus hispidus*).

Maintained fields are composed of typical field species including an array of goldenrods (*Solidago* spp.), asters (*Symphyotricum* and *Doellingeria* spp., in part) and grasses such as lace lovegrass (*Eragrostis capillaris*), field meadow-foxtail (*Alopecurus pratensis*), common Timothy (*Phleum pratense*), and orchard grass (*Dactylis glomerata*). Wet swales within the fields exhibit similar marsh vegetation found elsewhere on site

RTE Plant Habitat Survey Results

Of the 8 natural communities identified by MNAP as rare or exemplary, none were located during the course of the site walk. An area of mapped Adams loamy sand in the northwestern interior portion of the site was investigated for sand barren habitat but none was located. Additionally, no peatland systems were located during the course of the site walk despite the large amount of wetland areas present. Some of the wetland areas that have been subject to tree clearing may have been dominated by a red maple overstory, however these do not exhibit any discernible direct connection to the exemplary red maple swamp to the west of the site, and no other indicators of rare or exemplary habitat were found within them. Of the 31 species thus identified by MNAP as occurring in the vicinity of the project area, 19 are associated with habitat that is not present on site. The remaining 12 species documented from the area cannot be ruled out due to either the presence of their typical habitat within the project area (e.g. old fields), or because they are a generalist species at the northern edge of their natural range, such as clothed sedge (*Carex vestita*), which is found in disturbed, open areas in southern Maine. Table 1 summarizes the species that would require a formal field survey during the appropriate time to locate on site. Note that several species, including button sedge, Long's bulrush, and sweet pepper-bush are included on this list, although it is in the author's opinion that the likelihood of these species being on this site are very low due to a lack of ideal habitat.

Table 1: Species Identified by MNAP with Suitable Habitat On-site

Scientific Name	Common Name	Optimal Survey Window	Comments
Carex bullata	Button sedge	June-October	Open wetlands, acidic bogs, unlikely to occur but possible
Carex vestita	Clothed sedge	May-July	Disturbed areas, ATV trails, transmission corridors
Selaginella apoda	Creeping spike moss	May-October	Open wetlands, roadsides, disturbed wet areas
Scirpus georgianus	Georgia bulrush	June-August	Open wetlands
Scirpus longii	Long's bulrush	May-October	Unlikely - associated with fen habitat
Kalmia latifolia*	Mountain laurel	Year-round	Rocky woodland species
Platanthera flava var. herbiola	Pale green orchis	July	Wetlands throughout site may support species
Scirpus pendulus	Pendulous bulrush	July-August	Open wetlands, found associated with disturbance
Quercus coccinea	Scarlet oak	May-October	Potentially found in intact woodlands

Calamagrostis cinnoides	Small reed grass	August-October	Wetlands in old fields may provide habitat
Ilex laevigata*	Smooth winterberry holly	May-October	Suitable habitat along Thacher Brook
Clethra alnifolia	Sweet pepper-bush	July-September	Associated with calcareous soils - unlikely to occur on site

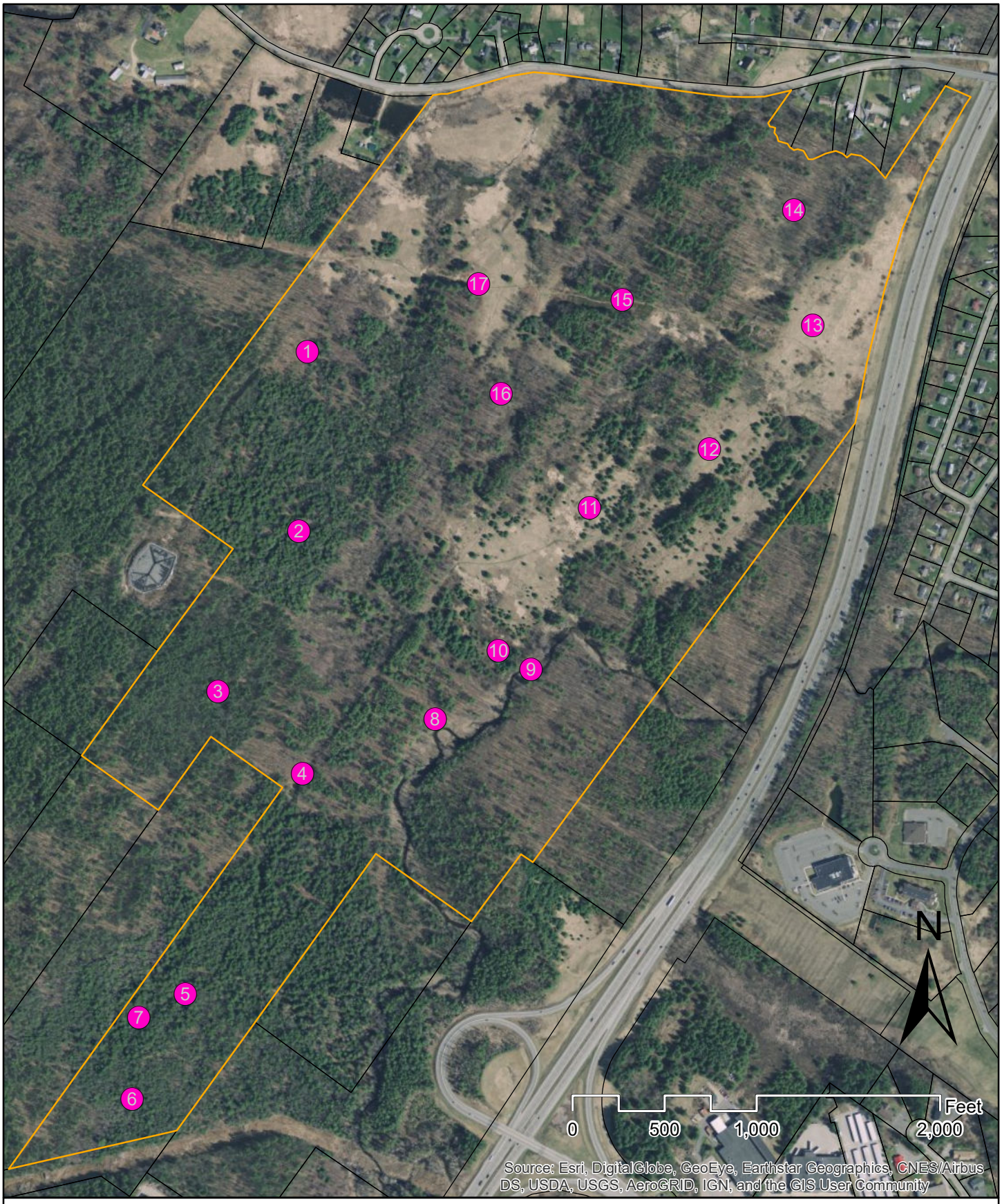
**Kalmia latifolia* is an evergreen shrub that is identifiable year-round, but was not observed during the initial site walk.
***It is possible to identify *Ilex laevigata* as long as fruit are present (through early January), although none were located during the site walk. Survey during the growing season is preferred for better possible detection.

If there is additional detail or clarity that Basswood can provide regarding the summary report, please do not hesitate to contact Erik Lema at erik@basswoodenv.com.

Best regards,

Erik Lema NHCWS#286, Owner/Principal
Basswood Environmental LLC

Attachments:
1: Index Map and Photolog
2: MNAP Review.



Proposed South Street Village

Rare Plant Species Habitat Survey

Parcel Boundary (MEGIS)

Photo Locations

Note: Aerial image taken circa 2019, prior to extensive tree clearing

BASSWOOD ENVIRONMENTAL

	Photo 1: Recently logged area, early successional shrub and forb vegetation.

	Photo 2: Typical wet swale area in the recently harvested portion of the property. Highly disturbed. Many of these areas were likely not wetlands prior to harvest and disturbance.

	Photo 3: Inundated portion of harvested area, potential vernal pool.

Photo 4: Former seldom used ATV trail according to the 2007 Biddeford Conservation Commission report, now approximately 25-foot-wide logging road.

Photo 5: Potential vernal pool, low quality, likely too shallow.

Photo 6: Naturally occurring wetland at far southern end of property, some sphagnum/peat development.

	Photo 7: Wetland impounded by adjacent logging road, some amphibian habitat.

	Photo 8: Thacher Brook from intact buffer area. Note scrub-shrub floodplain around brook.

	Photo 9: View of harvested area across Thacher Brook at crossing point. Inaccessible by foot at time of survey.

	Photo 10: Logged area in foreground leading to Thacher Brook, extensive alder swamp in rear of photo around the brook itself.

	Photo 11: Maintained field in northern portion of the site, view south.

	Photo 12: View northeast toward I-95 across maintained field.

	Photo 13: Extensive field adjacent to the transmission line.

	Photo 14: Early-mid successional forest in the northeast portion of the site.

	Photo 15: Wetland along transmission line, structurally diverse.

		Photo 16: Disturbed area with past excavations, facing south into the recently harvested areas.

		Photo 17: Old road adjacent to the transmission line. This area is highly disturbed and is under current use in conjunction with the maintained area along South Street in the northwest corner of the site.

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

November 10, 2021

Jeff Amos
Terradyn Consultants
565 Congress Street, Suite 201
Portland, ME04101

Via email: jeff@terradynconsultants.com

Re: Rare and exemplary botanical features in proximity to: Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Dear Mr. Amos:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received October 20, 2021 for information on the presence of rare or unique botanical features documented from the vicinity of the property in Biddeford, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, the property is in close proximity to a mapped Red Maple Swamp. Activities within 250-feet of wetlands associated with this Red Maple Swamp can adversely impact this exemplary wetland. MNAP recommends avoiding development activity within 250-feet of the Red Maple Swamp and its associated mapped wetlands. Please see the table below, attached map, and attached factsheet for more information.

Feature	State Status	State Rank	Global Rank	Occurrence Rank	Site
Red Maple Swamp (*Red Maple – Sensitive Fern Swamp*)	N/A	S5	G3G5	A Excellent	West Biddeford Black Gum Swamp

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

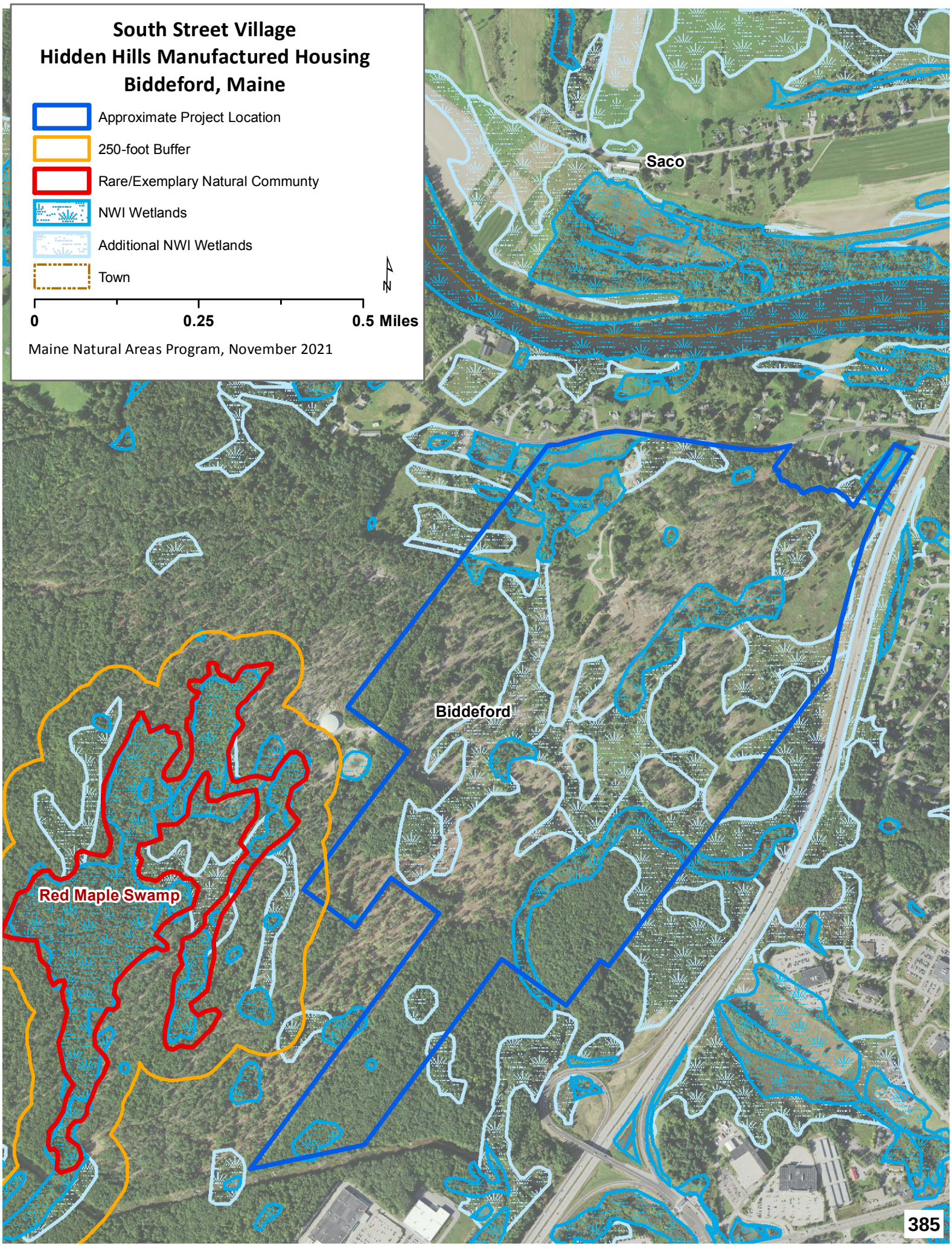
The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $225.00 for three hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov


South Street Village
Hidden Hills Manufactured Housing
Biddeford, Maine
Approximate Project Location
250-foot Buffer
Rare/Exemplary Natural Community
NWI Wetlands
Additional NWI Wetlands
Town
N
0
0.25
0.5 Miles
Maine Natural Areas Program, November 2021
Saco
Biddeford
Red Maple Swamp

Red Maple Swamp

State Rank S5

Community Description

Red maple dominates the somewhat open to nearly closed canopy (20-90% closure), sometimes with a relatively large component (up to 40% cover) of balsam fir, red spruce, or northern white cedar. Green ash and yellow birch are common, but rarely abundant, associates. The maples may be widely spaced with multiple trunks and arching crowns. The shrub layer is patchy; winterberry is common and various other shrubs may be locally abundant. The herb layer is well developed and dominated by herbs, with dwarf shrubs <20% of herb cover. Bluejoint and sensitive fern are characteristic herbs. The bryoid layer is usually <35% cover; peat mosses are typical but do not form extensive, deep carpets as they do in peatlands.

Soil and Site Characteristics

Sites occupy mineral soils or well decomposed organic material over mineral soil on flats or gentle slopes in small basins, often on floodplains of streams to small rivers. Soils are typically 30-60 cm deep, loamy to silty in texture, sometimes with well decomposed muck over the mineral fraction, and pH 4.8-5.4.

Diagnostics

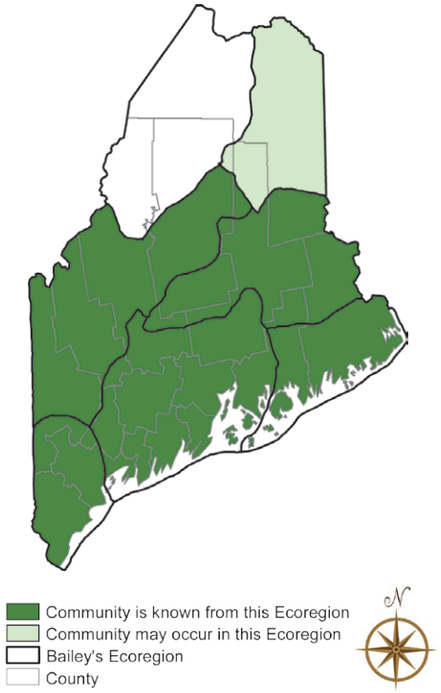
These are mineral soil wetlands in which red maple dominates the canopy or is co-dominant with conifers other than black spruce or larch. The seasonally flooded soils usually remain saturated through the growing season.

Red Maple Flowers

Similar Types

Red Maple Wooded Fens are similar, but either occur in association with large peatlands or occupy small somewhat peaty basins; they do not occur on mineral soils. Some small Northern White Cedar Swamps and Spruce - Fir - Cinnamon Fern Forests, particularly along the coast, include a fair amount of red maple but have cedar or spruce/fir, respectively, as the most abundant canopy species. Silver Maple Floodplain Forests are dominated by silver maple and generally occur along larger rivers, but the two types can intergrade on some floodplains.

Location Map



Red Maple Swamp

Conservation, Wildlife, and Management Considerations

Maintaining the hydrologic integrity of these stream drainages with upland buffers is key. These swamps typically have had few conflicting uses, although some have been recently harvested. ATV use has been observed at some sites.

Red maple swamps often provide habitat in which spotted turtles hibernate. If wet Sphagnum hummocks are present, four-toed salamanders may breed in this community. Examples that occur on floodplains of streams and small rivers may contain wood turtles, which overwinter in the stream channel and forage in the floodplain. The silver-haired bat often roosts in riparian habitats in trees with loose bark. The northern waterthrush is a common associate of this community type. In the southern part of the state, the Louisiana waterthrush and yellow-throated vireo may be associates if the canopy is closed or nearly so.

Distribution

Statewide, but most common in the southern half of state. Extends southward and southwestward from Maine; eastward distribution unknown.

Landscape Pattern: Large Patch

Characteristic Plants

These plants are frequently found in this community type. Those with an asterisk are often diagnostic of this community.

Canopy
Balsam fir
Gray birch
Northern white cedar
Red maple*
Red spruce

Sapling/shrub
Arrowwood*
Balsam fir
Gray birch*
Red spruce
Speckled alder*
Winterberry*

Herb
Bluejoint*
Flat-topped white aster*
Interrupted fern
Tussock sedge
Royal fern*
Sensitive fern*

Bryoid
Sphagnum mosses*

Associated Rare Plants

Smooth winterberry holly
Spicebush
Swamp saxifrage
Swamp white oak
Sweet pepper-bush

Associated Rare Animals

Spotted turtle
Wood turtle

Examples on Conservation Lands You Can Visit

- Kennebunk Plains Preserve – York Co.
- Mt Agamenticus – York Co.
- Steep Falls Wildlife Management Area – Cumberland Co.
- Waterboro Barrens Preserve – York Co.

Rare and Exemplary Botanical Features within 4 miles of

Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Atlantic White Cedar						
	SC	S2	G4	2017-07-26	3	Forested wetland
Atlantic White Cedar Bog						
	<null>	S1	G3G4	2017-07-26	3	Forested wetland
Beach Plum						
	E	S1	G4	1932-09	12	Rocky coastal (non-forested, upland)
	E	S1	G4	1933-06-21	9	Rocky coastal (non-forested, upland)
Brackish Tidal Marsh						
	<null>	S3	GNR	2009-07-29	1	Tidal wetland (non-forested, wetland)
Button Sedge						
	SC	S2	G5	1880-09-06	2	<null>
	SC	S2	G5	2017-07-26	5	<null>
	SC	S2	G5	2000-08-15	3	<null>
Clothed Sedge						
	E	S1	G5	2006-06-07	7	Dry barrens (partly forested, upland)
	E	S1	G5	2006-06-16	8	Dry barrens (partly forested, upland)
Creeping Spike-moss						
	E	S2	G5	1920-07-30	6	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Estuary Bur-marigold						
	SC	S3	G4	2009-07-30	35	Tidal wetland (non-forested, wetland)
Freshwater Tidal Marsh						
	<null>	S2	G4?	2009-07-30	1	Tidal wetland (non-forested, wetland)

Rare and Exemplary Botanical Features within 4 miles of

Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Georgia bulrush						
	SC	SU	G5	2007-08-22	4	<null>
Horned Pondweed						
	SC	S2	G5	1907-08-18	10	Tidal wetland (non-forested, wetland)
	SC	S2	G5	2000-08-28	15	Tidal wetland (non-forested, wetland)
Lilaeopsis						
	SC	S2	G5	2012-10-21	10	Tidal wetland (non-forested, wetland)
Long's Bulrush						
	T	S2	G3	2017-07-26	10	Open wetland, not coastal nor rivershore (non-forested, wetland)
Long-spined Sandbur						
	PE	SH	G5	1984	1	Rocky coastal (non-forested, upland)
Mountain-laurel						
	SC	S2	G5	1991-09-28	11	Conifer forest (forest, upland),Hardwood to mixed forest (forest, upland)
Mudwort						
	SC	S3	G5	2009-07-30	35	Tidal wetland (non-forested, wetland)
Northern Blazing Star						
	T	S1	G5?T3	1916-08-10	3	Dry barrens (partly forested, upland)
Pale Green Orchis						
	SC	S2	G4?T4Q	2008-06-27	52	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
	SC	S2	G4?T4Q	2008-06-27	53	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
	SC	S2	G4?T4Q	2008-06-27	54	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
Parker's Pipewort						

Rare and Exemplary Botanical Features within 4 miles of
Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
	SC	S3	G3	2017-08-31	33	Tidal wetland (non-forested, wetland)
Pendulous Bulrush						
	SC	S2	G5	2008-06-28	8	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Pitch Pine Bog						
	<null>	S2	G3G5	2017-07-26	4	Forested wetland,Coastal non-tidal wetland (non-forested, wetland)
	<null>	S2	G3G5	2015-09-29	20	Forested wetland,Coastal non-tidal wetland (non-forested, wetland)
Pitch Pine Woodland						
	<null>	S3	G2	2016-08-09	30	Rocky summits and outcrops (non-forested, upland)
Pocket Swamp						
	<null>	S2	G5	2004	18	Forested wetland,Hardwood to mixed forest (forest, upland)
Pygmyweed						
	SC	S2S3	G5	2009-07-29	25	Open water (non-forested, wetland)
Raised Level Bog Ecosystem						
	<null>	S4	GNR	2017-07-26	3	Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland)
Red Maple Swamp						
	<null>	S5	G3G5	2007-06-05	17	Forested wetland
Saltmarsh False-foxglove						
	SC	S3	G5	1982	8	Tidal wetland (non-forested, wetland)
	SC	S3	G5	1982	12	Tidal wetland (non-forested, wetland)
	SC	S3	G5	1982	9	Tidal wetland (non-forested, wetland)
Scarlet Oak						
	E	S1	G5	1916-08	4	Hardwood to mixed forest (forest, upland)

Rare and Exemplary Botanical Features within 4 miles of
Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Schreber's Wood-aster						
	PE	SX	G4	1894-09	1	Rocky coastal (non-forested, upland)
Slender Blue Flag						
	T	S2	G4G5	1879-08	4	Tidal wetland (non-forested, wetland)
Small Reed Grass						
	SC	S3	G5	1998-01-01	9	Old field/roadside (non-forested, wetland or upland)
	SC	S3	G5	2000-08-15	12	Old field/roadside (non-forested, wetland or upland)
Smooth Winterberry Holly						
	SC	S3	G5	1916-08-10	10	Forested wetland
	SC	S3	G5	2018-09-15	24	Forested wetland
	SC	S3	G5	2009-07-05	39	Forested wetland
	SC	S3	G5	2004	36	Forested wetland
Southern Slender Ladies'-tresses						
	PE	SH	G5T4T5	1918-08-27	1	Dry barrens (partly forested, upland)
Spongy-leaved Arrowhead						
	SC	S3	G5T4	2012-10-21	42	Tidal wetland (non-forested, wetland)
Stiff Arrowhead						
	SC	S2	G5	2006-06-16	15	Tidal wetland (non-forested, wetland)
Sweet Pepper-bush						
	SC	S2	G5	1917-09	9	Hardwood to mixed forest (forest, upland),Forested wetland
Water Pimpernel						
	SC	S3	G5T5	2012-10-21	26	Tidal wetland (non-forested, wetland)

Rare and Exemplary Botanical Features within 4 miles of

Project: South Street Village LLC, Hidden Hills Manufactured Housing Park, 413 South Street, Biddeford, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
White-topped Aster						
	E	S1	G5	1916-08-10	4	Dry barrens (partly forested, upland)
Yellow Wild Indigo						
	PE	SH	G5	1960-06-21	2	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of 1 to 5. Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 **G1**	**Critically Imperiled** – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 **G2**	**Imperiled** – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 **G3**	**Vulnerable** – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 **G4**	**Apparently Secure** – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 **G5**	**Secure** – At very low risk or extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX **GX**	**Presumed Extinct** – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH **GH**	**Possibly Extinct** – Known from only historical occurrences but still some hope of rediscovery.
S#S# **G#G#**	**Range Rank** – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU **GU**	**Unrankable** – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR **SNR**	**Unranked** – Global or subnational conservation status not yet assessed.
SNA **GNA**	**Not Applicable** – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems.
Qualifier	**Definition**
S#? **G#?**	**Inexact Numeric Rank** – Denotes inexact numeric rank.
Q	**Questionable taxonomy that may reduce conservation priority** – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The "Q" modifier is only used at a global level.
T#	**Infraspecific Taxon (trinomial)** – The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	**Endangered** – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	**Threatened** – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	**Special Concern** – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	**Potentially Extirpated** – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	**Excellent** – Excellent estimated viability/ecological integrity.
B	**Good** – Good estimated viability/ecological integrity.
C	**Fair** – Fair estimated viability/ecological integrity.
D	**Poor** – Poor estimated viability/ecological integrity.
E	**Extant** – Verified extant, but viability/ecological integrity not assessed.
H	**Historical** – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	**Extirpated** – Documented loss of population/destruction of habitat.
U	**Unrankable** – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	**Not Ranked** – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information
http://www.maine.gov/dacf/mnap

Attachment 15

Vernal Pool Report & Wetland Delineation

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

5365
May 18, 2020

Mr. Matthew Chamberlain
South Street Village LLC
762 Main Street
South Portland, ME 04106

Re: Vernal Pool Assessment, 175 acre portion of parcel on South Street Biddeford, ME

Dear Matthew,

I have completed a vernal pool assessment on a 175+/- acre portion of a parcel located off South Street Biddeford, ME. The vernal pool assessment was conducted in accordance with Chapter 335 Significant Wildlife Habitat, Section 9 Significant Vernal Pools for the Maine Department of Environmental Protection. This section outlines the definition of a vernal pool as well as the requirements of a vernal pool to meet the definition of significance as related to the number of amphibian egg masses counted during the breeding season.

Two site visits were made to the property over the course of six weeks beginning the first week in April. There were no vernal pools found on the property.

If you have any questions or require additional information, please contact me.

Sincerely,

Mark J. Hampton C.S.S., L.S.E.
Certified Soil Scientist #216
Licensed Site Evaluator #263

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

Quality services that meet your deadline

5365 MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

November 11, 2022

Mr. Matthew Chamberlain
South Street Village LLC
762 Main Street
South Portland, ME 04106

Re: Review of "Rapid Reconnaissance Survey, September 2022"

Dear Matthew,

At your request, I have reviewed the document you forwarded to me entitled, "Rapid Reconnaissance Survey of Two Parcels in Western Biddeford, 2022", prepared by Mr. Mark Ward and prepared for the Biddeford Conservation Commission. Based upon the comments made in the report, the consultant, at the request of the Biddeford Conservation Commission, made two cursory, 1-day walkovers of two parcels totaling more than 300 acres once in 2007 and then 15 years later, in August of this year. It is clear that the consultant did not have any documents related to the project under consideration for development of the property, which were of public record at the time of the field review and which should have been the focus of his reconnaissance.

Consequently, all the comments made in this document have to be taken as a broad brush assessment, and not detailed in anyway to make any judgment of the work I completed for you. I spent more than 21 days on the northern half of the property, the location of the proposed housing development, completing a full range of natural resource assessments. All of the issues raised by the consultant noted in photos and waypoint locations shown in figures in his report are located in the southern half of the total parcel.

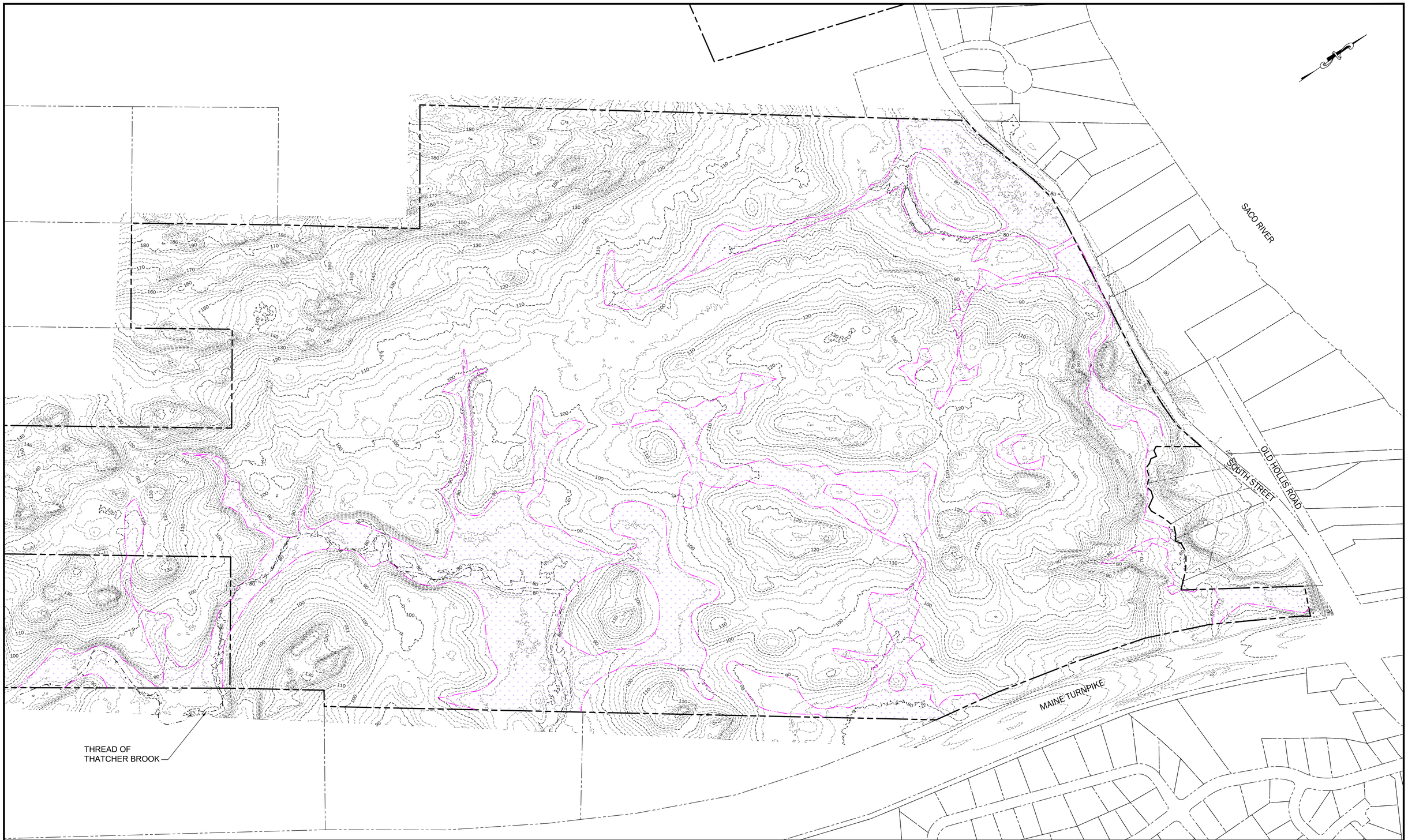
In my professional opinion, this document should not be any negative impact on the local and state review of your project. It is very clear that the consultant had few if any issues with the northern half of the overall parcel, which is exactly where your proposed project is located.

Sincerely,

Mark J. Hampton, C.S.S., L.S.E.
Certified Soil Scientist, #216
Licensed Site Evaluator #263

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

Quality services that meet your deadline



MARK HAMPTON ASSOCIATES, INC.
P.O. BOX 1931
PORTLAND, MAINE 04104

DRAWING LEGEND

- PARCEL PROPERTY LINE
- ABUTTER PROPERTY LINE
- WETLANDS
- 100 INDEX CONTOUR
- 101 INTERMEDIATE CONTOUR

GRAPHIC SCALE

200 0 100 200 400 800

1 inch = 200 ft.

DATE: MAY 6, 2021

SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE

WETLAND DELINEATION

SOUTH STREET, BIDDEFORD, MAINE

Attachment 16

Open Space Management Plan

Open Space Management Plan:

The applicants intend to outline the open space management plan within the final Park Management Plan. The following is their preliminary language for your review:

The open space for the park includes all areas within the borders of the park that is not located on one of the designated lots, maintenance areas, recreational area, or in any street right of way. It shall be managed as follows:

The open space in the park shall be for the recreational use of park residents and guests only.

It shall be maintained in its natural state unless it creates a fire hazard, at which time it will be addressed accordingly.

Walking trails are permitted to be constructed with permission from the owner. Trails to be constructed only of bark mulch or other similar low-impact materials. No trails allowed within designated forested buffer areas.

No wetland alterations are permitted and no crossing of wetland in the form of a trail system will be permitted

Every other year Hidden Hill will hire an arborist to walk the open space to determine the existence of an invasive species and deal with appropriately, as well as identify any dead or dying trees that should be removed.

All leach field beds will be inspected every 5 years for concerns of possible failure/leakage.

Street drains will be inspected/cleaned every other year to maintain and confirm proper functioning.

Every year inspect retaining pond to maintain and or repair as needed

Once a year pick up and remove fallen limbs and branches from the cemetery and mow grass as needed.

Attachment 17

Park Management Plan

Hidden Hills

Biddeford Maine

11/8/22 draft

Hidden Hills 55 +
COMMUNITY RULES

Effective: _____

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APPENDED: COMMUNITY FEE SCHEDULE

ANY VIOLATION OF THESE RULES MAY BE A CAUSE FOR TERMINATION OF OCCUPANCY (EVICTION). PLEASE READ ALL RULES CAREFULLY.

RULES INTRODUCTION

South Street Village, LLC, the owner of Hidden Hills Manufactured Home Community (referred to herein as the "Community"), intends to maintain and operate Hidden Hills as a quality residential community. The purpose and intent of these Rules is to promote the character of the Community as a peaceful, attractive and enjoyable setting for all residents; promote order, safety, and harmony in the Community; and, set forth the terms of lot tenancy. The Community's Management ("Management") strives to render prompt and efficient service and to provide all tenants with an enjoyable lifestyle in quality surroundings.

Homeowners renting a lot in the Community are referred to as the "tenant" in these Rules. The term "resident" includes the tenant and any household members.

The term "household members" includes in all instances any tenant's spouse, or any other cohabiters or individuals, authorized to reside in the tenant's home.

These Rules apply equally to tenants, their household members, and to any guests or visitors. These individuals are considered to be under the control of the tenant and the tenant is responsible for any Rule violations by any of these individuals.

A. RIGHTS & RESPONSIBILITIES. (Housing for Older Persons Act 1995)

1. Age-Restricted Community. H i d d e n H i l l s is a 55 and older community. One occupant must be at least 55 years old and every other occupant must be at least 40 years old.

2. Management Rights. Management has all of the rights set forth in the Maine Mobile Home Park Law (10 MRS Chapter 953, Regulation of Mobile Home Parks, Landlord Tenant Relations), as well as all rights set forth in these Rules, and all other rights and abilities vested by law that are reasonably necessary to carry out Management's responsibilities, or that are reasonably necessary to enforce these Rules or to promote the peace and safety of the residents of the Community. Without limitation of the foregoing, Management reserves the right to inspect any lot, or the exterior of any home, in the Community at all reasonable hours.

3. Services Provided by Management.

a. Regular Services.

- Weekly curbside household trash and recyclables removal.
- Central inside mail and parcel delivery pick up.
- Year-round grounds maintenance of common areas, which includes; cutting of lawns throughout the growing season; Spring and Fall clean up; and, fresh mulching of planting beds. (*See Sections K3 and K4*)
- Roads plowed and sanded as necessary, subject to weather conditions, or other matters outside the reasonable control of Management.

b. Additional services offered.

- Mowing, weeding, trimming, and fertilization, of lawns. Walkway, step, and deck, shoveling.
- Raking of roof edges, if necessary.
- Interior and exterior routine checks for those who live in the community on a seasonal basis, or if you are out of town and want your home monitored.

4. Tenant Complaints and Concerns. Any and all complaints or concerns should be submitted in writing, signed, and addressed to the Community Manager and deposited in Hidden Hills on-site mailbox, emailed, or call _____.

5. Safeguards and Alterations, Installations, or Construction. Management reserves the right to require the addition of safeguards and/or alteration of improvements to personal property if necessary to comply with the safety requirements of the Community's insurance carrier, or reasonable safety measures in general. Any alterations, installations, additions, or construction, on lots must be approved in advance by Management, in writing, and conform to all applicable building codes.

6. Liability and Indemnity. Neither Management, nor the Community owner, is responsible for fire, theft, or damage, in any manner to any home, vehicle, or other property, of any resident, guest, or visitor, in the Community; nor for any injuries to, or death of, any person, arising from, among other things, storm damage, flooding, snow or ice, on any lot or other Community property. It is fully understood that each tenant, household member, visitor, or guest, uses and occupies all Community property at their own risk. This provision may not be interpreted or construed so as to absolve the Community Owner, or its agents, from liability for its own willful acts or gross negligence.

Each tenant shall hold the Community Owner and Management harmless from any and all claims, expenses, damages, liabilities, judgments, rights and causes of action of whatever kind or nature, caused in whole or in part by, arising out of, or attributable to, any matter for which the tenant, household members, visitors, or guests is responsible under these Rules.

Neither the Community Owner, nor its Management, may be held responsible for any interruption of services, or damages resulting therefrom, caused in whole or in part by conditions beyond its control.

7. Insurance Coverage. The Community carries standard property insurance which does not cover loss or damage to the property of the Community's residents; nor injury or death to any persons, in situations where the damage results from a tenant's own negligence, failure to adhere to the Rules; or any condition that is within the control of the tenant. The foregoing is not intended to be an exclusive list of the items which are not covered by the Community's insurance, and additional losses, damages, or claims, may not be covered for any variety of reasons. The failure to specify herein any type of loss, damage, or claim, is not an admission of insurance coverage or of any liability for any such loss, damage or claim. Tenants are required to purchase their own insurance coverage for their home and other possessions for liability purposes. Policy data is to be provided at move-in.

B. ENFORCEMENT OF RULES.

1. In General. Any failure of a tenant, their household members, guests, or visitors, to observe and comply with any of these Rules is considered unacceptable behavior, which may subject the tenant to eviction from the Community after written notice and an opportunity to comply.

2. Violations. Any tenant, their household members, guests, or visitors, who commits, or is responsible for, any violation of these Rules will receive at least one written violation notice with an opportunity to correct the violation within a time frame specified in the notice. Any tenant continuing violation of a provision of these Rules is subject to an eviction notice, with an opportunity to correct the violation within a timeframe specified in the notice. Tenants receiving three (3) violation notices (which includes non-payment of rent) within a 12-month period may be subject to an eviction from the Community pursuant to 10 MRS, §9097-B, Forcible Entry and Detainer.

3. Costs and Fees for Non-Compliance. Tenants may be subject to payment of certain fees for failure to comply with Community Rules as defined in the Community Fee Schedule. Costs and reasonable attorney fees may be charged to a tenant who fails to pay rent or otherwise violates Community Rules whether or not a legal action is filed against the tenant.

4. Termination of Tenancy. Tenancy in the Community is at will and governed by these Rules. Any tenancy in the Community may be terminated for any of the reasons set forth in 10 MRS §9097(1), as it may be amended, or set forth in any successor provision as governed by 14 MRS §6002. A Notice of Termination (which may also be called an Eviction Notice, or other words of similar meaning) must be delivered by Management to the tenant. Without limiting the right to terminate tenancies for any of those reasons, each tenant's attention is specifically directed to the following reasons, anyone or more of which may result in eviction:

(a) Non-payment of rent, or other amounts, when due;

(b) Failure to correct in a timely fashion any continuing violation of these Rules after notice;

(c) Receipt of any three (3) Rules violation or non-payment notices in any 12-month period, even if timely corrected; and

(d) Repeated conduct that disturbs the peace and quiet, or safety, of other tenants.

Management prefers to avoid evictions whenever reasonably possible. However, Management also intends to maintain the Community as a safe, attractive and healthy environment for all tenants, and will evict tenants when necessary.

All tenants are encouraged to pay their rent and other charges on time, and to be sure to observe all Community Rules, and to make sure that those for whom they are responsible (household members (including children), guests, visitors, etc.) also observe all of these Rules.

Tenants are subject to eviction not only for their own actions and behavior, but also for the actions and behavior of others for whom they are responsible under these Rules and/or state law.

Once an eviction has been served for non-payment of rent, the tenant will not only have to pay all amounts then owed to the Community, but will also have to pay an administrative fee of five percent (5%) of the then outstanding rent, in order to reinstate the tenancy.

C. COMMUNITY TENANCY; ENTRANCE FEE; SUBLETTING.

1. Application for Tenancy. All prospective tenants of the Community and their household members are required to complete an Application for Tenancy. Management review will include a credit report and criminal background check. Management approval must be received prior to any property transfer or entrance into the Community. This includes any heirs or devisees of a deceased tenant who wish to reside within the Community or others who acquire an interest in a home by operation of law.

2. Entrance Fee. A fee for new tenancy (akin to an association fee) is required for tenancy as defined in the Community Fee Schedule.

3. Subletting Prohibited. Homes must be owner occupied and tenants are not permitted to sub-rent or sub-lease the rented lot, or any part thereof, or all or any part of any home on the lot. Tenancies are not transferable, and no home in the Community may be occupied by others, unless the new occupant is approved for entrance into the Community as a resident in accordance with all requirements of these Rules.

D. RENT & OTHER CHARGES; PAYMENT.

1. Rent. The monthly lot rental amount for each lot in the Community is listed in the Community Fee Schedule which may be revised or updated from time to time at the Community owner's discretion and with at least thirty (30) days written notice to the tenant. All rent payments are due in advance, on the first day of each month.

Tenants are not permitted to deduct, or set off, any amounts that they may claim are owed to them by the Community from their monthly rent payments. The date when Management actually receives the payment will determine when it was received for purposes of these Rules; neither the postmark on the envelope or the date on the check will be taken into consideration as to whether or not the payment is made on time.

Post-dated checks are deemed received on the later of the date of actual receipt, or the date of the check, and not before.

2. Returned Checks. Any checks returned for nonsufficient funds (NSF), or otherwise, will result in a service charge to the tenant in the amount set forth in the Community Fee Schedule. Any more than two (2) returned checks will require future payments being made by cashier's check or money order.

3. Failure to Pay. If rent or any other charges due are not received by the end of the day on the fifteenth day of the month, the tenant is subject to a late fee as indicated in the Community Fee Schedule on balances of $100.00 or greater, and to receiving an Eviction Notice.

4. Taxes. Tenants are responsible for paying all municipal and other taxes on their homes and personal property on a timely basis.

E. OCCUPANCY.

1. Owner Occupancy; Number of Occupants. All homes must be occupied by an owner aged 55 or older. No other permanent residents under the age of 40 are permitted. No more than one (1) persons per bedroom are permitted to occupy any home in the Community. Any individual not approved for residency is considered a visitor in the Community.

2. Additional Occupants. Any additional occupants to the household must be approved by Management, by completion of application process prior to moving into the Community.

3. Visitors. Overnight visitors are permitted on a temporary basis, except visitors may not remain as overnight guests in any home for a period in excess of thirty (30) days within a sixty (60) day period, without applying for Community entrance through the application process.

4. Restrictions on Visitors and Occupants. No tenant may have as an overnight visitor, or as a permanent resident in any home, any person who has been:

a) evicted from the Community based on any violation(s) of these Rules other than non-payment; or

b) convicted of any crime that occurred on Community property, or that occurred while the individual was a resident of the Community, or the victim of the crime was a Community resident, or

c) a perpetrator of an incident, or threat, of domestic violence, sexual assault, or stalking, or

d) convicted of a sex crime (including, but not limited to, rape, statutory rape and unlawful sexual contact), or any felony conviction unless Management specifically waives this restriction in writing with respect to a particular circumstance and a particular individual, which Management has no obligation to do.

F. CONDUCT & COMPLIANCE WITH RULES.

1. Prohibitions: The following are prohibited at all times in the Community:

a) Loud parties; loud musical instruments, music, radios; other offensive noise or commotion.

b) Shouting, fighting, or other forms of disorderly behavior.

c) The public consumption of alcoholic beverages or illegal drugs, or intoxicated behavior in public.

d) Open fires of any kind. UL-approved chimineas, charcoal grills, gas grills, hibachis, and management approved fire pits, may be used if they are operated properly and are in good working order.

e) Absolutely no firearms, BB guns, paintball guns, or fireworks, may be fired or discharged in the Community under any circumstances.

f) Trampolines, swimming pools , playground equipment, and/or basketball hoops on rented lots (freestanding, mounted or otherwise).

g) Assault, or the threat of assault, harassment, intimidation, or other interference with Management or other employees, or damage or threat of damage, to any Community property.

h) Peddling or soliciting of any kind. This is not intended to prevent sales "parties" (e. g. Avon parties) held by a resident of the Community, involving only previously invited guests.

i) Storage of any materials or substances that pose a fire hazard, are toxic or hazardous, or that are likely to attract insects or rodents.

j) Interference with any other tenants' quiet enjoyment of their home and lot.

k) Feeding, or other care, of stray cats, dogs, or feral creatures.

l) Storage of materials or equipment for any commercial enterprise.

2. Quiet Hours. Noise that can be heard outside of the home is to be kept to a minimum between the hours of 9:00 p.m. and 7:00 a.m. No unnecessary noise may be audible outside of the home during those hours.

3. Dealing with Neighbors. Complaints of Rules violations should be reported in a signed letter to Management. In the event of afterhours disturbances or in case of an emergency, tenants are requested to contact the police department for corrective action, and advise Management in writing of the incident and the circumstances surrounding the complaint on the next working day, so that Management can follow-up and help correct the problem.

4. Vacant Lots. Vacant lots are Community property and are not to be disturbed, entered, or used for any purpose whatsoever.

5. Property Damage. Any damage caused to any property or equipment in the Community by any tenant, their household members, visitors, guests, or invitees, is the financial responsibility of the tenant to correct, regardless of whether such damage was caused negligently, intentionally, inadvertently, or otherwise. The damages will be measured by the restoration or replacement cost to correct the same, in Management's discretion. Such damages are deemed additional rent and are due and payable thirty (30) days after Management has provided written demand for payment.

G. CHILDREN.

1. Responsibility. Tenants are held responsible for any property damage or injuries caused in whole or in part by visiting children, and for any violations of these Rules by them. Tenants may be evicted for violations of these Rules committed by their visiting children, after notice and an opportunity to comply, as though the violations had been committed by the tenant themselves.

2. Supervision and Conduct of Children. Each tenant is responsible to provide adequate supervision of their visiting children at all times while they are in the Community. Tenants must not permit their children to enter any Community buildings or enter any other areas designated by Management as prohibited, whether for safety reasons or otherwise. No one is permitted to play or loiter on empty lots, in the streets or to trespass on other tenant's lots. Furthermore:

a) For their safety, children must never play with riding toys in parking lots or common areas.

b) Bicycles, tricycles, and toys, must never be left in any those areas; nor in any street; and must be stored at the end of each day.

c) Throwing rocks, digging on lots, destruction of trees or other Community property is not permitted.

d) Children may not operate any vehicle in the Community except in compliance with the State's driver's license regulations.

H. PETS & OTHER ANIMALS.

1. Responsibility. No pets are permitted without the prior consent of Management. Tenants are responsible for all actions of their pets, and are financially liable for any damage caused to property of the Community, or that of any other tenant, and for any personal injuries, including death, caused by their pets. Pets are not permitted to disturb the rights, comfort, safety, or convenience, of the other residents or their visitors. Undue noise, aggressive behavior toward people or other pets, digging or other unruly behavior, or other violation of these Rules by any pet may be cause for removal of the animal from the Community.

2. Types and Registration of Animals. No more than 2 (two) pets per home are allowed. One dog with a weight of 50 lbs. or less, plus one indoor cat will be permitted.

No wild or exotic animals, farm animals, or venomous or otherwise dangerous animals, are permitted to be kept in the Community, whether as pets or otherwise. A reasonable number of fish, birds, and/or constantly caged small (under 4 pounds) indoor animals, such as hamsters, gerbils, or guinea pigs, are permitted without registering with Management.

Approval of any dog or cat is contingent on completion of a "Pet Information" sheet; presentation of proof that the animal is properly licensed pursuant to municipal requirements; and, submission of a certificate from a licensed veterinarian stating the animal has received all required and advisable immunizations and has been spayed or neutered. This information must be updated and kept current with the Community office on an annual basis.

Due to insurance requirements and the safety of other residents, the Community prohibits potentially aggressive breeds and cross-breeds including, but not limited to, all Pit Bulls (American Staffordshire Terriers), Doberman Pinschers, Chow-Chows, Rottweilers, Wolf or Wolf Hybrids, German Shepherds, Siberian Huskies, Malamutes, Akitas, Great Danes, Perro de Presa Canarios, Bull Mastiff or Mastiffs, Dalmatians, or any other dog that has any of the above breeds in their lineage.

3. Care of Pets. Dogs and cats may not be left outside unattended at any time, day or night. Doghouses, outdoor cages, ropes, chains, and other outdoor enclosures, intended to house or contain any pet or other animal are strictly prohibited. Whenever pets are outside the home, they must be kept on a leash or within an invisible fence. Any pet or other animal found loose in the Community is subject to being picked up by the Animal Control Officer.

Animal waste deposited anywhere in the Community must be removed immediately by the person responsible for the animal, and pets are not permitted to trespass on other tenant's lots.

4. Removal of Animals. Tenants with registered pets in violation of these Rules will be given written notice of the violation and an opportunity to comply. If the violation continues or recurs, the Community may require removal of the pet from the Community.

The Community reserves the right to require immediate removal of any unregistered pet or any pet with a history of aggressive behavior and/or prior or current dog bite history; or otherwise injures a person or other pet; or is deemed in the sole discretion of Management to be a threat to the health or safety of other residents.

I. HOME OCCUPATIONS & BUSINESSES PROHIBITED.

1. No home occupation, business, or commercial activity (including Day Care / Babysitting), may be conducted in the Community at any time. Usage of lots is strictly residential.

2. Individual yard sales are not permitted. Two Community-sponsored yard sales will be held each year.

J. CONDITION OF HOMES IN THE COMMUNITY.

1. In General. The following Rules set standards for homes in the Community and are applicable at all times with respect to all homes. Management will conduct an inspection of the exterior of all homes, accessory structures, and lots, to confirm compliance with these Rules. Tenants who own homes that fail to meet the standards contained herein will be given written notice and a reasonable opportunity to correct any deficiencies in order to meet these standards. If the home is not brought up to these standards, Management may elect to complete work at the tenant's expense or may pursue eviction to have the home removed from the Community.

2. Standards. The original, or replacement components, of all homes or structures must be in a safe and secure condition, without holes, rust, substantial dents, scrapes, patching, or fading. All components of homes must remain compliant with all applicable Federal, state, and local, building codes, including but not limited to the exterior siding, roof, windows and doors, steps and handrails, plumbing, heating and electrical systems, anchoring system, skirting, or electrically wired smoke detectors. All plumbing and heating systems must be operable at all times and compliant with all HUD and local codes. All electrical service and wiring must be in accordance with the specifications of the edition of the National Electrical Code or HUD Standards in effect on the date of the manufacture of the home.

3. Appearance. All homes entering the Community or any replacement siding installed must be of vinyl, Hardie board, or residential finish siding, in a clapboard style. To the extent that is reasonably feasible all replacement roofs must be of a 5/12 pitched cottage style. Skirting must fully enclose the area between the home and the ground and be of vinyl or comparable good quality material. Skirting must be replaced when deteriorating or damaged, and installed in accordance with the management's installation instructions.

4. Utility Access. Opening(s) not less than eighteen (18") in any dimension, fully covered with an access door panel, not less than three (3) square feet in area must be provided and located so that any water supply and sewer drain connection located under the home is accessible for inspection and repairs. Access panels and doors may not be fastened with locks, or in a manner requiring the use of a special tool to remove or open them.

5. Pests. The ridding and/or removal of the infestation of pests; including, but not limited to: insects, rodents, skunks, raccoons, or possums, is the responsibility of the tenant.

6. Numbering. E911 street numbers must be visible from the street on the outside of thehome.

7. Porches, Decks, Other Additions and Improvements.

a. Improvements. Tenants may not make additions or improvements on their home or lot, without first obtaining Management's written consent. Any additions or improvements approved by Management must be made solely at the expense of the tenant and in strict compliance with Management's approval with no rights to improvements being made at the Community Owner's expense.

b. Additions. An "Addition" to a home is defined to include any and all steps, porches, awnings, decks, windbreaks, and other improvements and installations, as well as all alterations to existing construction and exterior improvements and installations. "Additions" also include any separate Accessory Structures, which are defined to include all storage sheds, utility buildings, patio rooms, add-a-rooms, and all other structures not integral to a home.

1) Prior to construction of any Addition to any home or lot, the tenant must submit a scaled drawing of the design, color (paint, stain, or finish, to match the home), size, materials, and construction location.

2) Any Addition constructed without written approval of, or not in accordance with the approval of the Management, may be required to be removed immediately by the tenant at their expense. If not removed timely, Management has the right to enter the lot and remove all such unapproved Additions at the tenant's expense.

3) Additions must be harmonious with the rest of the home in style, form, exterior materials, and general appearance. Accessory Structures must be of wood or any other material that is designed to withstand exposure to the elements without deterioration or damage, and is designed to have and retain an attractive appearance.

4) Additions must be properly constructed in a workmanlike manner, using good quality materials, in accordance with the approval granted by Management and all applicable building codes, and completed within 30 days of the beginning of the construction, unless an extension is granted by Management. Building permits must be posted during construction.

5) Additions must be kept in good, safe, attractive and not deteriorated condition at all times.

c. Accessory Structures.

1) One shed per lot is permitted and must not exceed the maximum of one hundred ninety-six (196) square feet. Sheds, must be of wood construction, with a cottage style shingle roof and sided with clapboard, vinyl, or Hardie board, material to match the color of the home. No shed additions of any type are allowed. The height of any Accessory Structure, such as garage or shed, must be equal to or lower than the roof peak of the home.

2) No fences or fence structure, which includes any temporary lawn fence, are permitted in the Community.

3) Management reserves the right to approve fencing around an approved hot tub, garden fencing, and invisible pet fencing.

4) Hot tubs are permitted at the rear of the home, but for insurance and safety purposes must be fenced and covered by a locked, commercial cover. Fencing around a hot tub must be limited to the area immediately surrounding the hot tub.

5) Satellite dishes over 18" in diameter, and antennas (of any kind) outside the home, are not permitted.

6) Carports on property are not permitted

8. Fire Prevention. No liquid petroleum, propane or similar gas tanks may be stored inside or under any home or structure. Fuel tanks (oil or propane) must be properly installed by an authorized installer and must be placed at the rear of the home. No flammable materials, including but not limited to gasoline and kerosene, may be stored under or within the home. Tenants are encouraged to keep fire extinguishers at their homes in working condition and to properly maintain adequate smoke and carbon dioxide detectors.

9. General Aesthetic Standards and Compliance. In addition to standards set forth above, tenants must keep their manufactured home exteriors, siding, porches, awnings, decks, stairs, skirting, and any other exterior or Accessory Structures clean, neat, and in good condition and repair, including painting or pressure washing as needed. Any existing porch, awning, deck, stairs, skirting, roof siding, or any other exterior structure which, in the opinion of Management, is unsightly, unsafe, unsanitary, or in poor repair, must be replaced, repaired, or removed, by the tenant upon written notice from Management. This repair, replacement, or removal, must be done in a good and workmanlike manner. Tenants must complete the repair, replacement, or removal, within the timeframe given by the written notice, unless a written extension is obtained from Management.

10. Homes Damaged by Fire. Any homes damaged by fire, so that it becomes uninhabitable, or so that its exterior walls are burnt, paint peeled, windows broken, or smoke damaged, so that it appears unsightly, must be removed from the Community at the tenant's expense within forty-five (45) days after written notice from Management, regardless of insurance company representations regarding settlement.

If the home can be repaired on-site so that no danger to others exists, and so that it is no longer unsightly or a nuisance, the tenant may be afforded a reasonable time to make repairs, not to exceed ninety (90) days regardless of the availability of insurance funds. Management shall determine whether the repairs are sufficient to bring the home into compliance. Pending removal of the home from the Community or repair of the home, the tenant must close up the home and completely cover any unsightly or dangerous parts of the home and any debris to minimize the risk that it poses to others within the Community. If the tenant has worked in good faith to repair the property and appears will exceed the 90 (ninety day) time period, an extension may be granted by Management.

K. CARE OF GROUNDS.

1. General Lot Maintenance. Except as otherwise specifically set forth in these Rules, it is the responsibility of tenants to maintain their entire lot in a good and attractive condition and in good repair at all times, at the tenant's expense. Grounds must be kept clean, neat, and uncluttered. No discarded or abandoned materials, unnecessary items, building materials, trash, junk, debris, or excessive lawn decorations, that create a cluttered appearance may be kept, stored, left or abandoned, outside the home or an accessory structure. All Christmas decorations must be removed by Jan 15th of the current year. Screen rooms may not be used as a storage area. Toys, bicycles, etc., must be put away (not left outside) at the end of each day.

All flowers, shrubs, manufactured housing exteriors, additions, skirting and other visible items and areas must be kept neat and attractive at all times. All tools, wheelbarrows, or other equipment, are to be stored out of sight in sheds when not actually in use. Items not considered lawn furniture, lawn ornaments, or grills, must be stored out of sight in the home or shed. No unsightly storage of any items is permitted at any time, and all storage arranged so as to permit easy access to the underneath of the home at all times.

Management may issue a notice of violation to any tenant whose lot is not properly maintained, or whose lot is or contains an eyesore, and to require that the lot be cleaned and restored to an attractive condition within thirty (30) days or a shorter time frame that is reasonable under the circumstances. If any lot is not properly maintained after written notice, Management reserves the right to take all necessary steps to clean and maintain the lot.

All costs of lot maintenance and cleaning by Management are charged to the tenant in accordance with the Community Fee Schedule.

2. Protection of Stormwater Facilities. No action may be taken by tenants that will increase the risk of discharge of pollutants to groundwater from the infiltration basins. No exterior petroleum tanks are permitted within the Community. Vehicle washing with non-biodegradable detergents, is prohibited on Community grounds. Unsecured storage of waste materials (oil, lubricants, etc.) in areas draining to infiltration basins is prohibited. Alteration of lot grading is not permitted.

3. Lawns. All lawns must be kept neat, well groomed, fertilized and reseeded as needed. It is the responsibility of the tenant to rake and remove leaves and any other yard debris on an as needed basis, other than during the provide Spring and Fall cleanup. If leaves or other debris are not removed, Management reserves the right to rake the lawn, and charge the tenant the applicable maintenance service fee as described in the Community Fee Schedule.

4. Gardens, Shrubs, and Trees. Shrubs, trees, and reasonably sized gardens are allowed, but require prior written approval of Management. Tenants may not nail or in any way attach hardware to any trees within the Community. Tenants may not trim or remove trees without permission from Management. Tenants wishing to remove trees from their lot must first have the trees inspected and approved for removal by the Management. A permission form must be obtained from the office, which will be valid for 30 days from the date issued and the person doing the work must carry adequate liability insurance. Within 7 days from the date the tree was cut down, tenants are required to remove from the lot; all parts of the tree, including branches, trunk, and stump. Management is not responsible for any damage to plantings due to snow plowing, road treatment, the need to access underground systems, or other causes.

5. Trash Removal. All trash containers must be kept in a storage shed or toward the rear of the home. No trash is to be stored outside at any time unless kept in a durable trash container with a secure lid. Trash containers are to be brought out to the street on collection days and removed the same day of collection. The tenant must clean up any scattered trash or garbage as soon as possible, or the Community will clean it at the tenant's expense.

6. Snow Removal. Management is not responsible for plowing of driveways at the end of the snowstorm. Tenants are responsible for all snow and ice removal of driveways, walkways, steps, and decks and must at all times maintain a clear path to all doors. Tenants are responsible for any damage caused by plowing done by another party at their request. All obstacles such as rocks must be at least eight
(8) feet from the roadway edges during the winter. All tenants must park in their allocated driveway only and must not park on the street at any time during the snow removal process.

7. Clotheslines. Only retractable clotheslines are permitted and no clothes are permitted to be left hanging out overnight.

8. Playground Equipment/Temporary Enclosures. Volleyball or badminton nets may be utilized at the rear of the home, but must be neatly stored when not in use. Swing sets or playground equipment are not permitted. Screen rooms and tents may be installed on a temporary seasonal basis and must be maintained and kept in good condition. Management may require their removal should their condition deteriorate or the duration of use be excessive. Management can also limit the size or the area of the lot where a screen room or tent can be located. Screen rooms and tents may not be used for storage purposes. Free standing temporary canopy type car covers of vinyl or other material may not be used.

9. Swimming Pools. No swimming pools, of any kind, are allowed on rented property.

10. Sign Restrictions. Signs are not permitted on lots, homes, or elsewhere on Community property, at any time except Realtor or "For Sale" signs which are not to exceed 2’ X 3’.

11. Firewood. Management reserves the right to approve the location of stacked firewood. Any tenant with a wood stove or fireplace may store wood, neatly stacked, so as to not be visible facing the road; in a location to the rear of the home. Cutting firewood with chain saws is permitted with consideration of neighbors due to the noise and must be in accordance with noise ordinance of the Community. All wood stove connections must be properly installed in accordance with manufacturer's specifications and all local and state fire codes, and it is the tenant's responsibility to ensure proper installation.

L. UTILITIES.

1. Water and Sewer Service. Each tenant is responsible to keep in good condition and repair at their own expense, all water and sewer lines and fixtures in and under the home, up to the point where the service lines penetrate the ground or slab.

2. Prevention of Freezing Water Lines. Water lines, from the point of surfacing in the ground well to the home connection point, must be protected against freezing by the use of adequate heat tapes and pipe insulation, maintained at the tenant's expense. Tenants must not leave water running to prevent freeze ups. Any damage to the common utilities or other damage to the water meter or plumbing for that lot or the Community, resulting from any tenant's failure to comply with this provision, will be repaired at the tenant's expense and be charged as additional rent.

3. Sewer System. Use of garbage disposals, and the flushing of garbage, sanitary napkins, paper towels, disposable diapers or wipes, prophylactics, cigarettes, cigars, grease, powdered laundry detergent, or any other non-soluble item or substance, in toilets and drains is strictly prohibited. Doing so may cause a backup in the septic systems and lead to unsafe conditions. Any cost of correcting clogged drains or other sewerage problems that are due to any improper actions of the tenant, or of others for whose actions the tenant is responsible, are charged to the tenant.

4. Electrical Service. The Community is responsible for the maintenance and repair of all underground wiring and electrical equipment from the outside disconnect located near the meter to the circuit breaker box in the home. The tenant is responsible for the circuit breaker within the home and all wiring in the home. Written management approval is required for any additional service originating at the home including but not limited to sheds or outside lighting. Such wiring must be installed and maintained as necessary by the tenant at their expense, in accordance with all applicable state and local codes.

Tenants must contact Management immediately in the event of any electrical problem. Tenants are prohibited from attaching any objects in any manner to electric utility poles or exterior breaker boxes. Damages occurring due to an unauthorized increase are the tenant's responsibility.

5. Fuel Tanks. O n l y propane/LP will be permitted and must be installed and maintained in accordance with all applicable federal, state, county, and local codes, laws and regulations governing the same. Tanks should be installed so as not to be visible facing the road. In the event that proper installation of the fuel tank causes it to be visible from the roadway, Management reserves the right to approve the location, and the tenant must provide a Management-approved enclosure around the tank that is compatible with the appearance of the home in color and design. All leaks must be repaired, and tanks must be painted and leveled when necessary. In the event of any spillage of any type of liquid fuel, the area of the spill must be cleaned in strict compliance with all federal and state environmental standards at the tenant's expense. Any spillage of hazardous substance must be reported to Management immediately.

6. Tampering with or Disconnection of Utilities. Interfering with, tapping into, or otherwise tampering with, any utilities or utility installations in the Community, including but not limited to Community utility connections, meters, or other installations, is extremely dangerous and strictly prohibited. Water meters are owned by north Berwick Water District and may only be disconnected by North Berwick Water District. Any costs to repair or replace water meters damaged due to a tenant's conduct or negligence are at the tenant's expense.

M. MOTOR VEHICLES.

1. Registration. All vehicles kept in the Community must be currently licensed, registered and inspected at all times. Temporary plates on vehicles must be replaced by permanent plates within the time frame required by law. No unregistered, un-inspected, or inoperable, motor vehicles of any size or type are permitted in the Community, and any tenant with such a vehicle in the Community is in violation of these Rules. Any such vehicles are subject to being towed away by Management, at the owner's expense and risk.

2. Maintenance of Vehicles. Tenants are permitted to perform only minor maintenance of short duration on vehicles within the Community. Damage to paved parking areas or driveways caused by leaking gas, oil, or other automotive fluids, must be repaired by the tenant at the tenant's expense. No tenant will be allowed to keep any vehicle at their lot that is unsightly, including various parts being different colors, excessive rust, flat tires, etc. No tenant is to use their lot for extended mechanical repairs.

3. Speed Limit and Safe Driving. The Speed limit within the Community is 15 MPH. There must be no squealing of tires, joy riding, or reckless driving. All vehicles are subject to reasonable noise levels. Speeding, driving under the influence of drugs or alcohol, or other unsafe behavior by any tenant or by the tenant's household members, guests, or invitees will not be tolerated. Violation of this Rule will result in a violation notice, and failure to comply after notice of the violation may result in eviction.

4. Commercial and Recreational Vehicles. Tenants may not keep any commercial truck over ¾--ton on their lot. No campers, RVs, boats, utility trailers, or recreational vehicles, including but not limited to; motorized bikes of any kind, snowmobiles, ATVs or motorized go-carts may be parked on the lot or in the driveway. Recreational vehicles, including but not limited to; motorized bikes of any kind, snowmobiles, ATV s or motorized go-carts, may not be driven on Community property. Driveway parking of campers and/or RVs is permitted for a maximum period of 48 hours while loading or unloading, after which time the vehicle must be removed from the lot.

5. Parking. The maximum number of vehicles kept in the Community is two (2) vehicles per home with no allowance for parking on the lot at any time. All tenant vehicles must be stored in garage at night time. Management approval must be obtained for driveway parking of additional vehicles.

No vehicle may be parked within ten (10) feet of any fire hydrant. On-street parking is not permitted. Any vehicle parked overnight in an unauthorized place is subject to being towed at the owner's risk and expense without prior notice. Vehicles may not be parked on the grass. Any vehicle parked on a street during snow removal actions is subject to towing without prior notice at the owner's expense. Guest parking is not permitted except in the driveway of the home, or visitor parking area, unless for short periods of time, e.g. dropping off or picking up persons or items.

N. REPLACEMENT OF HOMES.

1. Replacing a Home Already in the Community. Tenants who wish to remove their existing home in order to buy a new manufactured home to be placed on the same lot must provide Management with thirty (30) days written notice of their intent to replace the home. Existing homes may only be replaced with new manufactured homes which meet all HUD standards and are installed in accordance with Federal, state, and local regulations or ordinances, the manufacturer standards, and these Rules.

O. TRANSFER OF HOMES.

1. Requirement of Full Payment. Before any home may be removed from the Community, sold, or occupied by a new tenant owner, all rental payments and all other charges and fees due must be paid to Management in full, with written verification that all real estate and personal property taxes have been paid to the local municipality.

2. Sale of Manufactured Housing/Requirements for Sale. Tenants have the right to sell their home to whomever they choose. Homes to remain in the Community must be safe, sanitary, and in compliance with applicable aesthetic standards. Buyers of homes to remain in the Community must be approved for residency through the application process prior to the conveyance.

A thirty (30) day notice to Management is required prior to the proposed date of sale or removal of a home. Homes remaining in the Community are subject to a pre-sale inspection of the exterior of the home, additions, and lot, by Management within three (3) days of receipt of intent to sell for compliance with these Rules.

Management will provide a written notice of any repairs, improvements, or lot maintenance, required prior to an in-Community sale. Removal of non-conforming structures may be required. Management will re-inspect the home and lot for compliance prior to the sale.

P. SEVERABILITY.

If any terms or provisions of these Rules are determined to be invalid or unenforceable under any applicable law, ordinance or regulation, or as to any particular individual or situation only, such invalidity or unenforceability does not affect the validity or enforceability of these Rules with respect to any other individuals or situations, and does not, in any event, affect the remainder of these. Rules, which remain in full force and effect as though the invalid or unenforceable provisions were not included herein. The partial invalidity of any Rule does not affect the enforceability of the remainder of that Rule.

COMMUNITY FEE SCHEDULE

Effective: 00/00/0000

Item:	**Charge**:
Entrance Fee (Non-Refundable)	
Purchase of an Existing Home (2 x lot rent)	$ 1,050.00
Monthly Lot Rent	$ 525.00*

** adjusted annually according to the Consumer Price Index as published by the US Department of Labor, Bureau of Labor Statistics*

Late Fee (4% of monthly rent)	$ 21.00

(Payable if rent is not paid by the 15th day of the month)

Eviction/Default Service Administration Fee	5% of then outstanding rent

(Payable as of date notice is served)

NSF (Returned check) Fee	$ 35.00
Maintenance Service Fee	$ 45.00/hour ($30.00 minimum)
Water Service	Maine Water Company
Sewer Service	No Charge
Rules Violation Fees	$ 15.00 (first notice)
	$ 50.00 (second notice)
	$ 100.00 (third notice)

All payments should be delivered to the Community's on-site representative or mailed to:

NOTE: *Management reserves the right to change fees upon a 30- day notice in accordance with 10 MRS, Part 11, Chapter 953, §9093.*

Attachment 18

Legal Opinion on Net Residential Density

WOODMAN EDMANDS DANYLIK AUSTIN SMITH & JACQUES, P.A.

ATTORNEYS-AT-LAW

ROBERT B. WOODMAN
THOMAS DANYLIK
RALPH W. AUSTIN
RICHARD A. HULL, III
KEITH R. JACQUES
HARRY B. CENTER, II
JEFFREY S. ZDUNCZYK
KALEIGH M. GORMAN
JAYDEN T. WALTON

234 MAIN STREET
P.O. BOX 468
BIDDEFORD, ME 04005-0468
TELEPHONE: 207-284-4581
FAX: 207-284-2078
EMAIL : hcenter@woodedlaw.com

Retired
PETER L. EDMANDS
JAMES B. SMITH
MICHAEL J. O'TOOLE

October 4, 2022

Matthew Grooms, City Planner
Planning & Development
City of Biddeford
205 Main Street
Biddeford, Maine 04005

Dear Mr. Grooms:

You have asked our office to opine as to whether the net density calculations required by the Biddeford Land Development Regulations apply to the proposed Hidden Hills Manufactured Housing Park, given that they are to be modular units developed in accordance with Biddeford's manufactured housing/mobile home park criteria set forth in Article VI, Section 45 of the Biddeford Land Development Regulations. It is our opinion that the net density calculations required by the Biddeford Land Development Regulations do not apply to the proposed Hidden Hills Manufactured Housing Park.

Any analysis for review of a municipal ordinance relating to manufactured housing in the State of Maine must be approached with caution. A municipality, such as the City of Biddeford's Home Rule Power (See 30-A M.R.S. §3001) to adopt ordinances, while very broad, is always subject to the exercise of any power or function which the legislature has either expressly or by clear implication denied to local authority. It is well known that the State has significantly pre-empted rules, laws and regulations relating to manufactured housing. An opinion by the Maine Supreme Judicial Court in *Bangs v. Town of Wells, 2000 Me. 186,* sets forth the legislative history of state law relating to manufactured housing. In an effort to address a lack of affordable housing, as early as the 1980's, the Legislature has passed numerous statutory provisions regarding the regulation of manufactured housing and mobile home parks. The intention was to require municipalities to liberally allow for the placement of manufactured homes, setting forth numerous directives which constitute an express limitation on municipalities otherwise broad zoning powers. Keeping these principles in mind, we have reviewed Biddeford's land

development regulations, and the net density provisions and compared them with state laws. As stated, it is ultimately our opinion based upon the foregoing reasons that the City's net density calculations may not be applied to the Hidden Mills Manufactured Housing Park.

The Biddeford Land Development Regulations establishes, in Article VI, Section 44, that net density shall be determined by subtracting unsuitable and marginal areas from the gross area of the parcel in order to determine the net developable area of a parcel of land. Specifically, Article VI, Section 44 requires that the following be subtracted from the gross area of the parcel:

1. Portions of the lot shown to be within the one-hundred-year floodplain as identified by the Federal Flood Boundary and Floodway Maps or Federal Flood Insurance Rate Maps;

2. Portions of the lot which are unsuitable for development in their natural state due to topographical, drainage or subsoil conditions;

3. Portions of the lot subject to recorded rights-of-way, exclusive of drainage or utility easements;

4. Portions of the lot covered by surface waters, such as, but not limited to ponds and wetlands as defined by Article XIV;

5. Soils in the rural farm zone identified by the soils conservation service as being of statewide significance, as prime agricultural soils, and/or as unique soils;

6. Land within the Resource Protection Zone;

7. Land in the rural farm and coastal residential zone within the prescribed setback within the Shoreland Zone as defined in Article XIV; and

8. Land consisting of unreclaimed extractive industry operations.

However, Title 30-A M.R.S. § 4358(3)(B) makes clear that a municipality cannot require the overall area of a "mobile home park", not served by a public sewer, to be greater than the combined area of the mobile home park lots plus: (1) the area required for road rights-of-way; (2) the area required for buffer strips, if any; and (3) the area of any setbacks required under Title 38 or an ordinance adopted pursuant to Title 38. Title 30-A M.R.S. § 4358(1)(B) defines "mobile home park" as a parcel of land under unified ownership approved by the municipality for the placement of 3 or more manufactured homes. This State statute mirrors the definition of "mobile home park" in the Biddeford Land Use Regulations in Article 6, Section 45. Furthermore, the state statute defines "manufactured housing" as "a structural unit or units designed for occupancy and constructed in a manufacturing facility and transported, by the use if its own chassis or an independent chassis, to a building site" and specifically includes units "commonly called

'modular homes' that the manufacturer certifies are constructed in compliance with Title 10, chapter 951, . . . meaning structures, transportable in one or more sections, that are not constructed on a permanent chassis and are designed to be used as dwellings on foundations when connected to required utilities" (*See* 30-A M.R.S. § 4358(1)(A)). This definition also substantially mirrors the definition of "manufactured housing" under Article VI, Section 45 of the Biddeford Land Development Regulations. The only difference of note between the definition of "manufactured housing" in the state statute when compared to the City's Land Development Regulations is that the City's definition specifically states that a "modular home" "may or may not be constructed on a permanent chassis" while the state statute states that a "modular home" is "not constructed on a permanent chassis"; otherwise, the definitions are identical.

Therefore, it is our opinion that the net density calculations required by the Biddeford Land Development Regulations would not apply to Hidden Hills Manufactured Housing Park. We advise the City to apply the net density calculations required by Title 30-A M.R.S. § 4358(3)(B). Please feel free to contact me if you need any further information.

Sincerely,

Harry B. Center, II, Esq.

HBC/jc

N:\Shared\HBC-WIP\Biddeford\Ltr Matthew Grooms, Biddeford City Planner re net density calcuations.docx

Attachment 19

South Street Buffering Exhibit

OVERALL PLAN VIEW OF SOUTH STREET FRONTAGE

SCALE: 1"=200'

41 Campus Drive, Suite 301
New Gloucester, ME 04260

565 Congress Street, Suite 310
Portland, ME 04101

(207) 926-5111
www.terradynconsultants.com

TERRADYN
CONSULTANTS, LLC

Civil Engineering - Land Planning - Stormwater Design - Environmental Per

423

SHEET DESCRIPTION
HIDDEN HILLS HOUSING PARK
VIEW SHED PLAN

PREPARED FOR
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

JOB NO.
21-13

DATE
9/13/2022

SCALE
NTS

SHEET
1

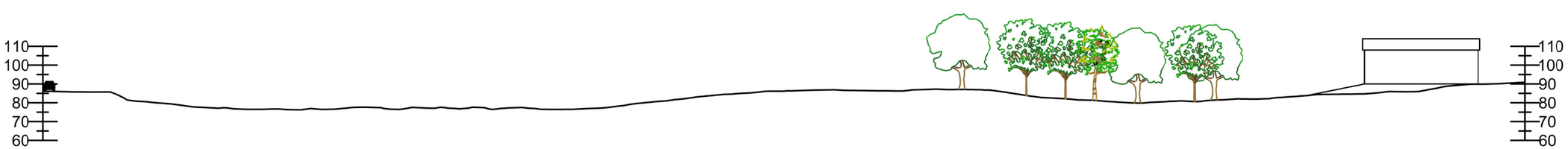
OF
4

PLAN OF VIEWS 1 & 2

SCALE: 1"=200'

VIEW 1 - TOWARDS VIEW 2

VIEW 2 - PANORAMIC VIEW TOWARDS VIEW 1



CROSS SECTION FROM VIEW 2

41 Campus Drive, Suite 301
New Gloucester, ME 04260

565 Congress Street, Suite 310
Portland, ME 04101

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CONSULTANTS, LLC

Civil Engineering - Land Planning - Stormwater Design - Environmental Per

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SHEET DESCRIPTION
HIDDEN HILLS HOUSING PARK
VIEW SHED PLAN

PREPARED FOR
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

JOB NO.
21-13

DATE
9/13/2022

SCALE
NTS

SHEET
2

OF
4

PLAN OF VIEWS 3 & 4
SCALE: 1"=200'

VIEW 3 - PANORAMIC VIEW TOWARDS VIEW 4

VIEW 4 - PANORAMIC VIEW TOWARDS VIEW 3

CROSS SECTION FROM VIEW 3

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41 Campus Drive, Suite 301
New Gloucester, ME 04260
565 Congress Street, Suite 310
Portland, ME 04101
(207) 926-5111
www.terradynconsultants.com
Civil Engineering - Land Planning - Stormwater Design - Environmental Per

425

SHEET DESCRIPTION
HIDDEN HILLS HOUSING PARK
VIEW SHED PLAN

PREPARED FOR
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

JOB NO. 21-13

DATE 9/13/2022

SCALE NTS

SHEET 3

OF 4

PLAN OF VIEWS 5 & 6
SCALE: 1"=200'

VIEW 5 - PANORAMIC VIEW TOWARDS VIEW 6

VIEW 6 - PANORAMIC VIEW TOWARDS VIEW 5

CROSS SECTION FROM VIEW 5

41 Campus Drive, Suite 301
New Gloucester, ME 04260
565 Congress Street, Suite 310
Portland, ME 04101
(207) 926-5111
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SHEET DESCRIPTION
HIDDEN HILLS HOUSING PARK
VIEW SHED PLAN

PREPARED FOR
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

JOB NO.
21-13

DATE
9/13/2022

SCALE
NTS

SHEET
4

OF
4

Attachment 20

Example Houses

406

310

FOR SALE

641

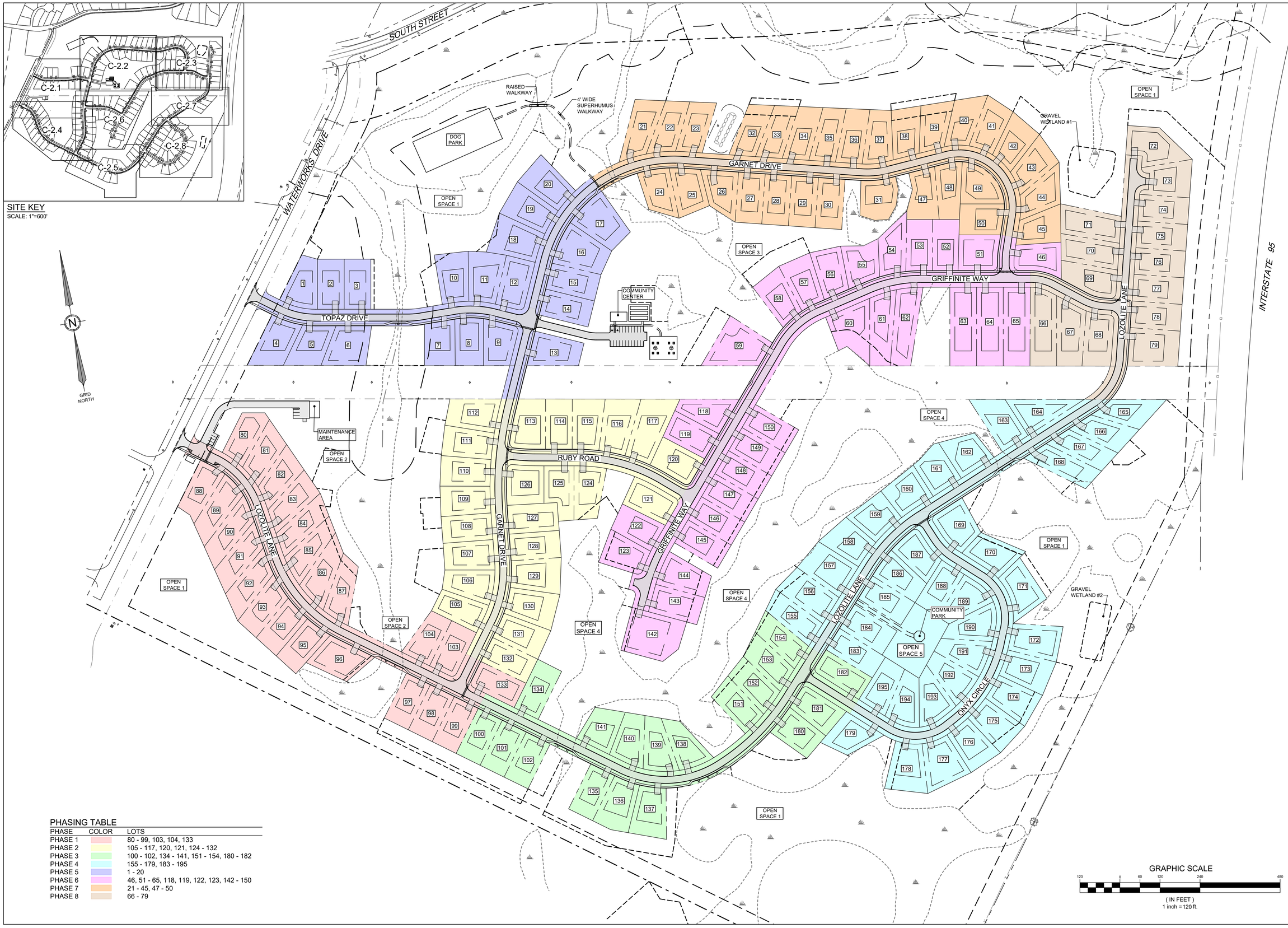
425

317

305

Attachment 21

Phasing Plan



PHASING TABLE

PHASE	COLOR	LOTS
PHASE 1		80 - 99, 103, 104, 133
PHASE 2		105 - 117, 120, 121, 124 - 132
PHASE 3		100 - 102, 134 - 141, 151 - 154, 180 - 182
PHASE 4		155 - 179, 183 - 195
PHASE 5		1 - 20
PHASE 6		46, 51 - 65, 118, 119, 122, 123, 142 - 150
PHASE 7		21 - 45, 47 - 50
PHASE 8		66 - 79

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	
A	04-13-2022	PRELIMINARY SUBMISSION	

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE
SUITE 301
NEW GLOUCESTER, ME 04260
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE PHASING PLAN

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 120'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-2.9

C:\OD\Terradyn Consultants\Project Folders - Documents\2021 Jobs\21-13 South Street MHP\CAD\Permitting\21-13 SITE.dwg

Attachment 22

Basswood Environmental Response

November 14, 2022

Matthew Chamberlain
Regency Realty Group
762 Main Street
South Portland, ME 04106

Re: Natural Resources Survey: South Street Village, Biddeford, Maine

Mr. Chamberlain:

The scope of the field visit performed in August far exceeded that which would be sufficient to determine the potential impacts of the proposed project. For example, the majority of the visit focused on the portion of the site that is not proposed for development, and it also included an additional parcel that was not included in any prior field surveys. This is not necessarily a negative, however the assumption that previous surveys, such as a wetland delineation or vernal pool survey, may be inadequate, is incorrect. I have highlighted several items presented by Mr. Ward in his draft report that can be explained in good faith and should alleviate some of the concerns of the Conservation Commission.

Forestry

The extent of the forestry operation is not in question. The contractor overcut the site, including around sensitive areas (Thacher Brook). It is my understanding that punitive measures were taken and settled to account for these impacts. The effect of the forestry operation may be relevant to the overall integrity of the parcel; however, the majority of the proposed project is in a location that has been historically fields and disturbed areas and would not be affected by the harvesting.

Vernal Pools

A vernal pool survey was performed in the portion of the site that is proposed for development. This was not immediately clear from the language of the survey memo, which was taken to read that the entire parcel had been surveyed. Mr. Ward was correct to be skeptical of this due to his previous experience on site with some candidate vernal pools. These pools are located in the rear half of the parcel, and therefore would not have been captured by the survey. If the scope of the survey had been more readily known to not have included the rear of the site, this issue may have been avoided. In short, the current

documentation does not conflict with Mr. Ward's assessment given the scope of the vernal pool survey.

Rare Plant Survey

Mr. Ward's kind words regarding my 2021 habitat assessment are appreciated. I believe that the report speaks for itself and I trust that guidance from the Maine Natural Areas Program (MNAP) regarding future, targeted surveys will be sufficient to satisfy the regulations. Rare plant surveys occupy a difficult space between practical application of the regulations and rigorous science. In performing rare species surveys, we attempt to direct the surveys in a manner that will allow for the greatest chance of success (i.e., detection of a rare plant or community) without burdening the client or agency with unnecessary effort on site that would provide diminishing returns. MNAP has always been quite reasonable in their recommendations and guidance, and their review of the habitat assessment can be followed to satisfy any future survey needs for the project.

Wetlands

We did not have information regarding a wetland delineation during the August site walk. It is my understanding that a wetland delineation in the portion of the site proposed for development was performed and can be considered current if less than 5 years old. The majority of the time spent on site was in the rear of the site which was not delineated, and no flags should be expected to be found. Likewise, flagging through shrubby and herbaceous areas may have been lost in the intervening years through vegetation succession, senescence, and by simply breaking in the wind. The lack of flagging does not necessarily indicate that a delineation was not performed; conversely, the presence of *some* flagging indicates that at one time there was more and it has simply deteriorated. Any assessment of the accuracy or completeness of a wetland delineation on site by Mr. Ward is entirely speculation and unfounded due to a lack of information during the August site walk.

In closing, the site represents a substantial piece privately-owned of land, that by information from Mr. Ward's own survey performed in 2007, is rather unremarkable. The most prominent natural resources on site, including potential vernal pools and Thacher Brook, are not proposed to be impacted by the proposed project. The landowner has proceeded through the appropriate channels to rectify the forestry violations, and performed the necessary surveys to conform to the pertinent state regulations governing the proposed development.

If there is additional detail or clarity that Basswood can provide regarding the project, please do not hesitate to contact Erik Lema at erik@basswoodenv.com.

Best regards,

BASSWOOD ENVIRONMENTAL

Erik Lema, Owner/Principal
Basswood Environmental LLC

Attachment 23

MTA Easement Denial

Jeff Amos

From: mgchamberlain48@gmail.com
Sent: Wednesday, October 26, 2022 2:04 PM
To: Jeff Amos
Subject: FW: South Street Village

From: Bolduc, Benjamin M. <bbolduc@maineturnpike.com>
Sent: Wednesday, June 15, 2022 10:06 AM
To: Matthew Chamberlain <mgchamberlain48@gmail.com>
Cc: Tartre, Stephen R. <STartre@maineturnpike.com>; Merfeld, Peter S. <pmerfeld@maineturnpike.com>
Subject: RE: South Street Village

Matthew,

The MTA denies your request for a pedestrian easement over land of the MTA at MM 32.8 southbound, south of South Street in Biddeford because of safety concerns. The area requested has existing guardrail, steep slopes, minimal site distance, no sidewalks and narrow shoulders.

Let me know if you have any questions.

Ben Bolduc, PLS
Right of Way Coordinator

Maine Turnpike Authority
2360 Congress Street
Portland, ME 04102
(207) 482-8355
bbolduc@maineturnpike.com

From: Matthew Chamberlain <mgchamberlain48@gmail.com>
Sent: Tuesday, June 14, 2022 8:22 AM
To: Bolduc, Benjamin M. <bbolduc@maineturnpike.com>
Cc: Tartre, Stephen R. <STartre@maineturnpike.com>
Subject: Re: South Street Village

Thank you Ben.

Matthew Chamberlain
Broker/Owner/DB
Regency Realty Group
762 Main Street
South Portland, ME 04106
Office 207-253-1500
Cell 207-450-7653

Fax 207-253-1616
ME Lic # DB903090

On Jun 14, 2022, at 8:17 AM, Bolduc, Benjamin M. <bbolduc@maineturnpike.com> wrote:

The proposed pedestrian easement would cross over land of the MTA as well as land of the Department of Transportation to land of the City. We have a ROW meeting today, we will discuss your request and be in touch.

Ben Bolduc, PLS
Right of Way Coordinator

Maine Turnpike Authority
2360 Congress Street
Portland, ME 04102
(207) 482-8355
bbolduc@maineturnpike.com

From: mgchamberlain48@gmail.com <mgchamberlain48@gmail.com>
Sent: Friday, June 10, 2022 11:30 AM
To: Tartre, Stephen R. <STartre@maineturnpike.com>
Cc: Bolduc, Benjamin M. <bbolduc@maineturnpike.com>
Subject: South Street Village

Steve and Ben, I wanted to get an idea from the two of you if MTA would grant an easement over a small parcel of land you own that is between our land and South Street. MTA owns about a 50 to 60 foot deep by maybe 100 feet wide lot where South Street drops off next to the bridge. The planning board during our Preliminary meeting for our Mobile Home Park asked if we would think about a way to get our residents to either down town or the eastern trail the safest way. Our thought is a trail down our dog leg and build a back and forth ramp that gets them up the street level to then cross the bridge. I attached a plan and circled in yellow the area I'm referring to. Thanks in advance for youe time and look forward to hearing from you.

Matthew Chamberlain
762 Main Street
South Portland, ME 04106
CELL 207-450-7653
OFF 207-253-1500 X 202

Attachment 24

Engineering Review Comment Response

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

Portland
565 Congress Street, Suite 310
Portland, ME 04101

21-13

November 16, 2022

Matthew Grooms
City Planner
Biddeford City Hall
P.O. Box 586
Biddeford, ME 04005

3rd Party Engineering Comment Response
Hidden Hills Manufactured Housing Park
413 South Street, Biddeford

Matthew,

Below are our responses to comments that were provided by Tom Saucier, P,E. of Site Design for the Hidden Hills Manufactured Housing Park on September 6, 2022. Our responses to his comments are shown in *italics.*

1. Addressed.

2. Has a standard boundary survey of the parcel been submitted? The applicant responded that a boundary survey was included in Attachment 3. The plans in Attachment 3 in our copy were titled existing conditions plan, not boundary surveys.

Response: The surveyor of record states that the submitted plan is classified as a boundary survey since all property lines are described, the plan contains the Surveyors Certification as well as his professional stamp.

3. As we previously indicated to you, we recommend that the traffic generation analysis be peer reviewed by a traffic engineer.

Response: Comment acknowledged.

4. Addressed.

5. We expect detailed plans of the left turn lane in South Street with the final submission. The applicant responded a left turn lane is no longer warranted.

Response: Comment acknowledged.

6. Saw cuts and butt joints should be shown at the Waterworks Drive intersections. These should be called out on the plan as requested. Note 14 on the site plan refers to a sawcut but no reference is made to the type of joint.

Response: Note 14 has been modified to add a requirement that all pavement joints shall be butt joints.

7. The applicant should review Section 51 and chapter 62, Table A for dimensional requirements. It appears the private road would be classified as an urban section, major residential road. Pavement radii at intersections must be 25 ft or 30 ft minimum and drives are prohibited off turnarounds. Are waivers of these standards permitted? Drives for lots 72, 73, and 142 are shown off turnarounds.

Response: We closely examined Section 51 and we agree with your assessment. We modified the ends of each of the dead end roads to allow all three driveways to come off an acceptable location.

8. The plans reflect the opening of Waterworks Drive at Lozolite to install a water main connection. The detail for the repair should be discussed with the city engineer, assuming it will be a public street under moratorium when the water main is installed. Applicant acknowledges this.

Response: Comment acknowledged. We've sent the plan to the City Engineer and are awaiting response.

9. Culverts and riprap aprons will be required at the intersections of Topaz and Lozolite with Waterworks. The response indicated that culverts are shown under Lozolite and the area above Topaz will be graded to drain to the existing culverts. More spot grades for the Topaz intersection should be provided as it is shown essentially flat.

Response: We've added additional detail to the area as well as spot grades.

10. Addressed.

11. We recommend that the radii at the private road intersections with Waterworks Drive be Type I granite. This was addressed. Tipdowns should be shown at the ends of radii.

Response: Tip downs are now shown and labeled where requested.

12. Addressed.

13. Addressed.

14. Addressed.

15. Per section 51.D.1., monumentation should be provided in accordance with section 62-87. It may be that a waiver could be granted by the planning board for alternative monumentation materials. The response indicated that monumentation will be provided per ordinance requirements on the Waterworks Drive right of way and no waiver is necessary. The code requires granite monumentation of the roadways, and it appears if that is not the plan for monumentation of the new roads, a waiver will be required.

Response: Section 62-87(a) begins with "Each street proposed for acceptance by the City Council…". Only Waterworks Drive will be offered for acceptance. The interior roads will be private. No granite monuments are proposed within the private section. We don't believe that a waiver is required for the private roads.

16. Addressed.

17. Addressed.

18. The stormwater Inspection and Maintenance plans during construction should be included on the drawings, with the post-construction plan being a written stand-alone document. A portion of this comment remains outstanding. Also, the post-construction Inspection and Maintenance Plan should include separate forms for the BMP's per the DEP checklist.

Response: The construction phase of the stormwater inspection and maintenance plans are now on the plans (See Sheet C-6.1). The I&M document in the SLODA is strictly for post construction activities.

19. Addressed.

20. Additional comment: Drainage plans should be updated to more clearly and consistently show match lines, subcatchment boundaries, contours, and contour labels, particularly the post-development plans. The scales are also not as depicted by the graphic scale, and should be revised.

Response: We added match lines on both the pre & post development plans and attempted to clean up those drawings to make them easier to review. We also corrected the scale.

21. Additional comment: A treatment plan should be provided.

Response: A treatment plan has been added to the stormwater report. See Attachment 11 of the Stormwater Report.

22. Additional comment: Based on the topography, it appears there should be additional analysis points along the easterly boundary. There are several areas where stormwater runoff is leaving the site at points other than the three analysis points shown.

Response: We broke out two additional study points along the easterly property line. We believe that Study Point 1 is appropriately modeled.

23. Additional comment: we assume that the DEP will review the Hydrogeologic Assessment as part of the SLODA review. If for some reason the project does not now require a SLODA permit, the city should consider having this information peer reviewed.

Response: Maine DEP will be reviewing the Hydrogeologic Assessment. A SLODA is required.

24. Additional comment: The grades of Griffinite Way at Garnet, Lozolite at both Onyx intersections, and Lozolite at Garnet significantly exceed 3%. The streets with the steeper grades are the through street in each instance. We would suggest reaching out to engineering to verify whether or not this is acceptable, as the code requires a maximum grade of 3% at intersections and makes no distinction between the through street or the stop-controlled street.

Response: We have asked the question to the City Engineer but have not yet received a response. We don't believe the intersection design standards apply to through streets, only roads that have a stop sign. We base this opinion on our experience in other municipalities. That said, if the engineer does not agree, we will re-grade the areas in question.

If you have additional questions or require additional information, please feel free to reach out to me at jeff@terradynconsultants.com.

Sincerely,

Jeffrey D. Amos, P.E.

RECORDING DATA

STATE OF MAINE
YORK COUNTY REGISTRY OF DEEDS
RECEIVED _____
AT h____ m ____M. RECORDED IN
FILE NUMBER _____

REGISTRAR

LEGEND

- PROPERTY LINE
- ABUTTER LINE
- RIGHT-OF-WAY LINE
- TIE LINE
- SETBACK
- EASEMENT
- BUFFER
- FLOODPLAIN
- WOODS ROAD/TRAIL
- ZONE LINE
- BUILDING
- EDGE WETLAND
- EDGE VERNAL POOL
- STREAM
- WATERCOURSE
- EDGE PAVEMENT
- PAVEMENT PAINT
- EDGE GRAVEL
- CURB LINE
- TREELINE
- 120 — 118 CONTOURS
- ×120.00 SPOT GRADE
- W WATER
- CULVERT
- OHU OVERHEAD UTILITY
- UGU UNDERGROUND UTILITY
- RIPRAP
- N/F NOW OR FORMERLY
- A.G. ABOVE GRADE
- B.G. BELOW GRADE
- MONUMENT FOUND
- IRON PIPE/ROD FOUND
- BLAZED DECIDUOUS TREE
- BLAZED CONIFEROUS TREE
- WATER GATE VALVE
- HYDRANT
- WETLANDS
- CATCH BASIN
- UTILITY POLE
- GUY WIRE

GENERAL NOTES:

1. THE RECORD OWNER OF THE PARCEL IS SOUTH STREET VILLAGE, LLC BY DEED DATED AUGUST 15, 2017 AND RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN BOOK 17541, PAGE 869, AND IS SHOWN AS LOT 8 ON THE CITY OF BIDDEFORD TAX MAP 7, AND LOTS 38 ON MAP 2.
2. THE PROPERTY IS LOCATED IN THE RURAL FARM (RF) DISTRICT AND PARTIALLY WITHIN THE SUBURBAN RESIDENTIAL 1 (SR1), MOBILE HOME PARK (MHP), AND SHORELAND OVERLAY ZONES AS SHOWN.

   LAND USE REGULATIONS FOR THE RF ARE AS FOLLOWS:

MINIMUM LOT SIZE:	20,000 S.F.
MINIMUM STREET FRONTAGE:	120' (PUBLIC WATER)
MINIMUM FRONT YARD:	40' (MAJOR R/W) 25' (OTHER R/W)
MINIMUM SIDE YARD:	25'
MINIMUM REAR YARD:	25'
MAXIMUM BUILDING HEIGHT:	3 STORIES OR 35'

   * SEE ORDINANCE FOR MORE PARTICULAR INFORMATION.
3. TOTAL AREA OF PARCEL IS APPROXIMATELY 320 ACRES.
4. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON PLAN REF. A TIED TO FIELD MEASUREMENTS OBSERVED BY NORTHERN SURVEY ENGINEERING, LLC IN NOVEMBER, 2021. A RECORDS SEARCH WAS COMPLETED AS PART OF THIS SURVEY TO DEFINE ANY RECORD ENCUMBRANCES OR CONVEYANCES, AND ALL FINDINGS ARE SHOWN HEREON.
5. TOPOGRAPHIC INFORMATION SHOWN HEREON IS DERIVED FROM DATA COLLECTED IN NOVEMBER, 2021 USING AN UNMANNED AERIAL VEHICLE (UAV) SURVEY-GRADE LIDAR SENSOR. THE RESULTING SURFACE WAS GROUND-TRUTHED AND VERIFIED TO MEET THE NATIONAL MAP ACCURACY STANDARDS FOR 1-FOOT CONTOURS.
6. BOOK AND PAGE REFERENCES SHOWN HEREON ARE IN REFERENCE TO THE YORK COUNTY REGISTRY OF DEEDS (Y.C.R.D.).
7. BEARINGS SHOWN HEREON ARE IN REFERENCE TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83. ELEVATIONS DEPICTED HEREON ARE IN REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED GPS OBSERVATIONS.
8. UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL SURFACE EVIDENCE LOCATED IN THE FIELD IN CONJUNCTION WITH ANY RECORD INFORMATION AVAILABLE AT THE TIME OF THIS SURVEY (SUE LEVEL C), AND MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS AND/OR DESIGNERS NEED TO CONTACT DIG-SAFE SYSTEMS, INC. (1-888-DIG-SAFE) AND FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION AND/OR EXCAVATION.
9. THE LOCUS PROPERTY AS DEPICTED HEREON FALLS PARTIALLY WITHIN A SPECIAL FLOOD HAZARD AREA AS DELINEATED ON THE FLOOD INSURANCE RATE MAP FOR BIDDEFORD, MAINE, YORK COUNTY, COMMUNITY-PANEL NUMBERS 2301450003B & 2301450008B, HAVING AN EFFECTIVE DATE OF MAY 15, 1984. THE LOCUS FALLS WITHIN AN AREA IDENTIFIED AS ZONE A, AREAS OF 100-YEAR FLOOD, BASE FLOOD ELEVATIONS AND FLOOD HAZARD FACTORS NOT DETERMINED. LIMITS ARE SHOWN HEREON BY DIGITIZING THE FEMA MAPPING AND IS APPROXIMATE.
10. A WETLAND DELINEATION AND VERNAL POOL ASSESSMENT WAS COMPLETED BY MARK HAMPTON ASSOCIATES IN APRIL & MAY, 2020, THE RESULTS OF WHICH WERE PROVIDED TO THIS SURVEYOR IN DIGITAL FORMAT AND OVERLAYED ONTO THIS SURVEY. NO WETLAND FLAGGING WAS OBSERVED DURING THE COURSE OF THE FIELD SURVEY.

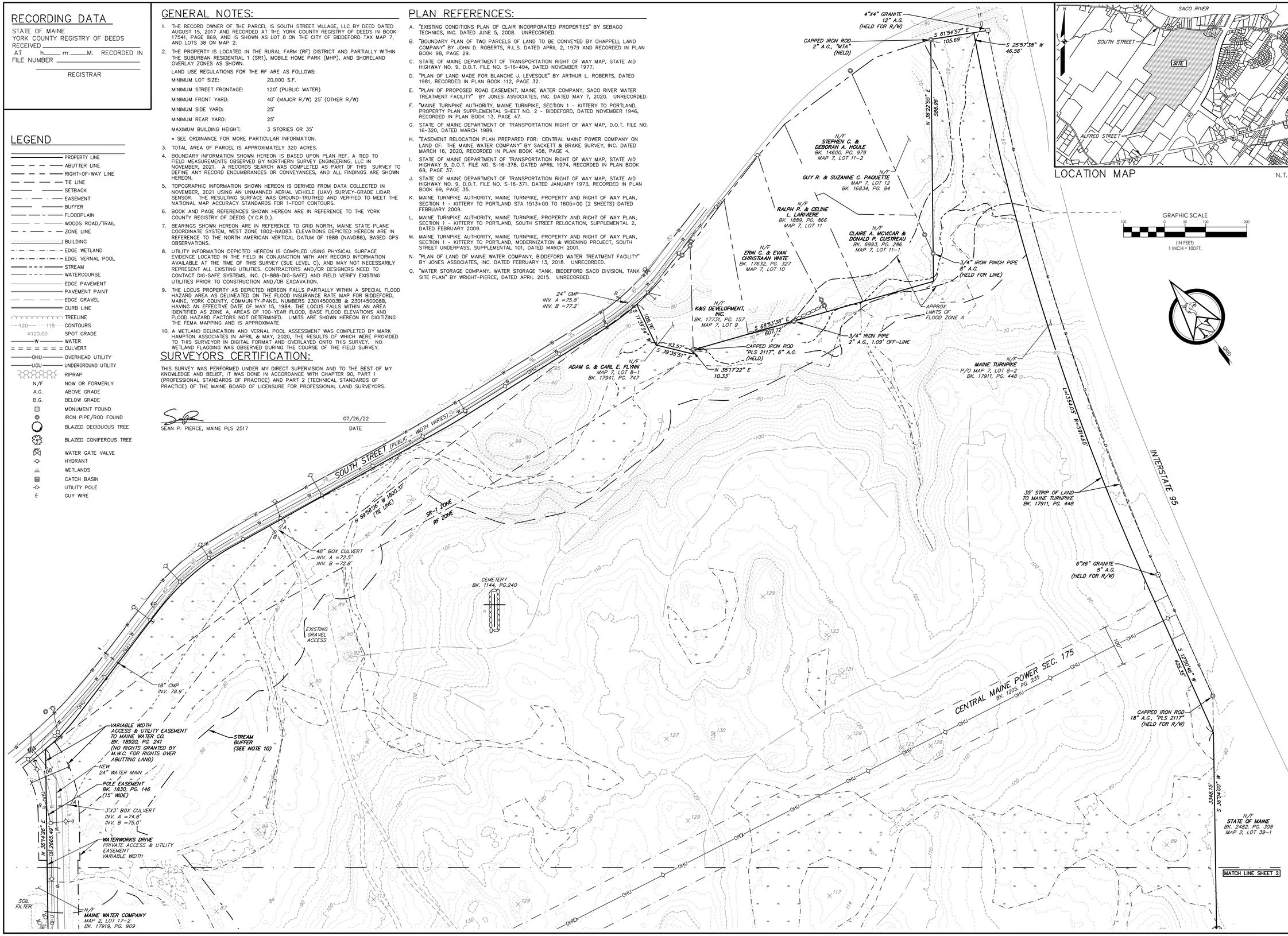
SURVEYORS CERTIFICATION:

THIS SURVEY WAS PERFORMED UNDER MY DIRECT SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT WAS DONE IN ACCORDANCE WITH CHAPTER 90, PART 1 (PROFESSIONAL STANDARDS OF PRACTICE) AND PART 2 (TECHNICAL STANDARDS OF PRACTICE) OF THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS.

SEAN P. PIERCE, MAINE PLS 2517 — 07/26/22 DATE

PLAN REFERENCES:

A. "EXISTING CONDITIONS PLAN OF CLAIR INCORPORATED PROPERTIES" BY SEBAGO TECHNICS, INC. DATED JUNE 5, 2008. UNRECORDED.
B. "BOUNDARY PLAN OF TWO PARCELS OF LAND TO BE CONVEYED BY CHAPPELL LAND COMPANY" BY JOHN D. ROBERTS, R.L.S. DATED APRIL 2, 1979 AND RECORDED IN PLAN BOOK 98, PAGE 29.
C. STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP, STATE AID HIGHWAY NO. 9, D.O.T. FILE NO. S-16-404, DATED NOVEMBER 1977.
D. "PLAN OF LAND MADE FOR BLANCHE J. LEVESQUE" BY ARTHUR L. ROBERTS, DATED 1981, RECORDED IN PLAN BOOK 112, PAGE 32.
E. "PLAN OF PROPOSED ROAD EASEMENT, MAINE WATER COMPANY, SACO RIVER WATER TREATMENT FACILITY" BY JONES ASSOCIATES, INC. DATED MAY 7, 2020. UNRECORDED.
F. "MAINE TURNPIKE AUTHORITY, MAINE TURNPIKE, SECTION 1 - KITTERY TO PORTLAND, PROPERTY PLAN SUPPLEMENTAL SHEET NO. 2 - BIDDEFORD, DATED NOVEMBER 1946, RECORDED IN PLAN BOOK 13, PAGE 47.
G. STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP, D.O.T. FILE NO. 16-320, DATED MARCH 1989.
H. "EASEMENT RELOCATION PLAN PREPARED FOR: CENTRAL MAINE POWER COMPANY ON LAND OF: THE MAINE WATER COMPANY" BY SACKETT & BRAKE SURVEY, INC. DATED MARCH 16, 2020, RECORDED IN PLAN BOOK 408, PAGE 4.
I. STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP, STATE AID HIGHWAY 9, D.O.T. FILE NO. S-16-378, DATED APRIL 1974, RECORDED IN PLAN BOOK 69, PAGE 37.
J. STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP, STATE AID HIGHWAY NO. 9, D.O.T. FILE NO. S-16-371, DATED JANUARY 1973, RECORDED IN PLAN BOOK 69, PAGE 35.
K. MAINE TURNPIKE AUTHORITY, MAINE TURNPIKE, PROPERTY AND RIGHT OF WAY PLAN, SECTION 1 - KITTERY TO PORTLAND STA 1513+00 TO 1605+00 (2 SHEETS) DATED FEBRUARY 2009.
L. MAINE TURNPIKE AUTHORITY, MAINE TURNPIKE, PROPERTY AND RIGHT OF WAY PLAN, SECTION 1 - KITTERY TO PORTLAND, SOUTH STREET RELOCATION, SUPPLEMENTAL 2, DATED FEBRUARY 2009.
M. MAINE TURNPIKE AUTHORITY, MAINE TURNPIKE, PROPERTY AND RIGHT OF WAY PLAN, SECTION 1 - KITTERY TO PORTLAND, MODERNIZATION & WIDENING PROJECT, SOUTH STREET UNDERPASS, SUPPLEMENTAL 101, DATED MARCH 2001.
N. "PLAN OF LAND OF MAINE WATER COMPANY, BIDDEFORD WATER TREATMENT FACILITY" BY JONES ASSOCIATES, INC. DATED FEBRUARY 13, 2018. UNRECORDED.
O. "WATER STORAGE COMPANY, WATER STORAGE TANK, BIDDEFORD SACO DIVISION, TANK SITE PLAN" BY WRIGHT-PIERCE, DATED APRIL 2015. UNRECORDED.



LOCATION MAP N.T.S.

SEAN P. PIERCE, PLS 2517

REV.:	BY:	DATE:	STATUS:
A	SPP	07/26/22	UPDATED WETLAND MAPPING

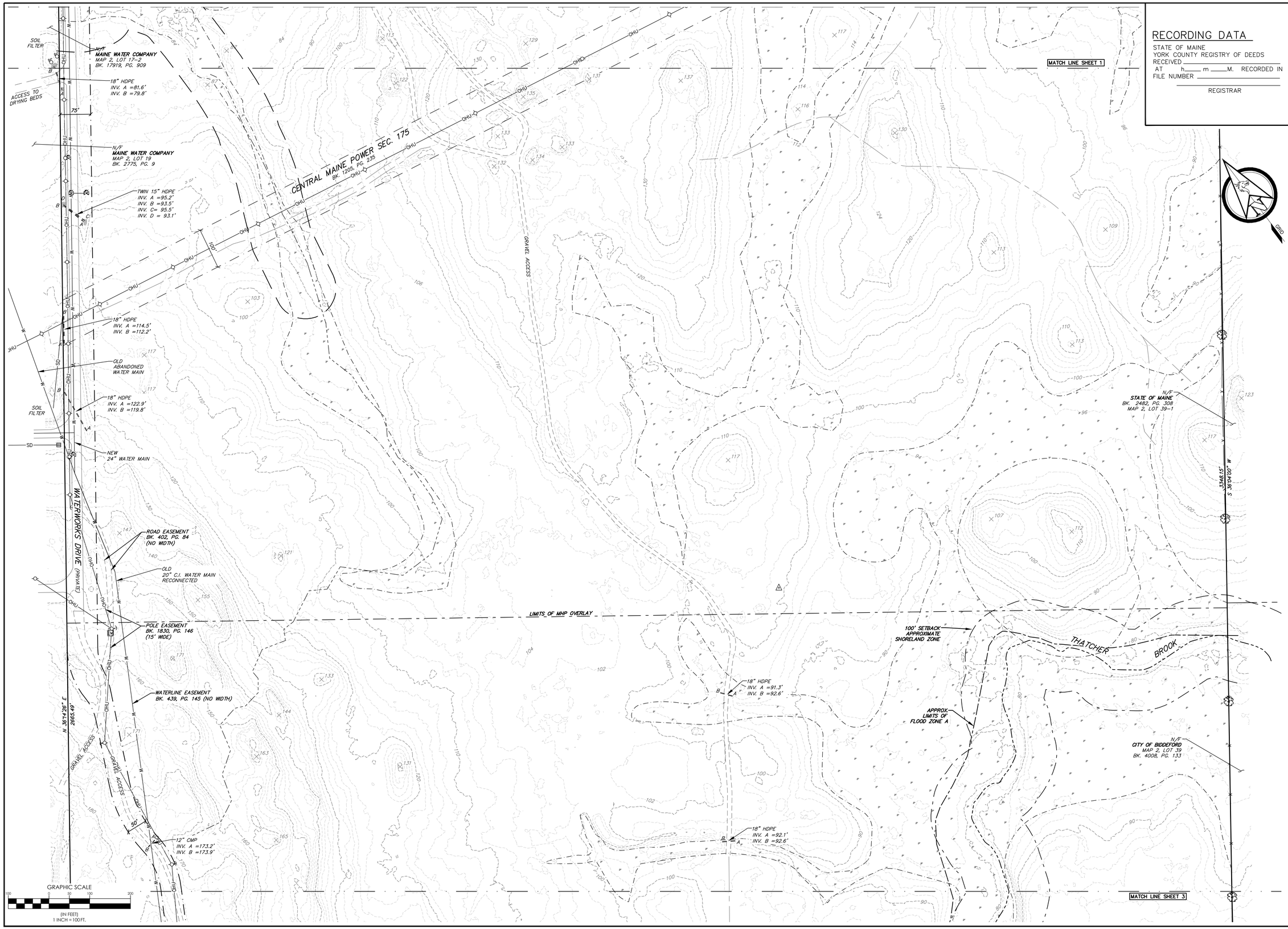
THIS PLAN SHALL NOT BE RECORDED WITHOUT WRITTEN PERMISSION AND ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK.

NORSE — NORTHERN SURVEY ENGINEERING
207.440.3487
41 CHURCH ROAD, BRUNSWICK, MAINE 04011
WWW.NORTHERNSURVEYENGINEERING.COM

EXISTING CONDITIONS SURVEY
OF:
LAND OF SOUTH STREET VILLAGE, LLC
413 SOUTH STREET
BIDDEFORD, MAINE 04005
FOR:
SOUTH STREET VILLAGE, LLC
76 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DRAWN	CHECKED
SPP	PHB
PROJECT NO.	DATE
21006473A	06/23/22
SHEET SIZE	SCALE
24" X 36"	1" = 100'

SHEET 1 OF 3



SEAN P. PIERCE, PLS 2517

STATE OF MAINE
SEAN P. PIERCE
2517
PROFESSIONAL LAND SURVEYOR

A	SPP	07/26/22
REV.	BY:	DATE:

UPDATED WETLAND MAPPING

STATUS:

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION AND ALTERATIONS, APPROVED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK.

NORSE
NORTHERN SURVEY ENGINEERING
207.440.3487
41 CHURCH ROAD, BRUNSWICK, MAINE 04011
www.norseengineering.com

EXISTING CONDITIONS SURVEY

OF:

LAND OF SOUTH STREET VILLAGE, LLC

413 SOUTH STREET
BIDDEFORD, MAINE 04005

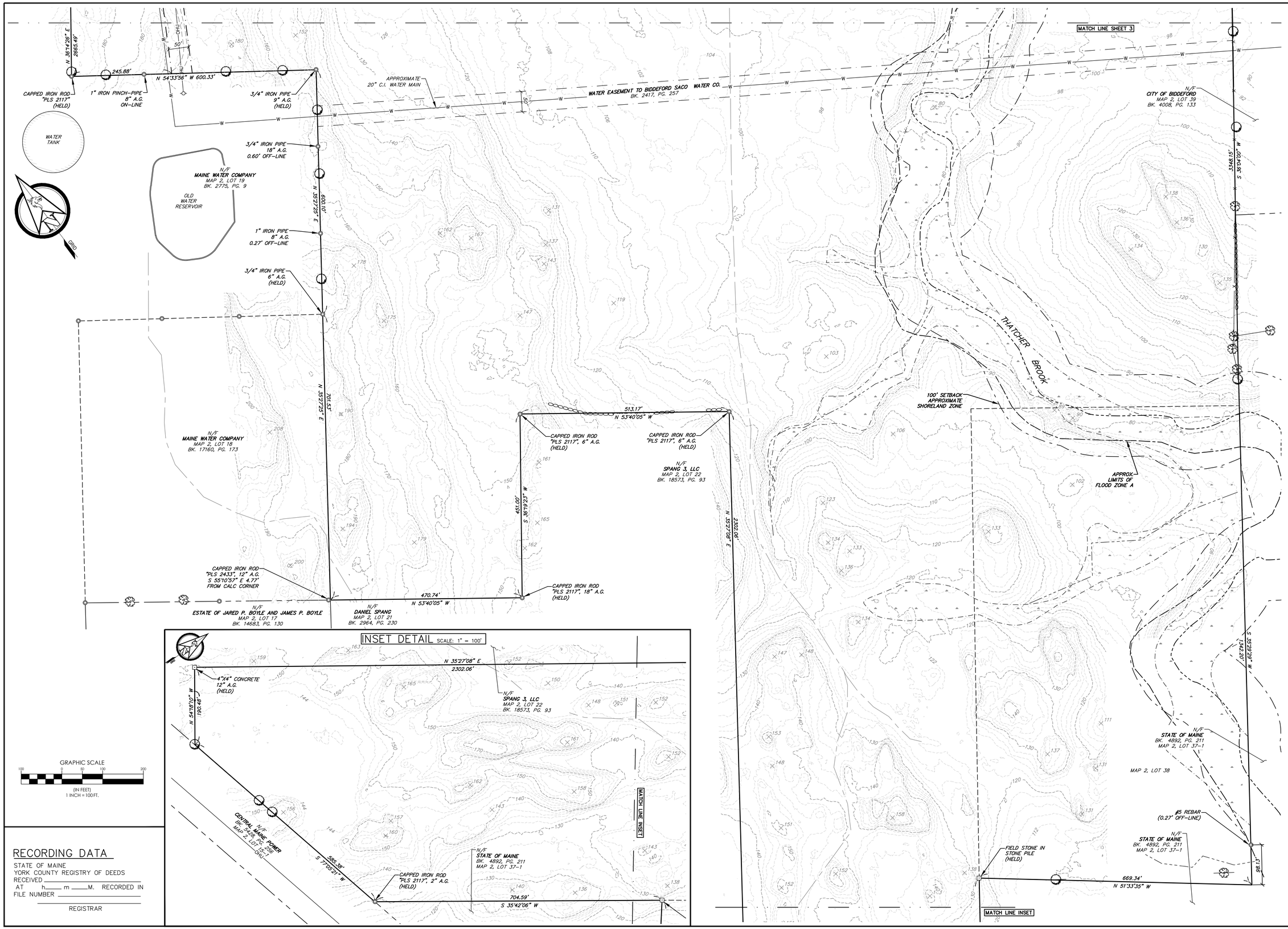
FOR:

SOUTH STREET VILLAGE, LLC

76 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DRAWN	CHECKED
SPP	PHB
PROJECT NO.	DATE
21006473A	06/23/22
SHEET SIZE	SCALE
24" X 36"	1" = 100'

SHEET 2 OF 3



RECORDING DATA

STATE OF MAINE
YORK COUNTY REGISTRY OF DEEDS
RECEIVED _____
AT h____ m ____M. RECORDED IN
FILE NUMBER _____

REGISTRAR

SEAN P. PIERCE, PLS 2517

STATE OF MAINE SEAN P. PIERCE 2517 PROFESSIONAL LAND SURVEYOR

REV.	BY:	DATE:	STATUS:
A	SPP	07/26/22	UPDATED WETLAND MAPPING

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION. ANY ALTERATIONS, APPROVED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK.

NORSE
NORTHERN SURVEY ENGINEERING
41 CHURCH ROAD, BRUNSWICK, MAINE 04011
207.440.3487
www.northernsurveyengineering.com

EXISTING CONDITIONS SURVEY

OF:
LAND OF SOUTH STREET VILLAGE, LLC
413 SOUTH STREET
BIDDEFORD, MAINE 04005

FOR:
SOUTH STREET VILLAGE, LLC
76 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DRAWN	CHECKED
SPP	PHB
PROJECT NO.	DATE
21006473A	06/23/22
SHEET SIZE	SCALE
24" X 36"	1" = 100'

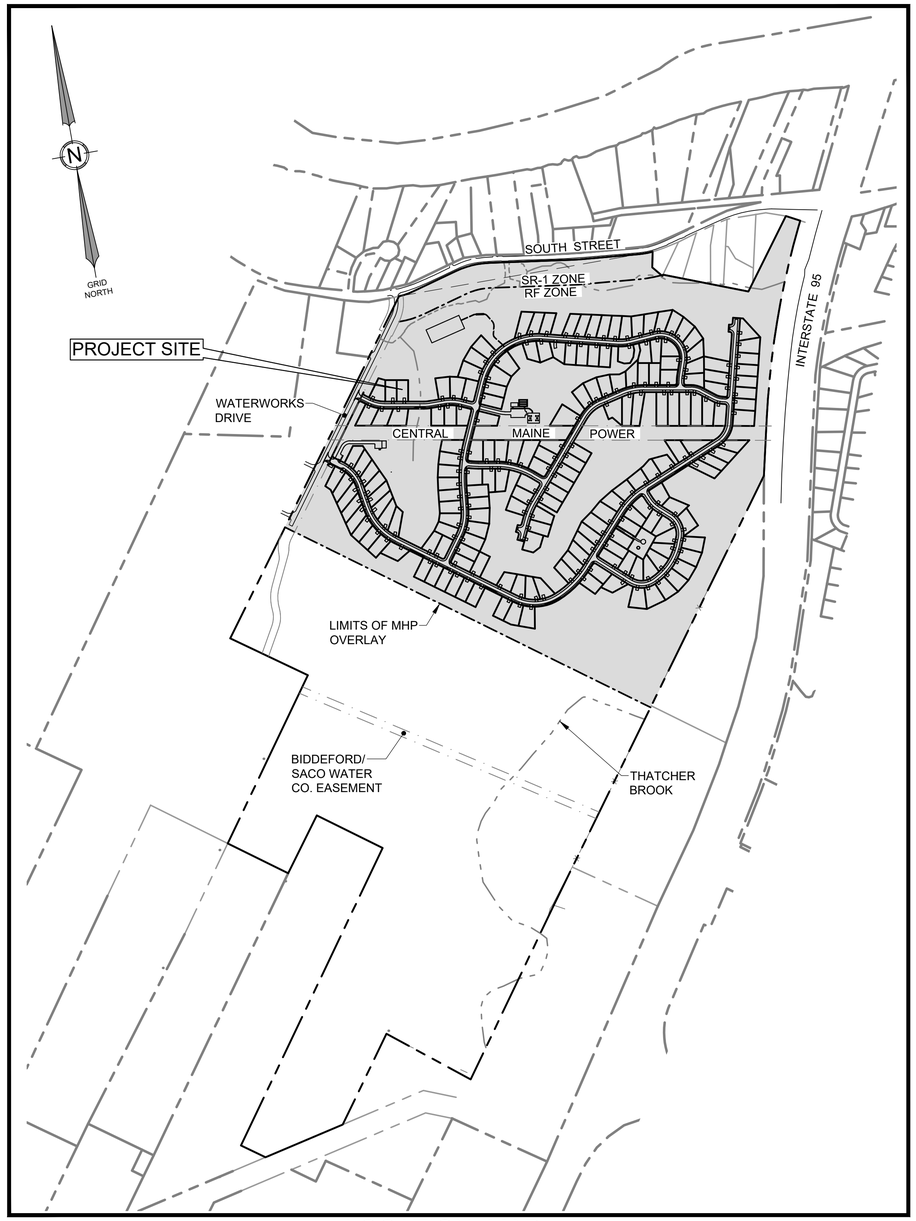
SHEET 3 OF 3

HIDDEN HILLS HOUSING PARK

AN AGE RESTRICTED COMMUNITY
SOUTH STREET, BIDDEFORD, MAINE

SHEET INDEX

SHT. NO.	SHEET TITLE
C-0.0	COVER SHEET & LOCATION MAP
C-1.0	OVERALL SUBDIVISION PLAN
C-1.1	SUBDIVISION PLAN - 1
C-1.2	SUBDIVISION PLAN - 2
C-1.3	SUBDIVISION PLAN - 3
C-1.4	SUBDIVISION PLAN - 4
C-2.0	OVERALL SITE PLAN
C-2.1	SITE PLAN - 1
C-2.2	SITE PLAN - 2
C-2.3	SITE PLAN - 3
C-2.4	SITE PLAN - 4
C-2.5	SITE PLAN - 5
C-2.6	SITE PLAN - 6
C-2.7	SITE PLAN - 7
C-2.8	SITE PLAN - 8
C-3.0	OVERALL GRADING & DRAINAGE PLAN
C-3.1	GRADING AND DRAINAGE PLAN - 1
C-3.2	GRADING AND DRAINAGE PLAN - 2
C-3.3	GRADING AND DRAINAGE PLAN - 3
C-3.4	GRADING AND DRAINAGE PLAN - 4
C-3.5	GRADING AND DRAINAGE PLAN - 5
C-3.6	GRADING AND DRAINAGE PLAN - 6
C-3.7	GRADING AND DRAINAGE PLAN - 7
C-3.8	GRADING AND DRAINAGE PLAN - 8
C-3.9	GRAVEL WETLAND - 1 PLAN
C-3.10	GRAVEL WETLAND - 2 PLAN
C-4.0	OVERALL UTILITY PLAN
C-4.1	UTILITY PLAN - 1
C-4.2	UTILITY PLAN - 2
C-4.3	UTILITY PLAN - 3
C-4.4	UTILITY PLAN - 4
C-4.5	UTILITY PLAN - 5
C-4.6	UTILITY PLAN - 6
C-4.7	UTILITY PLAN - 7
C-4.8	UTILITY PLAN - 8
C-5.1	PROFILE - BAXTER BOULEVARD
C-5.2	PROFILE - CHAMBER LANE
C-5.3	PROFILE - CHAMBER LANE
C-5.4	PROFILE - CHAMBER LANE
C-5.5	PROFILE - CHAMBER LANE
C-5.6	PROFILE - REMI DRIVE
C-5.7	PROFILE - REMI DRIVE
C-5.8	PROFILE - REMI DRIVE
C-5.9	PROFILE - COMMON WAY
C-5.10	PROFILE - COMMON WAY
C-5.11	PROFILE - VIEW POINT LOOP
C-5.12	PROFILE - VIEW POINT LOOP
C-5.13	PROFILE - FURR DRIVE
C-6.1	SITE DETAILS - 1
C-6.2	SITE DETAILS - 2
C-6.3	SITE DETAILS - 3
C-6.4	SITE DETAILS - 4
C-6.5	SITE DETAILS - 5
L-7.0	OVERALL LANDSCAPE PLAN
L-7.1	LANDSCAPE PLAN - 1
L-7.2	LANDCSAPE PLAN - 2
L-7.3	LANDSCAPE PLAN - 3
L-7.4	LANDSCAPE PLAN - 4
L-7.5	LANDSCAPE PLAN - 5
L-7.6	LANDSCAPE PLAN - 6
L-7.7	LANDSCAPE PLAN - 7
L-7.8	LANDSCAPE PLAN - 8
P-1.0	OVERALL PHOTOMETRIC PLAN
P-1.1	PHOTOMETRIC PLAN - 1
P-1.2	PHOTOMETRIC PLAN - 2
P-1.3	PHOTOMETRIC PLAN - 3
P-1.4	PHOTOMETRIC PLAN - 4
P-1.5	PHOTOMETRIC PLAN - 5
P-1.6	PHOTOMETRIC PLAN - 6
P-1.7	PHOTOMETRIC PLAN - 7
P-1.8	PHOTOMETRIC PLAN - 8



LOCATION MAP

SCALE: 1" = 500'

APPLICANT/OWNER:

SOUTH STREET VILLAGE LLC.
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

PROJECT PARCEL SITE

CITY OF BIDDEFORD TAX ASSESSOR'S MAP & LOT NUMBERS

MAP 2 — LOT 7-8

PREPARED BY:

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

SURVEYOR:
NORSE
NORTHERN SURVEY ENGINEERING
41 CHURCH ROAD
BRUNSWICK, MAINE 04011
MAIN: (207) 481-7080
DIRECT: (207) 481-7068
MOBILE: (978) 729-7110

WETLAND DELINEATION:
MARK HAMPTON ASSOCIATES
P.O. BOX 1931
PORTLAND, ME 04104-1931
(207) 756-2900

LEGEND

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

APPROVED: CITY OF BIDDEFORD PLANNING BOARD

_____ DATE

STATE OF MAINE — JEFFREY D. AMOS — 10167 — LICENSED — PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

41 CAMPUS DRIVE SUITE 301 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

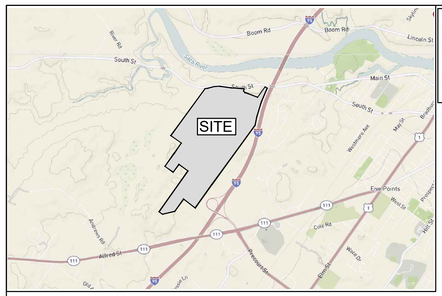
PROJECT: HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE: COVER SHEET & LOCATION MAP

CLIENT: SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 120'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-0.0

C:\OD\Terradyn Consultants\Project Folders - Documents\2021 Jobs\21-13 South Street MHP\CAD\Permitting\21-13 C.dwg



SEE SHEETS C-1.1 THRU C-1.4 FOR MORE INFORMATION, INCLUDING PARCEL SIZES AND DEFINITIONS, ROADWAY DEFINIITIONS, AND ABUTTERS LIST.

LOCATION MAP

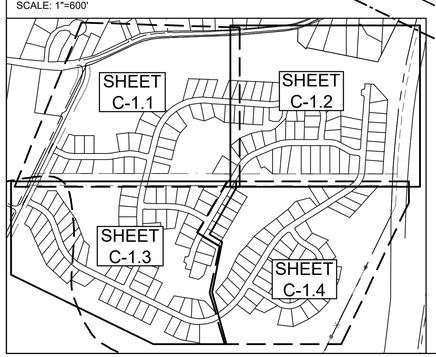
NOT TO SCALE

GENERAL NOTES

1. RECORD OWNER OF THE PARCEL IS SOUTH STREET VILLAGE, LLC BY DEED DATED AUGUST 15, 2017 AND RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS (YCRD) IN BOOK 17541, PAGE 896, AND IS SHOWN AS LOT 8 ON THE CITY OF BIDDEFORD TAX MAP 7, AND LOT 38 ON MAP 2.
2. THE PROPERTY IS LOCATED IN THE RURAL FARM (RF) DISTRICT AND PARTIALLY SHOWN WITHIN THE SUBURBAN RESIDENTIAL 1 (SR1) MOBILE HOME PARK (MHP), AND SHORELAND OVERLAY ZONES AS SHOWN. LAND USE REGULATIONS FOR THE MHP OVERLAY ARE AS FOLLOWS:
   - MIN. LOT SIZE: 12,000 S.F.
   - MIN. LOT WIDTH: 75 FT. (SHARED SEPTIC)
   - MIN. FRONT SETBACK: 15 FT.
   - MIN. SIDE SETBACK: 15 FT.
   - MIN. REAR SETBACK: 15 FT.
   - MAX. BUILDING HEIGHT: 3 STORIES OR 35 FT.
   - MIN. OPEN SPACE: 10% OF PROPERTY AREA
3. TOTAL AREA OF PARCEL IS APPROX. 320 ACRES.
   AREA OF MHP = 160.58 ACRES.
   AREA OF OPEN SPACE PROVIDED = 92.74 ACRES (57.75 % OF MHP AREA).
   TOTAL ALLOWABLE UNITS = 1 UNIT/20,000 S.F. = MHP AREA (6,994,865 S.F.)/ 20,000 S.F. PER UNIT = 349.7 UNITS.
   TOTAL NUMBER OF PROPOSED UNITS = 195.
4. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON AN EXISTING CONDITIONS SURVEY BY NORTHERN SURVEY ENGINEERING, LLC (NORSE), DATED DECEMBER 21, 2021. FIELD MEASUREMENTS WERE OBSERVED IN NOVEMBER, 2021, AND A RECORDS SEARCH WAS COMPLETED AS PART OF THE SURVEY TO DEFINE ANY RECORD ENCUMBERANCES OR CONVEYANCES, AND ALL FINDINGS ARE SHOWN HEREON.
5. TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UP THE PLAN REFERENCED IN NOTE 4 AND IS DERIVED FROM DATA COLLECTED IN NOVEMBER, 2021 USING AN UNMANNED AERIAL VEHICLE (UAV)SURVEY-GRADE LIDAR SENSOR. THE RESULTING SURFACE WAS GROUND-TRUTHED AND VERIFIED TO MEET THE NATIONAL MAP ACCURACY STANDARDS FOR 1-FT. CONTOURS.
6. THE WETLANDS SHOWN WERE DELINEATED BY MARK HAMPTON ASSOCIATES, INC., PORTLAND, MAINE, COMPLETED IN MAY, 2021.
7. TOTAL PROJECT WETLAND ALTERATION AREA = 14,280 S.F. NO ADDITIONAL WETLAND ALTERNATION IS PERMISSIBLE WITHOUT FURTHER WETLAND PERMITTING. THE PROJECT RECEIVED THE FOLLOWING PERMITS:
   NRPA PERMIT # _____
   ACOA PERMIT # _____
8. THIS PROJECT IS BOUND BY A SITE LOCATION OF DEVELOPMENT ACT PERMIT FROM THE MAINE DEP PERMIT #
9. PROJECT STORMWATER NOTES:
   A. THE OWNER SHALL BE REQUIRED TO INSPECT AND MAINTAIN THE STORMWATER MANAGEMENT SYSTEM, PER THE GUIDELINES AS OUTLINED IN SECTION 12 OF THE APPROVED SLODA PERMIT.
   B. THE FOLLOWING UNITS SHALL CONTAIN A FILTER STRIP TO CATCH ROOF RUNOFF WITHIN REASON: 6, 8, 9, 17, 22-24, 26, 58, 88-93, 95-101, 103, 104, 115-118, 120, 131-134, 138, 140, 141, 151-153, 157-163, 166-169, 176, 179, 181, THE MAINTENANCE BUILDING, AND THE CLUBHOUSE.
10. THE CITY OF BIDDEFORD WILL NOT BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR OR PLOWING OF THE PRIVATE WAY, AND THAT FURTHER LOT DIVISIONS UTILIZING THE PRIVATE WAY ARE PROHIBITED WITHOUT PRIOR APPROVAL OF THE BOARD.

SITE KEY

SCALE: 1"=600'



APPROVAL - CITY OF BIDDEFORD PLANNING BOARD

_____ DATE

_____ CHAIRPERSON

STATE OF MAINE

YORK COUNTY REGISTRY OF DEEDS

RECEIVED _____, 20___

AT ___h ____m _____M. AND RECORDED IN PLAN BOOK _____ PAGE _____ .

ATTEST _____ REGISTER

STATE OF MAINE — JEFFREY D. AMOS — No. 10167 — LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022

P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting
41 CAMPUS DRIVE SUITE 201 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE: OVERALL SUBDIVISION PLAN

CLIENT: SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 120'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-1.0

C:\Users\MARKLO~1\AppData\Local\Temp\AcPublish_830\021-13 SB.dwg

CENTERLINE CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C3	111.67' (34.04m)	240.00' (73.15m)	S 66°42'03" E	110.66' (34.04m)
C4	39.42' (12.02m)	240.00' (73.15m)	S 84°44'10" E	39.38' (12.02m)
C5	122.08' (37.21m)	300.00' (91.44m)	N 77°47'01" W	121.24' (37.21m)
C6	558.97' (170.37m)	400.00' (121.92m)	S 63°54'28" W	514.59' (170.37m)

PROPERTY CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C29	23.46' (7.15m)	15.00' (4.57m)	S 8°33'56" E	21.14' (7.15m)
C30	23.66' (7.21m)	15.00' (4.57m)	S 81°26'04" W	21.28' (7.21m)
C31	100.04' (30.49m)	215.00' (65.53m)	S 66°42'03" E	99.14' (30.49m)
C32	84.47' (25.74m)	265.00' (80.77m)	S 62°30'09" E	84.11' (25.74m)
C33	38.84' (11.84m)	265.00' (80.77m)	S 75°49'55" E	38.80' (11.84m)
C34	35.32' (10.76m)	215.00' (65.53m)	S 84°44'10" E	35.28' (10.76m)
C35	43.53' (13.27m)	265.00' (80.77m)	S 84°44'10" E	43.48' (13.27m)
C36	48.22' (14.70m)	325.00' (99.06m)	N 85°11'28" W	48.18' (14.70m)
C37	80.04' (24.40m)	325.00' (99.06m)	N 73°53'06" W	79.84' (24.40m)
C38	83.94' (25.58m)	275.00' (83.82m)	N 80°41'51" W	83.61' (25.58m)
C39	27.97' (8.53m)	275.00' (83.82m)	N 69°02'20" W	27.96' (8.53m)
C40	23.56' (7.18m)	15.00' (4.57m)	N 21°07'32" W	21.21' (7.18m)
C41	23.56' (7.18m)	15.00' (4.57m)	N 68°52'28" E	21.21' (7.18m)
C42	80.12' (24.42m)	425.00' (129.54m)	S 29°16'32" W	80.00' (24.42m)
C43	80.00' (24.38m)	425.00' (129.54m)	S 40°04'08" W	79.88' (24.38m)
C44	133.82' (40.79m)	375.00' (114.30m)	S 34°05'52" W	133.11' (40.79m)
C45	80.00' (24.38m)	425.00' (129.54m)	S 50°51'14" W	79.88' (24.38m)
C46	133.33' (40.64m)	375.00' (114.30m)	S 54°30'26" W	132.63' (40.64m)
C47	156.29' (47.64m)	425.00' (129.54m)	S 66°46'53" W	155.41' (47.64m)
C48	119.98' (36.57m)	375.00' (114.30m)	S 73°51'32" W	119.47' (36.57m)
C49	85.14' (25.95m)	425.00' (129.54m)	S 83°03'19" W	85.00' (25.95m)
C50	88.51' (26.98m)	425.00' (129.54m)	N 85°14'22" W	88.35' (26.98m)
C51	104.07' (31.72m)	375.00' (114.30m)	N 89°01'31" W	103.73' (31.72m)
C52	23.84' (7.27m)	425.00' (129.54m)	N 77°39'58" W	23.84' (7.27m)
C53	32.83' (10.01m)	375.00' (114.30m)	N 78°34'01" W	32.82' (10.01m)
C187	4.01' (1.22m)	325.00' (99.06m)	N 66°28'33" W	4.01' (1.22m)

ABUTTER LIST

NO.	OWNER	BOOK	PAGE	MAP	LOT
1	MAINE WATER CO.	2775	9	2	19
2	MAINE WATER CO.	17919	909	2	17-2
3	THOMAS J. & TAMMY LAKEMPER	10506	313	2	41-8
4	ROGER P. DUCHESNE	6367	256	2	41-7
5	RITA C. PARSONS	15377	932	7	1
6	RICHARD E. & WENDY J. PHILLIPS	9614	283	7	2
7	ALLEN H. SAUCIER	9375	65	7	3
8	ALLEN H. & MARGARET A. SAUCIER	9375	67	7	4
9	LOUIS A. DITOMASSO	18675	311	7	5
10	ROBERT SCOTT THIBODEAU	16837	810	7	6
11	JOEL E. NEVERS	16793	376	7	7-7
12	LINDA S. BROWN	15497	404	7	7-8
13	NICHOLAS STEVEN DARGIE	17846	721	7	7-9
14	NICHOLAS STEVEN DARGIE	17846	721	7	7-10

PROPERTY CURVE TABLE

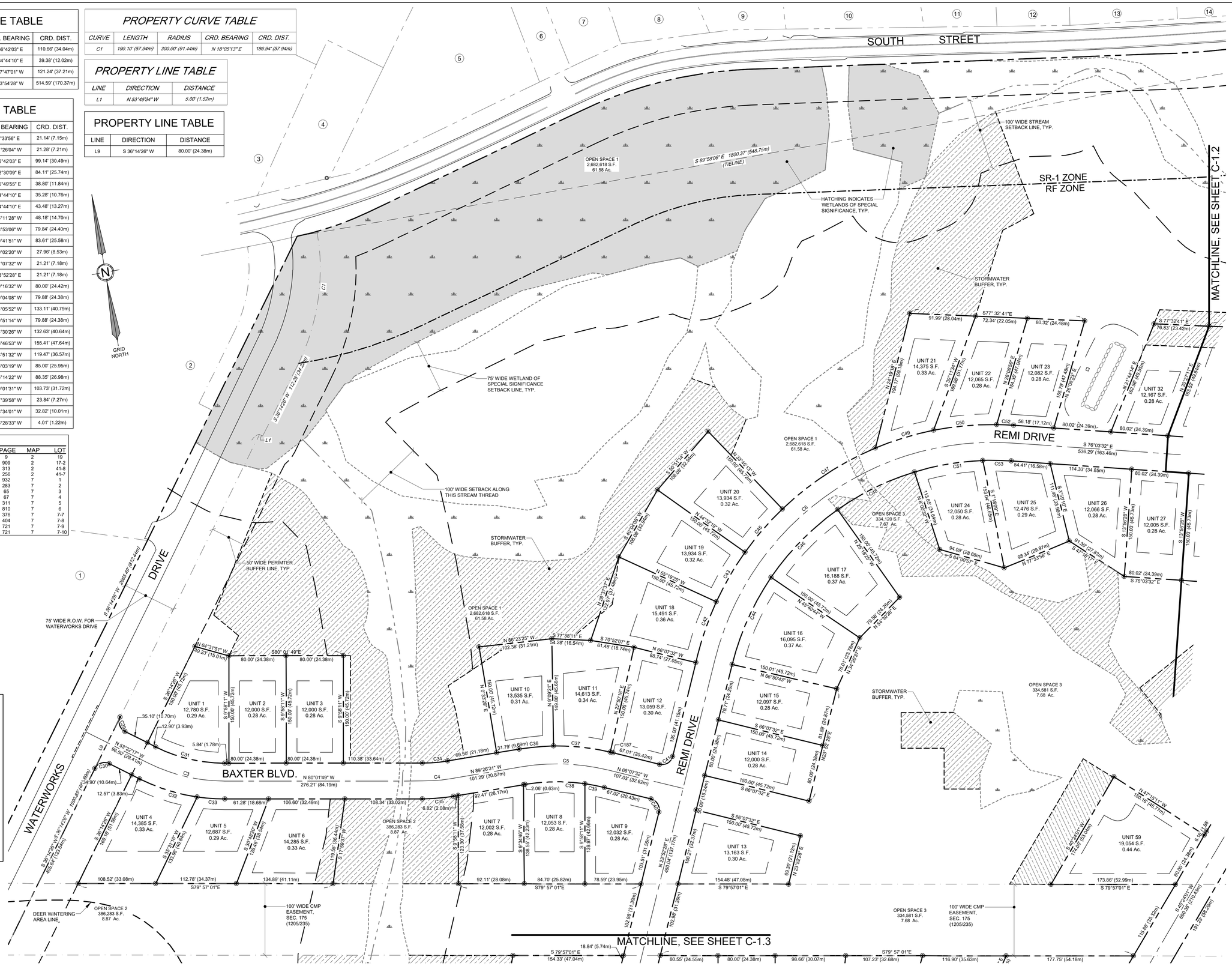
CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C1	190.10' (57.94m)	300.00' (91.44m)	N 18°05'13" E	186.94' (57.94m)

PROPERTY LINE TABLE

LINE	DIRECTION	DISTANCE
L1	N 53°45'34" W	5.00' (1.52m)

PROPERTY LINE TABLE

LINE	DIRECTION	DISTANCE
L9	S 36°14'26" W	80.00' (24.38m)



SEE SHEET C-1.0 FOR GENERAL NOTES.

APPROVAL - CITY OF BIDDEFORD PLANNING BOARD

DATE

CHAIRPERSON

STATE OF MAINE
YORK COUNTY REGISTRY OF DEEDS
RECEIVED _____, 20___
AT ___h ____m _____M. AND RECORDED IN PLAN BOOK _____ PAGE _____.
ATTEST _____ REGISTER

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
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TERRADYN CONSULTANTS, LLC
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OFFICE: (207) 926-5111 FAX: (207) 221-1317
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PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE: SUBDIVISION PLAN - 1

CLIENT: SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 60'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-1.1

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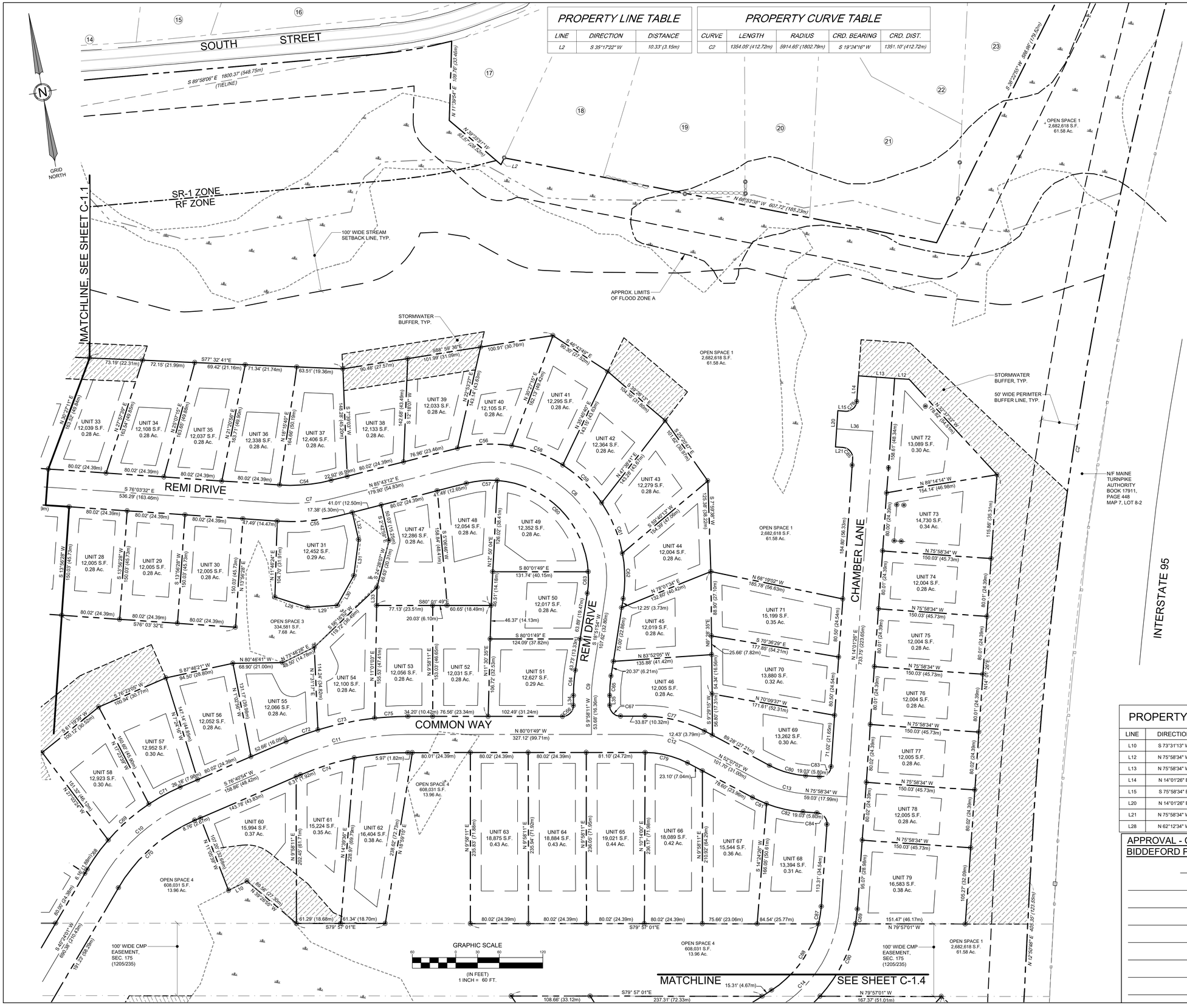

PROPERTY LINE TABLE

LINE	DIRECTION	DISTANCE
L2	S 35°17'22" W	10.33' (3.15m)

PROPERTY CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C2	1354.05' (412.72m)	5914.85' (1802.79m)	S 19°24'16" W	1351.10' (412.72m)

ABUTTER LIST

NO.	OWNER	BOOK	PAGE	MAP	LOT
14	NICHOLAS STEVEN DARGIE	17846	721	7	7-10
15	NICHOLAS STEVEN DARGIE	17846	721	7	7-11
16	CLAUDETTE LEVESQUE	2079	283	7	7-2
17	SOUTH STREET VILLAGE, LLC	17541	869	7	8
18	ROBERT J. BRODEUR	18878	400	7	9
19	ERIN C. & EVAN CHRISTIAAN WHITE	17632	327	7	10
20	RALPH P. & CELINE L. LARIVIERE	1889	866	7	11
21	CLAIRE A. CUSTEAU McVICAR	6993	286	7	11-1
22	STEVEN C. & DEBRA A. HOULE	16464	317	7	11-2
23	GUY R. & SUZANNE C. PAQUETTE	16834	84	7	12

CENTERLINE TABLE

LINE	DIRECTION	DISTANCE
L36	S 75°58'34" E	50.00' (15.24)m

CENTERLINE CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C7	79.50' (24.23m)	250.00' (76.20m)	S 85°10'10" E	79.17' (24.23m)
C8	315.96' (96.30m)	160.00' (48.77m)	N 37°42'27" W	267.07' (96.30m)
C9	31.05' (9.46m)	200.00' (60.96m)	S 14°25'02" W	31.02' (9.46m)
C10	158.31' (48.25m)	250.00' (76.20m)	S 58°32'28" W	155.68' (48.25m)
C11	162.58' (49.55m)	400.00' (121.92m)	S 88°19'33" W	161.46' (49.55m)
C12	73.08' (22.27m)	150.00' (45.72m)	N 66°04'26" W	72.36' (22.27m)
C13	62.46' (19.04m)	150.00' (45.72m)	S 64°02'48" E	62.01' (19.04m)
C14	162.71' (49.60m)	175.00' (53.34m)	N 40°39'38" E	156.92' (49.60m)

PROPERTY CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C54	71.55' (21.81m)	225.00' (68.58m)	S 85°10'10" E	71.25' (21.81m)
C55	87.46' (26.66m)	275.00' (83.82m)	S 85°10'10" E	87.09' (26.66m)
C56	75.50' (23.01m)	185.00' (56.39m)	N 82°35'21" W	74.97' (23.01m)
C57	42.86' (13.06m)	135.00' (41.15m)	N 85°11'08" W	42.68' (13.06m)
C58	75.54' (23.02m)	185.00' (56.39m)	N 59°12'03" W	75.02' (23.02m)
C59	75.54' (23.03m)	185.00' (56.39m)	N 35°48'19" W	75.02' (23.03m)
C60	193.96' (59.12m)	135.00' (41.15m)	N 34°55'56" W	177.70' (59.12m)
C61	75.54' (23.03m)	185.00' (56.39m)	N 12°24'33" W	75.02' (23.03m)
C62	63.21' (19.27m)	185.00' (56.39m)	N 9°04'37" E	62.90' (19.27m)
C63	29.78' (9.08m)	135.00' (41.15m)	N 12°32'44" E	29.72' (9.08m)
C64	34.93' (10.65m)	225.00' (68.58m)	S 14°25'02" W	34.90' (10.65m)
C65	27.17' (8.28m)	175.00' (53.34m)	S 14°25'02" W	27.14' (8.28m)
C66	23.56' (7.18m)	15.00' (4.57m)	N 54°58'11" E	21.21' (7.18m)
C67	23.56' (7.18m)	15.00' (4.57m)	S 35°01'49" E	21.21' (7.18m)
C68	49.73' (15.16m)	275.00' (83.82m)	S 45°34'52" W	49.66' (15.16m)
C69	75.25' (22.94m)	275.00' (83.82m)	S 58°36'04" W	75.01' (22.94m)
C70	142.48' (43.43m)	225.00' (68.58m)	S 58°32'28" W	140.11' (43.43m)
C71	49.16' (14.98m)	275.00' (83.82m)	S 71°33'39" W	49.09' (14.98m)
C72	46.74' (14.25m)	425.00' (129.54m)	S 79°49'56" W	46.72' (14.25m)
C73	80.13' (24.42m)	425.00' (129.54m)	S 88°23'05" W	80.02' (24.42m)
C74	77.89' (23.74m)	375.00' (114.30m)	S 82°37'55" W	77.75' (23.74m)
C75	45.67' (13.98m)	425.00' (129.54m)	N 83°07'19" W	45.85' (13.98m)
C76	74.53' (22.72m)	375.00' (114.30m)	N 85°43'27" W	74.41' (22.72m)
C77	85.25' (25.99m)	175.00' (53.34m)	N 66°04'26" W	84.41' (25.99m)
C78	23.56' (7.18m)	15.00' (4.57m)	N 59°01'26" E	21.21' (7.18m)
C79	60.90' (18.56m)	125.00' (38.10m)	N 66°04'24" W	60.30' (18.56m)
C80	52.05' (15.87m)	125.00' (38.10m)	S 64°02'48" E	51.68' (15.87m)
C81	20.95' (6.38m)	175.00' (53.34m)	S 55°32'46" E	20.93' (6.38m)
C82	51.93' (15.83m)	175.00' (53.34m)	S 67°28'32" E	51.74' (15.83m)
C83	23.56' (7.18m)	15.00' (4.57m)	N 59°01'26" E	21.21' (7.18m)
C84	23.56' (7.18m)	15.00' (4.57m)	N 30°58'34" W	21.21' (7.18m)
C85	23.56' (7.18m)	15.00' (4.57m)	N 30°58'34" W	21.21' (7.18m)
C87	24.34' (7.42m)	150.00' (45.72m)	N 18°40'20" E	24.31' (7.42m)
C88	115.13' (35.09m)	150.00' (45.72m)	N 45°18'31" E	112.33' (35.09m)
C89	20.73' (6.32m)	200.00' (60.96m)	N 16°59'37" E	20.72' (6.32m)
C90	112.82' (34.39m)	200.00' (60.96m)	N 36°07'25" E	111.33' (34.39m)

PROPERTY LINE TABLE

LINE	DIRECTION	DISTANCE
L10	S 73°31'13" W	28.51' (8.69m)
L12	N 75°58'34" W	20.00' (6.10m)
L13	N 75°58'34" W	50.00' (15.24m)
L14	N 14°01'26" E	35.00' (10.67m)
L15	S 75°58'34" E	10.00' (3.05m)
L20	N 14°01'26" E	50.00' (15.24m)
L21	N 75°58'34" W	10.00' (3.05m)
L28	N 62°12'34" W	47.50' (14.48m)

PROPERTY LINE TABLE

LINE	DIRECTION	DISTANCE
L29	N 84°23'03" W	41.05' (12.51m)
L30	S 39°10'44" W	46.53' (14.18m)
L31	S 17°25'17" W	50.26' (15.32m)
L32	S 2°42'59" E	38.65' (11.78m)
L33	N 11°01'03" E	25.26' (7.70m)
L34	S 9°58'11" W	13.68' (4.17m)
L35	N 9°58'11" E	13.68' (4.17m)

APPROVAL - CITY OF BIDDEFORD PLANNING BOARD

DATE

CHAIRPERSON

SEE SHEET C-1.0 FOR GENERAL NOTES.

STATE OF MAINE

YORK COUNTY REGISTRY OF DEEDS

RECEIVED _____, 20___

AT ___h ____m ____M. AND RECORDED IN PLAN BOOK _____ PAGE _____ .

ATTEST _____ REGISTER

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022

P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
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www.terradynconsultants.com

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE: SUBDIVISION PLAN - 2

CLIENT: SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 60'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-1.2

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PROPERTY LINE TABLE

LINE	DIRECTION	DISTANCE
L3	N 65°01'56" W	50.00' (15.24m)
L11	S 65°01'56" E	31.25' (9.52m)
L16	S 36°14'26" W	80.00' (24.38m)
L17	N 65°01'56" W	10.00' (3.05m)
L18	S 24°58'04" W	50.00' (15.24m)
L19	S 65°01'56" E	10.00' (3.05m)
L22	N 74°27'01" W	15.06' (4.59m)
L23	N 74°27'01" W	15.06' (4.59m)

PROPERTY CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C86	23.86' (7.27m)	525.00' (160.02m)	S 26°16'12" W	23.86' (7.27m)
C91	23.46' (7.15m)	15.00' (4.57m)	S 8°33'56" E	21.14' (7.15m)
C92	23.66' (7.21m)	15.00' (4.57m)	S 81°26'04" W	21.28' (7.21m)
C93	7.62' (2.32m)	275.00' (83.82m)	N 52°34'39" W	7.62' (2.32m)
C94	75.25' (22.94m)	275.00' (83.82m)	N 43°56'41" W	75.01' (22.94m)
C95	44.06' (13.43m)	225.00' (68.58m)	N 47°45'39" W	43.99' (13.43m)
C96	84.52' (25.76m)	225.00' (68.58m)	N 31°23'19" W	84.03' (25.76m)
C97	75.25' (22.94m)	275.00' (83.82m)	N 28°16'00" W	75.01' (22.94m)
C98	54.52' (16.62m)	275.00' (83.82m)	N 14°44'52" W	54.43' (16.62m)
C99	45.39' (13.83m)	225.00' (68.58m)	N 14°50'50" W	45.31' (13.83m)
C100	13.10' (3.99m)	375.00' (114.30m)	S 10°04'07" E	13.10' (3.99m)
C101	50.59' (15.42m)	425.00' (129.54m)	S 12°28'42" E	50.56' (15.42m)
C102	95.73' (29.18m)	375.00' (114.30m)	S 18°22'58" E	95.47' (29.18m)
C103	84.52' (25.76m)	425.00' (129.54m)	S 21°35'10" E	84.38' (25.76m)
C104	103.47' (31.54m)	375.00' (114.30m)	S 33°36'03" E	103.15' (31.54m)
C105	84.52' (25.76m)	425.00' (129.54m)	S 32°58'52" E	84.38' (25.76m)
C106	80.13' (24.42m)	375.00' (114.30m)	S 47°37'39" E	79.98' (24.42m)
C107	84.52' (25.76m)	425.00' (129.54m)	S 44°22'34" E	84.38' (25.76m)
C108	27.27' (8.31m)	425.00' (129.54m)	S 51°54'42" E	27.26' (8.31m)
C109	23.59' (7.19m)	15.00' (4.57m)	N 81°11'25" E	21.24' (7.19m)
C110	23.53' (7.17m)	15.00' (4.57m)	S 8°48'35" E	21.19' (7.17m)
C111	59.07' (18.01m)	275.00' (83.82m)	S 59°54'12" E	58.96' (18.01m)
C112	71.57' (21.82m)	325.00' (99.06m)	S 60°03'29" E	71.43' (21.82m)
C113	109.89' (33.49m)	275.00' (83.82m)	S 77°30'16" E	109.16' (33.49m)
C114	80.00' (24.38m)	325.00' (99.06m)	S 73°25'08" E	79.80' (24.38m)
C115	177.97' (54.25m)	325.00' (99.06m)	N 83°50'30" E	175.76' (54.25m)
C116	109.89' (33.49m)	275.00' (83.82m)	N 79°36'04" E	109.16' (33.49m)
C117	39.73' (12.11m)	325.00' (99.06m)	N 32°37'39" E	39.71' (12.11m)
C118	38.35' (11.69m)	375.00' (114.30m)	N 33°12'00" E	38.33' (11.69m)
C119	108.17' (32.97m)	325.00' (99.06m)	N 19°35'25" E	107.67' (32.97m)
C120	80.00' (24.38m)	375.00' (114.30m)	N 24°09'32" E	79.85' (24.38m)
C121	80.83' (24.64m)	375.00' (114.30m)	N 11°52'20" E	80.67' (24.64m)
C122	24.72' (7.53m)	325.00' (99.06m)	N 7°52'35" E	24.71' (7.53m)
C123	18.71' (5.70m)	975.00' (297.18m)	S 6°14'50" W	18.71' (5.70m)
C124	79.66' (24.28m)	1025.00' (312.42m)	S 7°55'26" W	79.64' (24.28m)
C125	108.31' (33.01m)	975.00' (297.18m)	S 9°58'46" W	108.26' (33.01m)
C126	80.00' (24.38m)	1025.00' (312.42m)	S 12°23'10" W	79.98' (24.38m)
C127	80.00' (24.38m)	1025.00' (312.42m)	S 16°51'29" W	79.98' (24.38m)

PROPERTY CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C128	85.52' (26.07m)	1025.00' (312.42m)	S 21°29'03" W	85.50' (26.07m)
C129	101.03' (30.79m)	975.00' (297.18m)	S 20°54'22" W	100.98' (30.79m)
C130	24.19' (7.37m)	15.00' (4.57m)	S 28°15'22" E	21.65' (7.37m)
C131	24.19' (7.37m)	15.00' (4.57m)	S 59°21'21" W	21.65' (7.37m)
C132	45.60' (13.90m)	475.00' (144.78m)	S 77°12'01" E	45.58' (13.90m)
C133	50.40' (15.36m)	525.00' (160.02m)	S 77°12'01" E	50.38' (15.36m)
C134	63.86' (19.46m)	525.00' (160.02m)	N 76°27'56" W	63.82' (19.46m)
C135	87.68' (26.72m)	475.00' (144.78m)	N 74°39'45" W	87.55' (26.72m)
C136	80.00' (24.38m)	525.00' (160.02m)	N 68°36'56" W	79.92' (24.38m)
C137	80.00' (24.38m)	525.00' (160.02m)	N 59°53'05" W	79.92' (24.38m)
C138	87.48' (26.66m)	475.00' (144.78m)	N 64°05'54" W	87.36' (26.66m)
C139	54.24' (16.53m)	525.00' (160.02m)	N 52°33'34" W	54.22' (16.53m)
C140	76.46' (23.30m)	475.00' (144.78m)	N 54°12'39" W	76.38' (23.30m)
C141	23.56' (7.18m)	15.00' (4.57m)	N 85°24'01" E	21.21' (7.18m)
C142	23.56' (7.18m)	15.00' (4.57m)	N 4°35'59" W	21.21' (7.18m)
C143	39.19' (11.95m)	525.00' (160.02m)	S 38°15'43" W	39.18' (11.95m)
C144	78.35' (23.88m)	525.00' (160.02m)	S 31°50'52" W	78.28' (23.88m)
C145	10.89' (3.32m)	475.00' (144.78m)	S 39°44'37" W	10.89' (3.32m)
C146	106.05' (32.32m)	475.00' (144.78m)	S 32°41'27" W	105.83' (32.32m)
C147	11.00' (3.35m)	475.00' (144.78m)	S 25°37'53" W	11.00' (3.35m)
C148	23.56' (7.18m)	15.00' (4.57m)	N 69°58'04" E	21.21' (7.18m)
C149	23.56' (7.18m)	15.00' (4.57m)	N 20°01'56" W	21.21' (7.18m)

CENTERLINE TABLE

LINE	DIRECTION	DISTANCE
L6	S 65°01'56" E	50.00' (15.24)m

CENTERLINE CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C15	193.31' (58.92m)	250.00' (76.20m)	N 31°13'11" W	188.53' (58.92m)
C16	311.93' (95.08m)	400.00' (121.92m)	S 31°24'31" E	304.09' (95.08m)
C17	304.19' (92.72m)	300.00' (91.44m)	S 82°47'52" E	291.33' (92.72m)
C18	185.90' (56.66m)	350.00' (106.68m)	N 20°54'49" E	183.72' (56.66m)
C19	317.25' (96.70m)	1000.00' (304.80m)	S 14°47'10" W	315.92' (96.70m)
C20	48.00' (14.63m)	500.00' (152.40m)	S 77°12'01" E	47.98' (14.63m)
C21	264.86' (80.73m)	500.00' (152.40m)	N 64°46'30" W	261.77' (80.73m)
C22	134.67' (41.05m)	500.00' (152.40m)	S 32°41'03" W	134.27' (41.05m)

APPROVAL - CITY OF BIDDEFORD PLANNING BOARD

DATE

CHAIRPERSON

SEE SHEET C-1.0 FOR GENERAL NOTES.

STATE OF MAINE
YORK COUNTY REGISTRY OF DEEDS
RECEIVED _____, 20___
AT ___h ____m _____M. AND RECORDED IN PLAN BOOK _____ PAGE _____ .
ATTEST _____ REGISTER

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting
41 CAMPUS DRIVE SUITE 101 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 401 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE: SUBDIVISION PLAN - 3

CLIENT: SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 60'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-1.3

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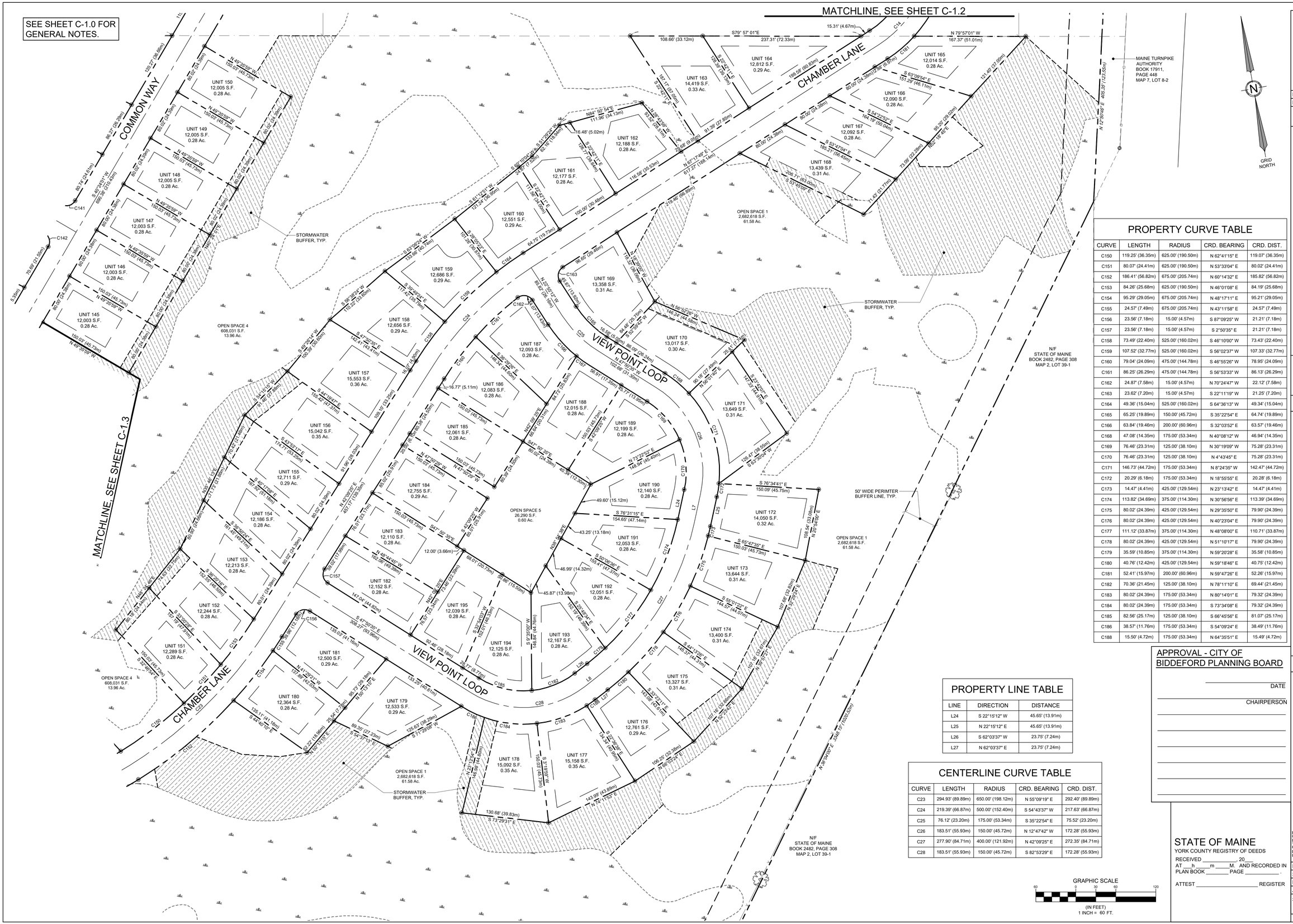
SEE SHEET C-1.0 FOR GENERAL NOTES.



PROPERTY CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C150	119.25' (36.35m)	625.00' (190.50m)	N 62°41'15" E	119.07' (36.35m)
C151	80.07' (24.41m)	625.00' (190.50m)	N 53°33'04" E	80.02' (24.41m)
C152	186.41' (56.82m)	675.00' (205.74m)	N 60°14'32" E	185.82' (56.82m)
C153	84.26' (25.68m)	625.00' (190.50m)	N 46°01'08" E	84.19' (25.68m)
C154	95.29' (29.05m)	675.00' (205.74m)	N 48°17'11" E	95.21' (29.05m)
C155	24.57' (7.49m)	675.00' (205.74m)	N 43°11'58" E	24.57' (7.49m)
C156	23.56' (7.18m)	15.00' (4.57m)	S 87°09'25" W	21.21' (7.18m)
C157	23.56' (7.18m)	15.00' (4.57m)	S 2°50'35" E	21.21' (7.18m)
C158	73.49' (22.40m)	525.00' (160.02m)	S 46°10'00" W	73.43' (22.40m)
C159	107.52' (32.77m)	525.00' (160.02m)	S 56°02'37" W	107.33' (32.77m)
C160	79.04' (24.09m)	475.00' (144.78m)	S 46°55'26" W	78.95' (24.09m)
C161	86.25' (26.29m)	475.00' (144.78m)	S 56°53'33" W	86.13' (26.29m)
C162	24.87' (7.58m)	15.00' (4.57m)	N 70°24'47" W	22.12' (7.58m)
C163	23.62' (7.20m)	15.00' (4.57m)	S 22°11'19" W	21.25' (7.20m)
C164	49.36' (15.04m)	525.00' (160.02m)	S 64°36'13" W	49.34' (15.04m)
C165	65.25' (19.89m)	150.00' (45.72m)	S 35°22'54" E	64.74' (19.89m)
C166	63.84' (19.46m)	200.00' (60.96m)	S 32°03'52" E	63.57' (19.46m)
C168	47.08' (14.35m)	175.00' (53.34m)	N 40°08'12" W	46.94' (14.35m)
C169	76.46' (23.31m)	125.00' (38.10m)	N 30°19'09" W	75.28' (23.31m)
C170	76.46' (23.31m)	125.00' (38.10m)	N 4°43'45" E	75.28' (23.31m)
C171	146.73' (44.72m)	175.00' (53.34m)	N 8°24'35" W	142.47' (44.72m)
C172	20.29' (6.18m)	175.00' (53.34m)	N 18°55'55" E	20.28' (6.18m)
C173	14.47' (4.41m)	425.00' (129.54m)	N 23°13'42" E	14.47' (4.41m)
C174	113.82' (34.69m)	375.00' (114.30m)	N 30°56'56" E	113.39' (34.69m)
C175	80.02' (24.39m)	425.00' (129.54m)	N 29°35'50" E	79.90' (24.39m)
C176	80.02' (24.39m)	425.00' (129.54m)	N 40°23'04" E	79.90' (24.39m)
C177	111.12' (33.87m)	375.00' (114.30m)	N 48°08'00" E	110.71' (33.87m)
C178	80.02' (24.39m)	425.00' (129.54m)	N 51°10'17" E	79.90' (24.39m)
C179	35.59' (10.85m)	375.00' (114.30m)	N 59°20'28" E	35.58' (10.85m)
C180	40.76' (12.42m)	425.00' (129.54m)	N 59°18'46" E	40.75' (12.42m)
C181	52.41' (15.97m)	200.00' (60.96m)	N 59°47'26" E	52.26' (15.97m)
C182	70.36' (21.45m)	125.00' (38.10m)	N 78°11'10" E	69.44' (21.45m)
C183	80.02' (24.39m)	175.00' (53.34m)	N 80°14'01" E	79.32' (24.39m)
C184	80.02' (24.39m)	175.00' (53.34m)	S 73°34'08" E	79.32' (24.39m)
C185	82.56' (25.17m)	125.00' (38.10m)	S 66°45'56" E	81.07' (25.17m)
C186	38.57' (11.76m)	175.00' (53.34m)	S 54°09'24" E	38.49' (11.76m)
C188	15.50' (4.72m)	175.00' (53.34m)	N 64°35'51" E	15.49' (4.72m)

PROPERTY LINE TABLE

LINE	DIRECTION	DISTANCE
L24	S 22°15'12" W	45.65' (13.91m)
L25	N 22°15'12" E	45.65' (13.91m)
L26	S 62°03'37" W	23.75' (7.24m)
L27	N 62°03'37" E	23.75' (7.24m)

CENTERLINE CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C23	294.93' (89.89m)	650.00' (198.12m)	N 55°09'19" E	292.40' (89.89m)
C24	219.39' (66.87m)	500.00' (152.40m)	S 54°43'37" W	217.63' (66.87m)
C25	76.12' (23.20m)	175.00' (53.34m)	S 35°22'54" E	75.52' (23.20m)
C26	183.51' (55.93m)	150.00' (45.72m)	N 12°47'42" W	172.28' (55.93m)
C27	277.90' (84.71m)	400.00' (121.92m)	N 42°09'25" E	272.35' (84.71m)
C28	183.51' (55.93m)	150.00' (45.72m)	S 82°53'29" E	172.28' (55.93m)

GRAPHIC SCALE
60 0 30 60 120
(IN FEET)
1 INCH = 60 FT.

APPROVAL - CITY OF BIDDEFORD PLANNING BOARD

DATE

CHAIRPERSON

STATE OF MAINE
YORK COUNTY REGISTRY OF DEEDS
RECEIVED _____, 20__
AT ___h ____m _____M. AND RECORDED IN PLAN BOOK _____ PAGE _____.
ATTEST _____ REGISTER

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting
565 CONGRESS STREET SUITE 202 PORTLAND, ME 04101
41 CAMPUS DRIVE SUITE 201 NEW GLOUCESTER, ME 04260
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SUBDIVISION PLAN - 4

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 60'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-1.4

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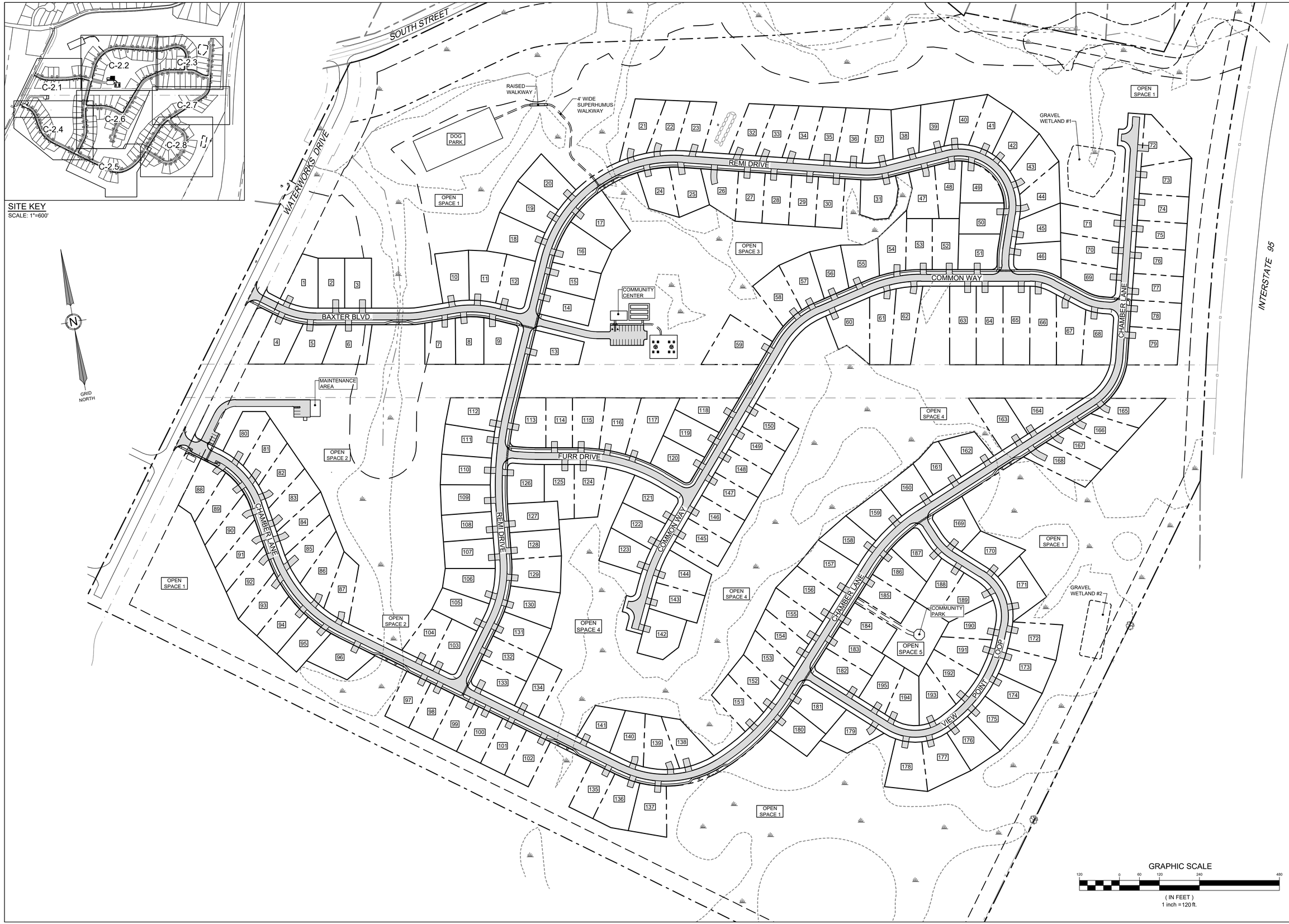

STATE OF MAINE
JEFFREY D. AMOS
No. 10167
LICENSED
PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting
41 CAMPUS DRIVE
SUITE 201
NEW GLOUCESTER, ME 04260
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
OVERALL SITE PLAN

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 120'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-2.0

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CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM OR HERSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIM OR HERSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

3. CONTRACTOR SHALL NOTIFY ENGINEER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND IN THE FIELD.

4. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND OWNER'S REQUIREMENTS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

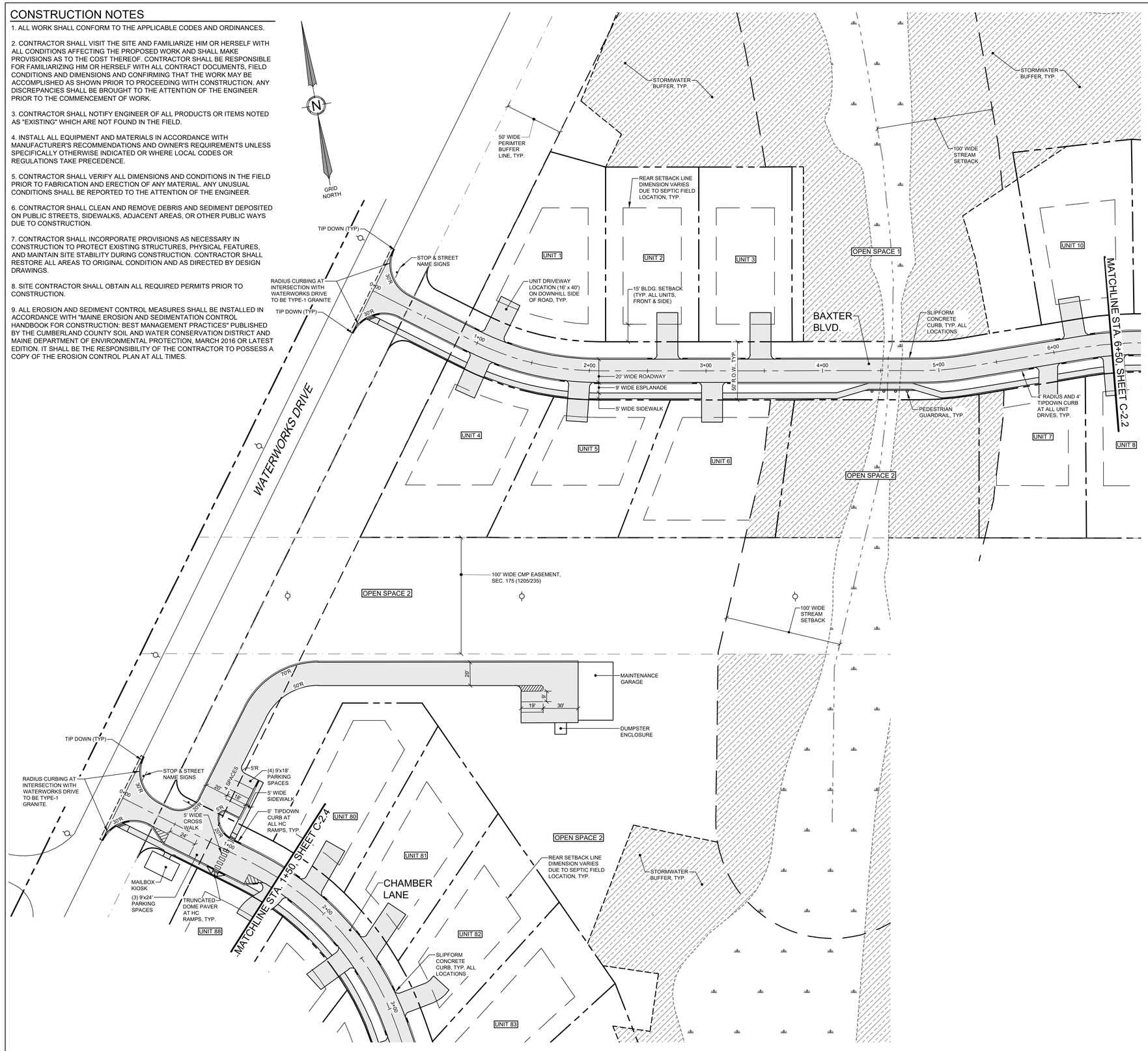
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.

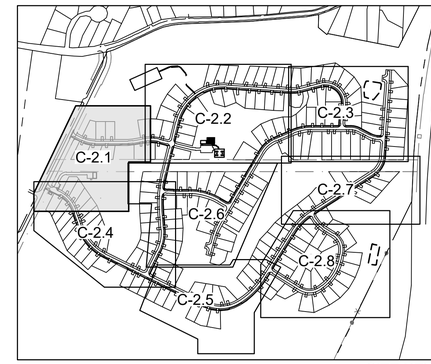
6. CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND SEDIMENT DEPOSITED ON PUBLIC STREETS, SIDEWALKS, ADJACENT AREAS, OR OTHER PUBLIC WAYS DUE TO CONSTRUCTION.

7. CONTRACTOR SHALL INCORPORATE PROVISIONS AS NECESSARY IN CONSTRUCTION TO PROTECT EXISTING STRUCTURES, PHYSICAL FEATURES, AND MAINTAIN SITE STABILITY DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL AREAS TO ORIGINAL CONDITION AND AS DIRECTED BY DESIGN DRAWINGS.

8. SITE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION.

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





SITE KEY
SCALE: 1"=600'

CONSTRUCTION NOTES

10. THE CONTRACTOR IS HEREBY CAUTIONED THAT ALL SITE FEATURES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS BY THE SURVEYOR AND BY INFORMATION PROVIDED BY UTILITY COMPANIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT DIG SAFE (1-888-DIGSAFE) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES.

11. CONTRACTOR SHALL BE AWARE THAT DIG SAFE ONLY NOTIFIES ITS "MEMBER" UTILITIES ABOUT THE DIG. WHEN NOTIFIED, DIG SAFE WILL ADVISE CONTRACTOR OF MEMBER UTILITIES IN THE AREA. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND CONTACTING NON-MEMBER UTILITIES DIRECTLY. NON-MEMBER UTILITIES MAY INCLUDE TOWN OR CITY WATER AND SEWER DISTRICTS AND SMALL LOCAL UTILITIES, AS WELL AS USG PUBLIC WORKS SYSTEMS.

12. CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF 23 MRSA 3360-A. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE APPROPRIATE UTILITIES TO OBTAIN AUTHORIZATION PRIOR TO RELOCATION OF ANY EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS. IF A UTILITY CONFLICT ARISES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER, THE MUNICIPALITY AND APPROPRIATE UTILITY COMPANY PRIOR TO PROCEEDING WITH ANY RELOCATION.

13. ALL PAVEMENT MARKINGS AND DIRECTIONAL SIGNAGE SHOWN ON THE PLAN SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS.

14. ALL PAVEMENT JOINTS SHALL BE SAWCUT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT. ALL JOINTS SHALL BE BUTT JOINTS.

15. NO HOLES, TRENCHES OR STRUCTURES SHALL BE LEFT OPEN OVERNIGHT IN ANY EXCAVATION ACCESSIBLE TO THE PUBLIC OR IN PUBLIC RIGHTS-OF-WAY.

16. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL REQUIRE A M.D.O.T. PERMIT AS WELL AS PERMITS FROM THE TOWN AS APPLICABLE.

17. THE PROPOSED LIMITS OF CLEARING SHOWN HEREON ARE APPROXIMATE BASED UPON THE PROPOSED LIMITS OF SITE GRADING. THE APPLICANT RESERVES THE RIGHT TO PERFORM NORMAL FOREST MANAGEMENT ACTIVITIES OUTSIDE OF THE CLEARING LIMIT AS SHOWN. TREE REMOVAL OUTSIDE OF THE LIMITS OF CLEARING MAY BE NECESSARY TO REMOVE DEAD OR DYING TREES OR TREE LIMBS. THIS REMOVAL IS DUE TO POTENTIAL SAFETY HAZARDS AND TO PROMOTE PROPER FOREST GROWTH.

18. IMMEDIATELY UPON COMPLETION OF CUTS/FILLS, THE CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH EROSION CONTROL NOTES AND AS SPECIFIED ON PLANS.

19. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR THE REMOVAL, REPLACEMENT AND RECTIFICATION OF ALL DAMAGED AND DEFECTIVE MATERIAL AND WORKMANSHIP IN CONNECTION WITH THE CONTRACT WORK. THE CONTRACTOR SHALL REPLACE OR REPAIR AS DIRECTED BY THE OWNER ALL SUCH DAMAGED OR DEFECTIVE MATERIALS WHICH APPEAR WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.

20. ALL WORK PERFORMED BY THE GENERAL CONTRACTOR AND/OR TRADE SUBCONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF LOCAL, STATE OR FEDERAL LAWS, AS WELL AS ANY OTHER GOVERNING REQUIREMENTS, WHETHER OR NOT SPECIFIED ON THE DRAWINGS.

21. WHERE THE TERMS "APPROVED EQUAL", "OTHER APPROVED", "EQUAL TO", "ACCEPTABLE" OR OTHER GENERAL QUALIFYING TERMS ARE USED IN THESE NOTES, IT SHALL BE UNDERSTOOD THAT REFERENCE IS MADE TO THE RULING AND JUDGMENT OF TERRADYN CONSULTANTS, LLC.

22. THE GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION FOR THE WORK UNTIL TURNED OVER TO THE OWNER.

23. THE GENERAL CONTRACTOR SHALL MAINTAIN A CURRENT AND COMPLETE SET OF CONSTRUCTION DRAWINGS ON SITE DURING ALL PHASES OF CONSTRUCTION FOR USE OF ALL TRADES.

24. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ANY CHANGES AND DEVIATION OF APPROVED PLANS NOT AUTHORIZED BY THE ARCHITECT/ENGINEER AND/OR CLIENT/OWNER.

25. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. ANY MODIFICATION TO SUIT FIELD DIMENSION AND CONDITION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY WORK.

26. BEFORE THE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS, REPAIR OR REPLACE PRIVATE OR PUBLIC PROPERTY WHICH MAY HAVE BEEN DAMAGED OR DESTROYED DURING CONSTRUCTION, CLEAN THE AREAS WITHIN AND ADJACENT TO THE PROJECT WHICH HAVE BEEN OBSTRUCTED BY HIS/HER OPERATIONS, AND LEAVE THE PROJECT AREA NEAT AND PRESENTABLE.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

STATE OF MAINE JEFFREY D. AMOS No. 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting
41 CAMPUS DRIVE SUITE 401 NEW GLOUCESTER, ME 04260
555 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

PERMIT DRAWING
NOT FOR CONSTRUCTION

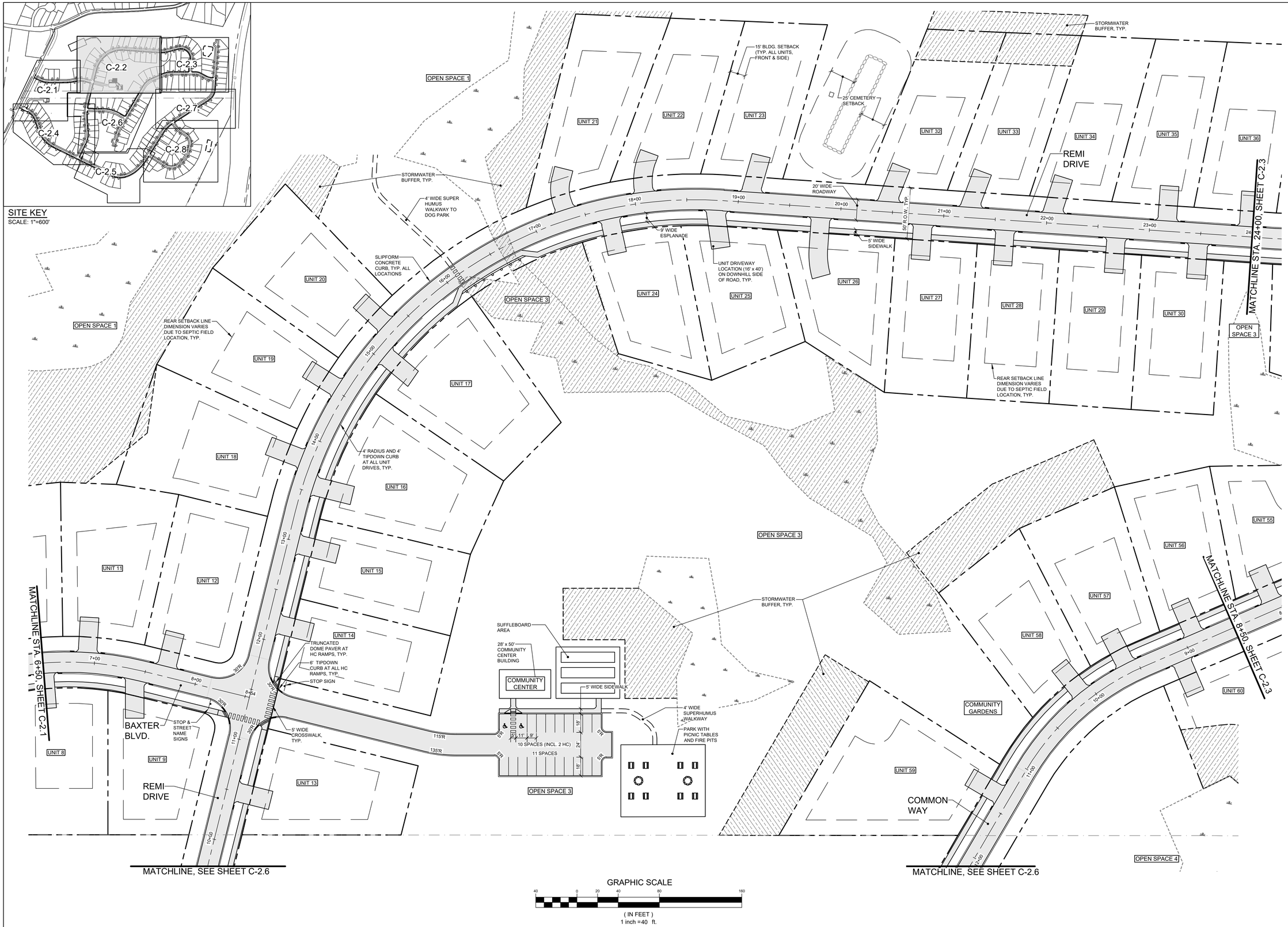
PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE PLAN - 1

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-2.1

C:\OD\Terradyn Consultants\Project Folders - Documents\2021 Jobs\21-13 South Street MHP\CAD\Permitting\21-13 SITE.dwg



STATE OF MAINE
JEFFREY D. AMOS
No. 10167
LICENSED
PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

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41 CAMPUS DRIVE
SUITE 201
NEW GLOUCESTER, ME 04260

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565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102

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PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE PLAN - 2

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-2.2

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STATE OF MAINE
JEFFREY D. AMOS
PE 10167
LICENSED
PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

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NEW GLOUCESTER, ME 04260
565 CONGRESS STREET
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PORTLAND, ME 04102
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PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE PLAN - 3

CLIENT:
SOUTH STREET VILLAGE, LLC
792 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-2.3

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NO.	DATE	REVISIONS	APP'D BY
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DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE SUITE 201 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
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Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE PLAN - 4

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-2.4

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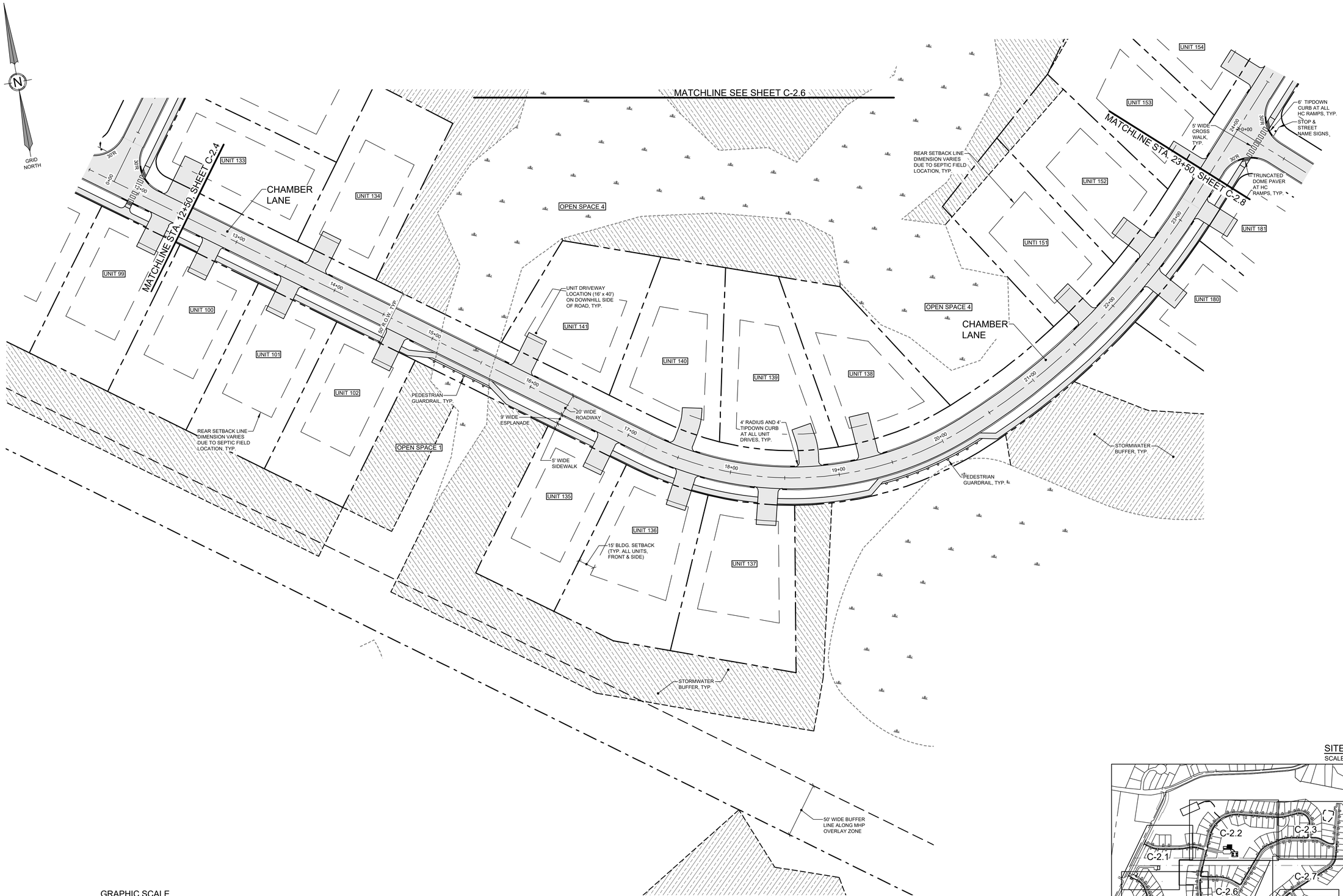
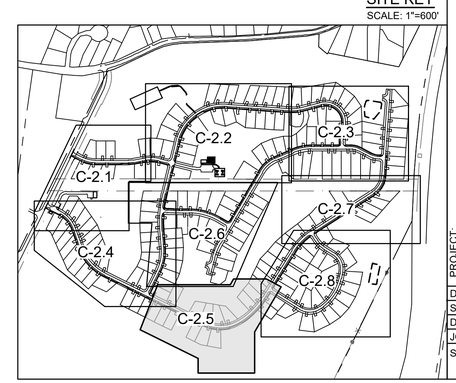


GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

SITE KEY
SCALE: 1"=600'



STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
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565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE PLAN - 5

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-2.5

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MATCHLINE, SEE SHEET C-2.2

MATCHLINE, SEE SHEET C-2.2

MATCHLINE STA. 8+00, SHEET C-2.4

MATCHLINE STA. 1+00, SHEET C-2.4

SEE SHEET C-2.4

MATCHLINE SHEET C-2.5

OPEN SPACE 2

OPEN SPACE 3

OPEN SPACE 3

OPEN SPACE 4

OPEN SPACE 4

COMMUNITY GARDENS

REMI DRIVE

REMI DRIVE

FURR DRIVE

COMMON WAY

UNIT 104
UNIT 105
UNIT 106
UNIT 107
UNIT 108
UNIT 109
UNIT 110
UNIT 111
UNIT 112
UNIT 113
UNIT 114
UNIT 115
UNIT 116
UNIT 117
UNIT 118
UNIT 119
UNIT 120
UNIT 121
UNIT 122
UNIT 123
UNIT 124
UNIT 125
UNIT 126
UNIT 127
UNIT 128
UNIT 129
UNIT 130
UNIT 131
UNIT 132
UNIT 142
UNIT 143
UNIT 144
UNIT 145
UNIT 146
UNIT 147
UNIT 148
UNIT 149
UNIT 150

6' TIPDOWN CURB AT ALL HC RAMPS, TYP.

STOP & STREET NAME SIGNS

5' WIDE CROSS WALK, TYP.

TRUNCATED DOME PAVER AT HC RAMPS, TYP.

15' BLDG. SETBACK (TYP. ALL UNITS, FRONT & SIDE)

REAR SETBACK LINE DIMENSION VARIES DUE TO SEPTIC FIELD LOCATION, TYP.

UNIT DRIVEWAY LOCATION (16' x 40') ON DOWNHILL SIDE OF ROAD, TYP.

SLIPFORM CONCRETE CURB, TYP. ALL LOCATIONS

STORMWATER BUFFER, TYP.

STORMWATER BUFFER, TYP.

9' WIDE ESPLANADE

5' WIDE SIDEWALK

20' WIDE ROADWAY

STOP & STREET NAME SIGNS

4' RADIUS AND 4' TIPDOWN CURB AT ALL UNIT DRIVES, TYP.

50' R.O.W. TYP.

6' TIPDOWN CURB (3 LOCATIONS) AT END OF HAMMERHEAD

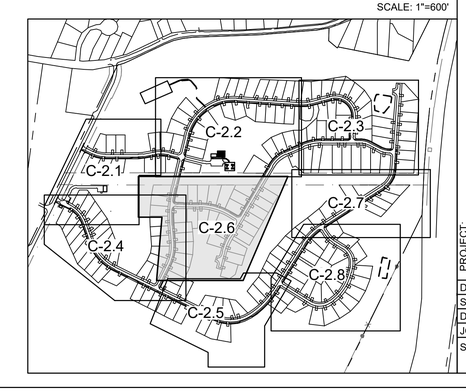
GRID NORTH

GRAPHIC SCALE

(IN FEET)
1 inch =40 ft.

SITE KEY

SCALE: 1"=600'



STATE OF MAINE
JEFFREY D. AMOS
10167
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PROFESSIONAL ENGINEER

DATE: 11-16-2022

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NEW GLOUCESTER, ME 04260

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PERMIT DRAWING
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE PLAN - 6

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-2.6

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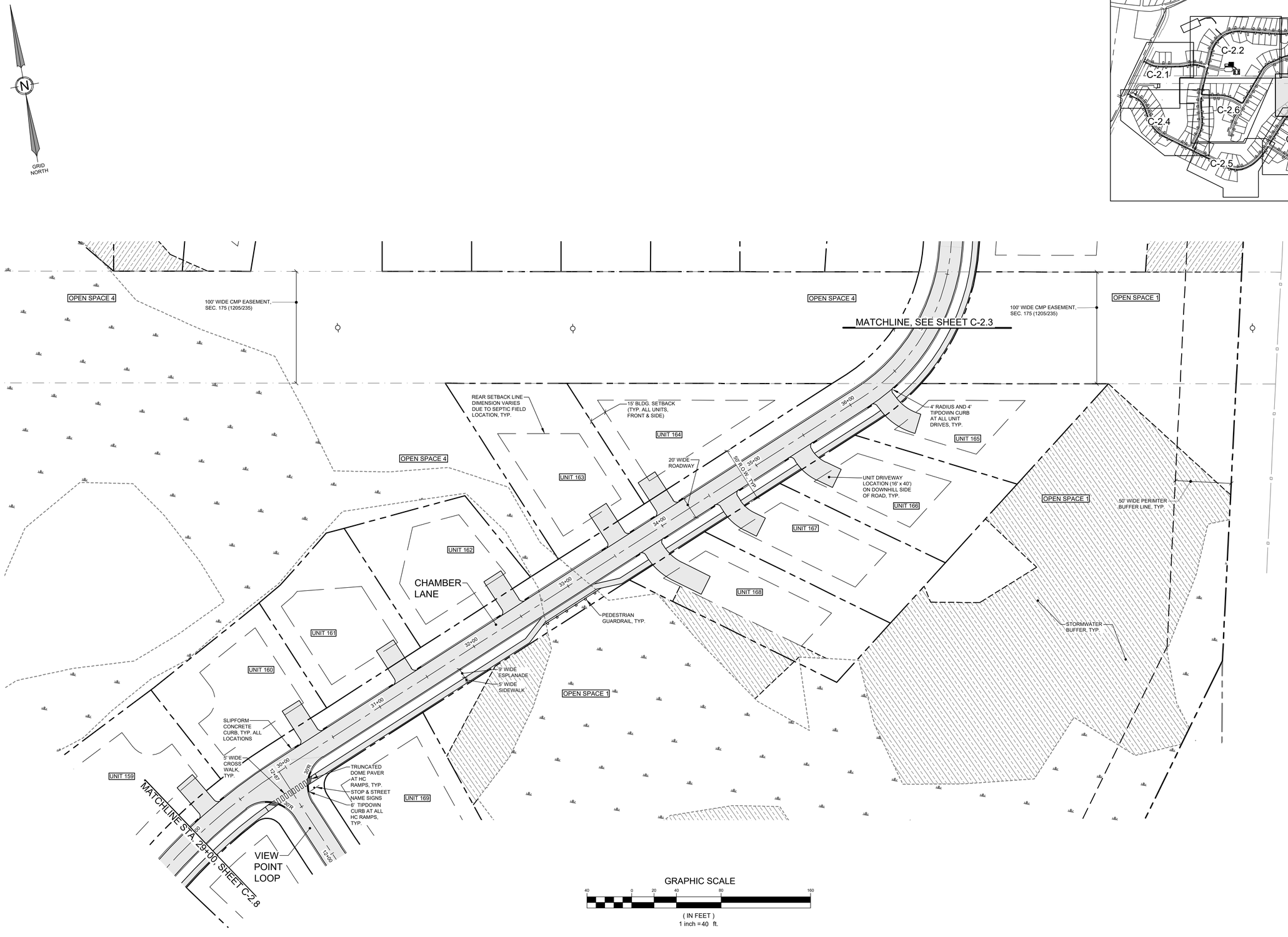

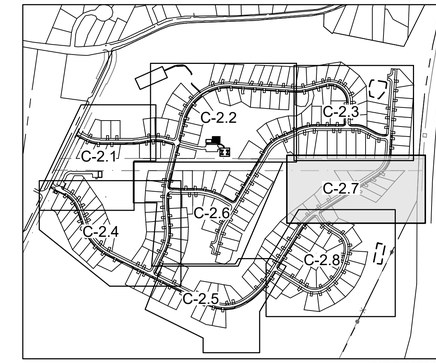

SITE KEY
SCALE: 1"=600'

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

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TERRADYN CONSULTANTS, LLC
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565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE PLAN - 7

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-2.7

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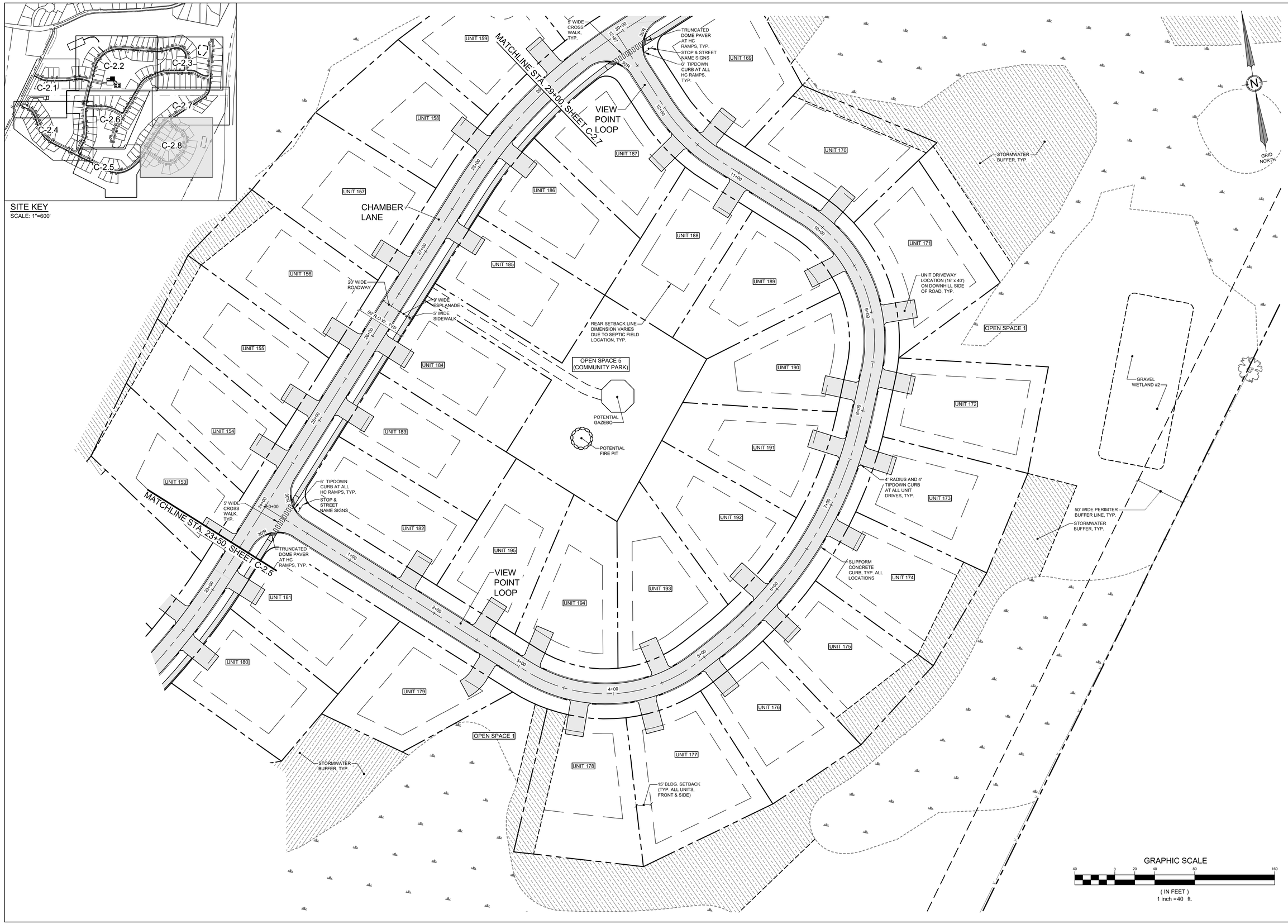

STATE OF MAINE
JEFFREY D. AMOS
No. 10167
LICENSED
PROFESSIONAL ENGINEER

DATE:	11-16-2022
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41 CAMPUS DRIVE
SUITE 301
NEW GLOUCESTER, ME 04260
565 CONGRESS STREET
SUITE 200
PORTLAND, ME 04102
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PERMIT DRAWING
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE PLAN - 8

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-2.8

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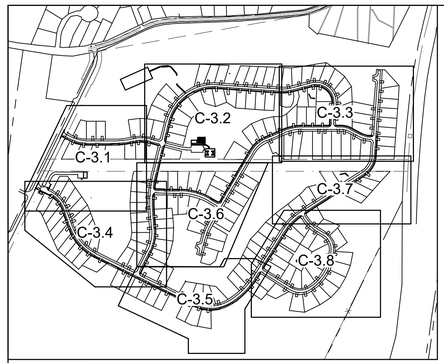
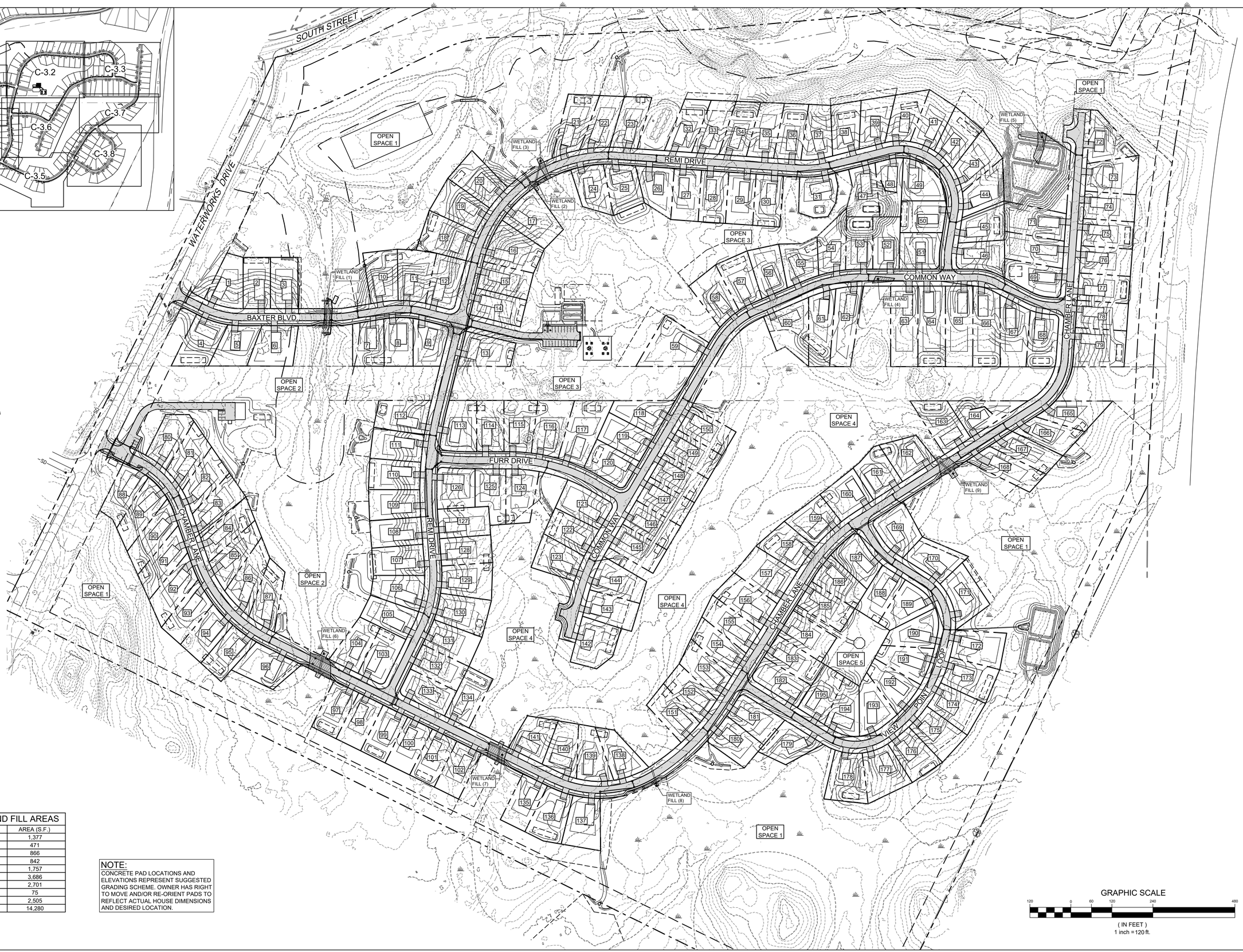


SITE KEY
SCALE: 1"=600'



WETLAND FILL AREAS	
FILL NO.	AREA (S.F.)
1	1,377
2	471
3	866
4	842
5	1,757
6	3,686
7	2,701
8	75
9	2,505
TOTAL	14,280

NOTE:
CONCRETE PAD LOCATIONS AND ELEVATIONS REPRESENT SUGGESTED GRADING SCHEME. OWNER HAS RIGHT TO MOVE AND/OR RE-ORIENT PADS TO REFLECT ACTUAL HOUSE DIMENSIONS AND DESIRED LOCATION.

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

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565 CONGRESS STREET
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
OVERALL GRADING & DRAINAGE PLAN

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 120'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-3.0

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HOUSEKEEPING NOTES

1. SPILL PREVENTION. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM BEING DISCHARGED FROM MATERIALS ON SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.

2. GROUNDWATER PROTECTION. DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS.

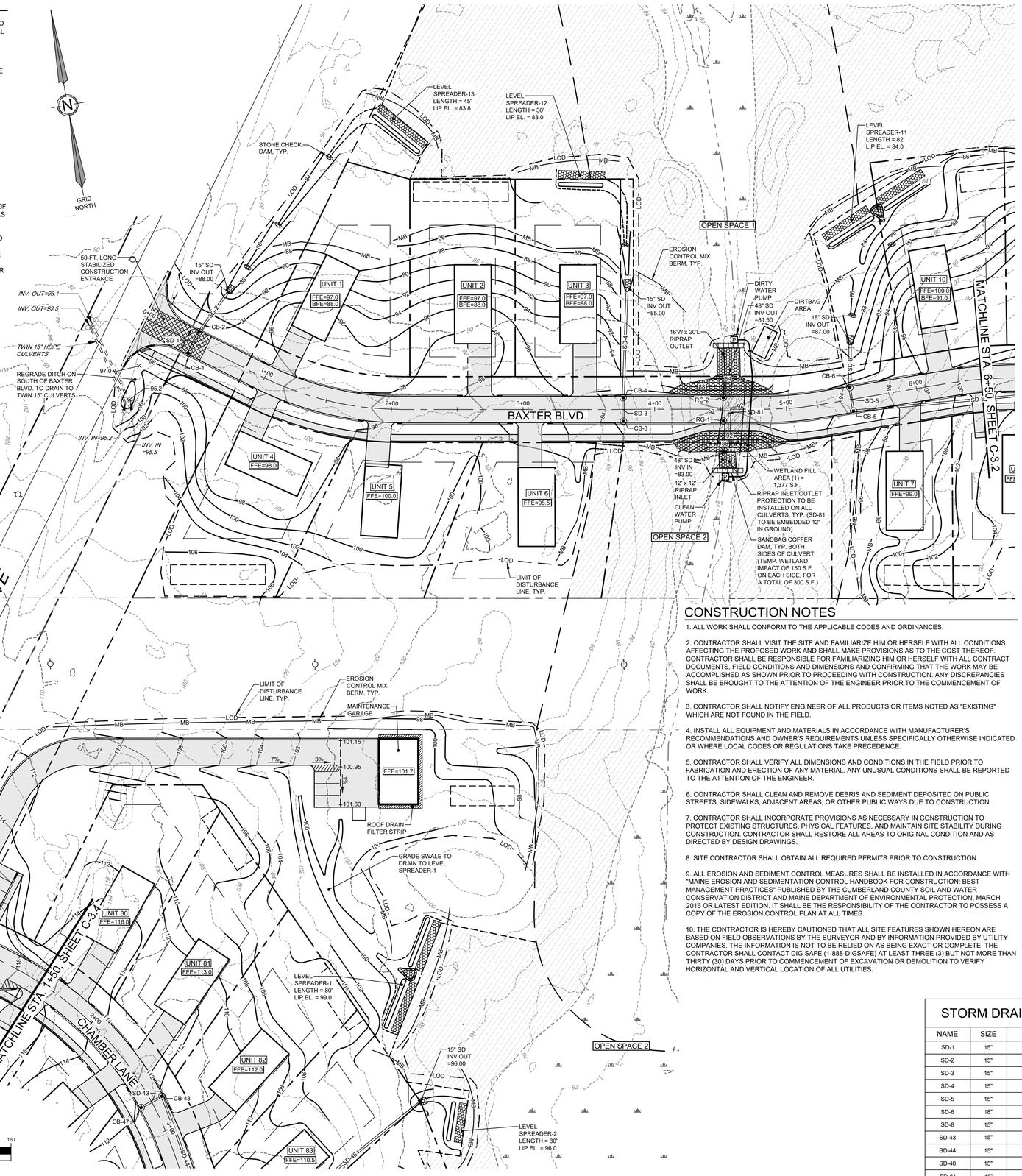
3. FUGITIVE SEDIMENT AND DUST. ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL.

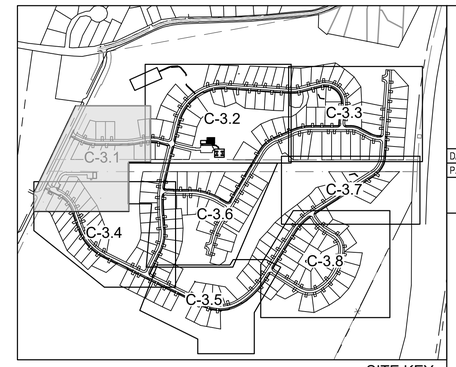
4. DEBRIS AND OTHER MATERIALS. LITTER, CONSTRUCTION DEBRIS, AND CHEMICALS EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

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

6. NON-STORMWATER DISCHARGES. IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES.

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





SITE KEY
SCALE: 1"=600'

CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM OR HERSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIM OR HERSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

3. CONTRACTOR SHALL NOTIFY ENGINEER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND IN THE FIELD.

4. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND OWNER'S REQUIREMENTS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.

6. CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND SEDIMENT DEPOSITED ON PUBLIC STREETS, SIDEWALKS, ADJACENT AREAS, OR OTHER PUBLIC WAYS DUE TO CONSTRUCTION.

7. CONTRACTOR SHALL INCORPORATE PROVISIONS AS NECESSARY IN CONSTRUCTION TO PROTECT EXISTING STRUCTURES, PHYSICAL FEATURES, AND MAINTAIN SITE STABILITY DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL AREAS TO ORIGINAL CONDITION AND AS DIRECTED BY DESIGN DRAWINGS.

8. SITE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION.

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

10. THE CONTRACTOR IS HEREBY CAUTIONED THAT ALL SITE FEATURES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS BY THE SURVEYOR AND BY INFORMATION PROVIDED BY UTILITY COMPANIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT DIG SAFE (1-888-DIGSAFE) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES.

CONSTRUCTION NOTES

11. CONTRACTOR SHALL BE AWARE THAT DIG SAFE ONLY NOTIFIES ITS "MEMBER" UTILITIES ABOUT THE DIG. WHEN NOTIFIED, DIG SAFE WILL ADVISE CONTRACTOR OF MEMBER UTILITIES IN THE AREA. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND CONTACTING NON-MEMBER UTILITIES DIRECTLY. NON-MEMBER UTILITIES MAY INCLUDE TOWN OR CITY WATER AND SEWER DISTRICTS AND SMALL LOCAL UTILITIES, AS WELL AS USG PUBLIC WORKS SYSTEMS.

12. CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF 23 MRSA 3360-A. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE APPROPRIATE UTILITIES TO OBTAIN AUTHORIZATION PRIOR TO RELOCATION OF ANY EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS. IF A UTILITY CONFLICT ARISES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER, THE MUNICIPALITY AND APPROPRIATE UTILITY COMPANY PRIOR TO PROCEEDING WITH ANY RELOCATION.

13. ALL PAVEMENT MARKINGS AND DIRECTIONAL SIGNAGE SHOWN ON THE PLAN SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS.

14. ALL PAVEMENT JOINTS SHALL BE SAWCUT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.

15. NO HOLES, TRENCHES OR STRUCTURES SHALL BE LEFT OPEN OVERNIGHT IN ANY EXCAVATION ACCESSIBLE TO THE PUBLIC OR IN PUBLIC RIGHTS-OF-WAY.

16. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL REQUIRE A M.D.O.T. PERMIT AS WELL AS PERMITS FROM THE TOWN AS APPLICABLE.

17. THE PROPOSED LIMITS OF CLEARING SHOWN HEREON ARE APPROXIMATE BASED UPON THE PROPOSED LIMITS OF SITE GRADING. THE APPLICANT RESERVES THE RIGHT TO PERFORM NORMAL FOREST MANAGEMENT ACTIVITIES OUTSIDE OF THE CLEARING LIMIT AS SHOWN. TREE REMOVAL OUTSIDE OF THE LIMITS OF CLEARING MAY BE NECESSARY TO REMOVE DEAD OR DYING TREES OR TREE LIMBS. THIS REMOVAL IS DUE TO POTENTIAL SAFETY HAZARDS AND TO PROMOTE PROPER FOREST GROWTH.

18. IMMEDIATELY UPON COMPLETION OF CUTS/FILLS, THE CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH EROSION CONTROL NOTES AND AS SPECIFIED ON PLANS.

19. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR THE REMOVAL, REPLACEMENT AND RECTIFICATION OF ALL DAMAGED AND DEFECTIVE MATERIAL AND WORKMANSHIP IN CONNECTION WITH THE CONTRACT WORK. THE CONTRACTOR SHALL REPLACE OR REPAIR AS DIRECTED BY THE OWNER ALL SUCH DAMAGED OR DEFECTIVE MATERIALS WHICH APPEAR WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.

20. ALL WORK PERFORMED BY THE GENERAL CONTRACTOR AND/OR TRADE SUBCONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF LOCAL, STATE OR FEDERAL LAWS, AS WELL AS ANY OTHER GOVERNING REQUIREMENTS, WHETHER OR NOT SPECIFIED ON THE DRAWINGS.

21. WHERE THE TERMS "APPROVED EQUAL", "OTHER APPROVED", "EQUAL TO", "ACCEPTABLE" OR OTHER GENERAL QUALIFYING TERMS ARE USED IN THESE NOTES, IT SHALL BE UNDERSTOOD THAT REFERENCE IS MADE TO THE RULING AND JUDGMENT OF TERRADYN CONSULTANTS, LLC.

22. THE GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION FOR THE WORK UNTIL TURNED OVER TO THE OWNER.

23. THE GENERAL CONTRACTOR SHALL MAINTAIN A CURRENT AND COMPLETE SET OF CONSTRUCTION DRAWINGS ON SITE DURING ALL PHASES OF CONSTRUCTION FOR USE OF ALL TRADES.

24. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ANY CHANGES AND DEVIATION OF APPROVED PLANS NOT AUTHORIZED BY THE ARCHITECT/ENGINEER AND/OR CLIENT/OWNER.

25. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. ANY MODIFICATION TO SUIT FIELD DIMENSION AND CONDITION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY WORK.

26. BEFORE THE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS, REPAIR OR REPLACE PRIVATE OR PUBLIC PROPERTY WHICH MAY HAVE BEEN DAMAGED OR DESTROYED DURING CONSTRUCTION, CLEAN THE AREAS WITHIN AND ADJACENT TO THE PROJECT WHICH HAVE BEEN OBSTRUCTED BY HIS/HER OPERATIONS, AND LEAVE THE PROJECT AREA NEAT AND PRESENTABLE.

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-1	15"	14'	1.43%
SD-2	15"	36'	1.72%
SD-3	15"	14'	1.43%
SD-4	15"	82'	3.33%
SD-5	15"	14'	1.43%
SD-6	18"	32'	4.60%
SD-8	15"	150'	7.09%
SD-43	15"	14'	1.43%
SD-44	15"	129'	1.47%
SD-48	15"	190'	4.20%
SD-81	48"	59'	2.53%
SD-109	15"	60'	3.32%

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-1	94.07		88.82 (SD-1)	48"
CB-2	94.07	88.62 (SD-1)	88.62 (SD-2)	48"
CB-3	93.18		87.93 (SD-3)	48"
CB-4	93.18	87.73 (SD-3)	87.73 (SD-4)	48"
CB-5	94.09	88.88 (SD-8)	88.68 (SD-5)	48"
CB-6	94.19	88.48 (SD-5)	88.48 (SD-6)	48"
CB-47	111.31		106.06 (SD-43)	48"
CB-48	111.31	105.86 (SD-43)	105.86 (SD-44)	48"
RG-1	91.72			48"
RG-2	91.72			48"

STATE OF MAINE JEFFREY D. AMOS No. 10167 LICENSED PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting
41 CAMPUS DRIVE SUITE 201 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
GRADING AND DRAINAGE PLAN - 1

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-3.1

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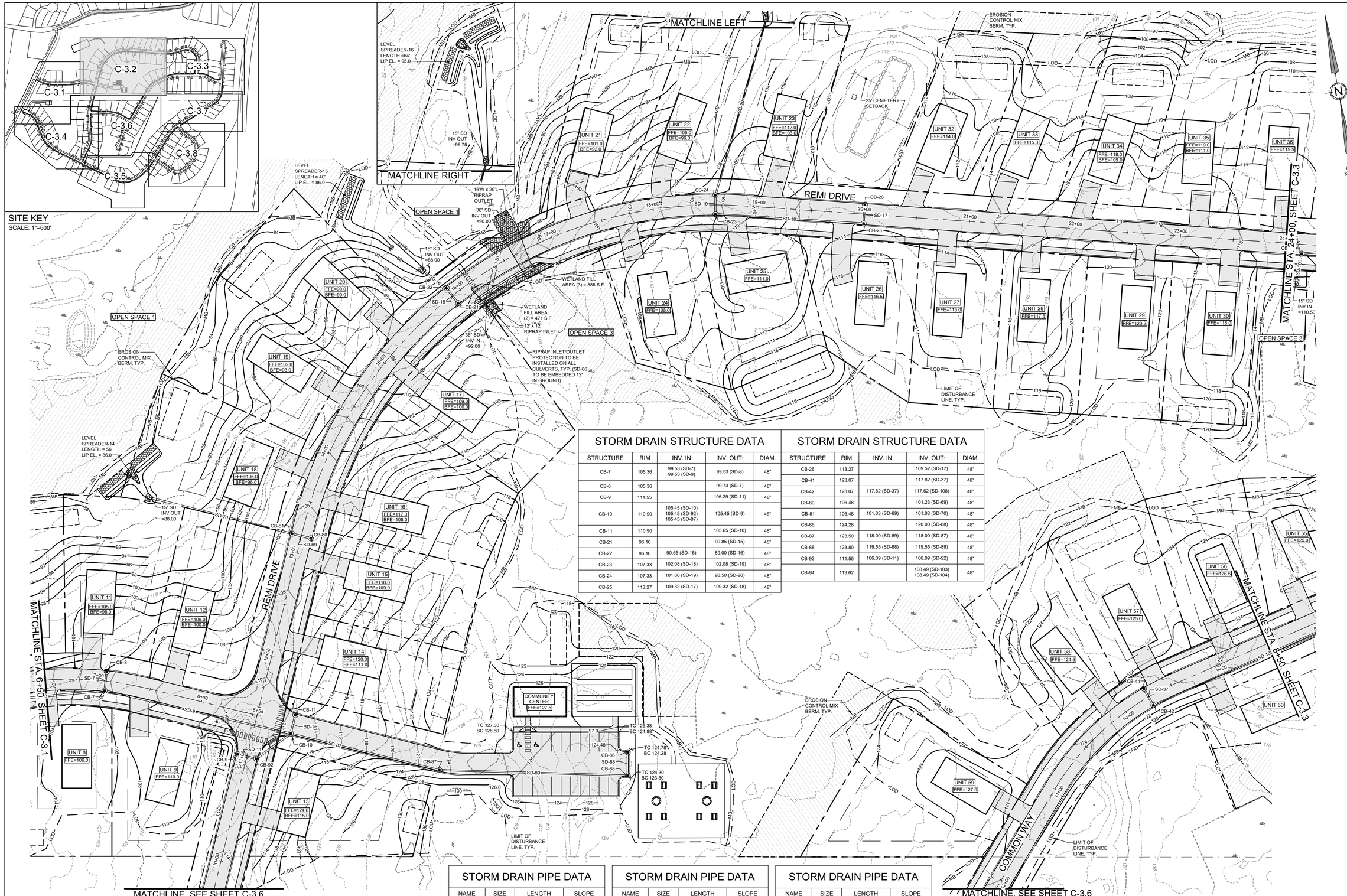

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-7	105.36	99.53 (SD-7) 99.53 (SD-9)	99.53 (SD-8)	48"
CB-8	105.36		99.73 (SD-7)	48"
CB-9	111.55		106.29 (SD-11)	48"
CB-10	110.90	105.45 (SD-10) 105.45 (SD-92) 105.45 (SD-87)	105.45 (SD-9)	48"
CB-11	110.90		105.65 (SD-10)	48"
CB-21	96.10		90.85 (SD-15)	48"
CB-22	96.10	90.65 (SD-15)	89.00 (SD-16)	48"
CB-23	107.33	102.08 (SD-18)	102.08 (SD-19)	48"
CB-24	107.33	101.88 (SD-19)	98.50 (SD-20)	48"
CB-25	113.27	109.32 (SD-17)	109.32 (SD-18)	48"

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-26	113.27		109.52 (SD-17)	48"
CB-41	123.07		117.82 (SD-37)	48"
CB-42	123.07	117.62 (SD-37)	117.62 (SD-108)	48"
CB-80	106.48		101.23 (SD-69)	48"
CB-81	106.48	101.03 (SD-69)	101.03 (SD-70)	48"
CB-86	124.28		120.00 (SD-88)	48"
CB-87	123.50	118.00 (SD-89)	118.00 (SD-87)	48"
CB-88	123.80	119.55 (SD-88)	119.55 (SD-89)	48"
CB-92	111.55	106.09 (SD-11)	106.09 (SD-92)	48"
CB-94	113.62		108.49 (SD-103) 108.49 (SD-104)	48"

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-7	15"	14'	1.43%
SD-8	15"	150'	7.09%
SD-9	15"	177'	3.35%
SD-10	15"	14'	1.43%
SD-11	15"	14'	1.43%
SD-15	15"	14'	1.42%
SD-16	15"	25'	4.06%

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-17	15"	14'	1.43%
SD-18	15"	136'	5.31%
SD-19	15"	14'	1.43%
SD-20	15"	173'	1.01%
SD-37	15"	14'	1.43%
SD-69	15"	14'	1.43%
SD-70	15"	136'	9.60%

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-86	36"	77'	2.59%
SD-87	15"	141'	8.91%
SD-88	15"	18'	2.50%
SD-89	15"	174'	0.89%
SD-92	15"	36'	1.75%
SD-103	15"	25'	8.15%

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE JEFFREY D. AMOS No. 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE SUITE 301 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
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Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
GRADING AND DRAINAGE PLAN - 2

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-3.2

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STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-27	111.97	108.02 (SD-21) 108.02 (SD-104) 108.02 (SD-105)	108.02 (SD-22)	48"
CB-28	111.97		108.22 (SD-21)	48"
CB-29	111.22	106.92 (SD-22) 107.27 (SD-23)	106.92 (SD-24)	48"
CB-30	111.22		107.47 (SD-23)	48"
CB-31	107.63	103.68 (SD-24) 103.68 (SD-25)	103.68 (SD-26)	48"
CB-32	107.63		103.88 (SD-25)	48"
CB-33	104.68	99.43 (SD-26)	99.18 (SD-27)	48"
CB-34	104.68	98.98 (SD-27)	99.13 (SD-90)	48"
CB-35	99.13	93.91 (SD-32) 93.91 (SD-66)	93.66 (SD-33)	48"
CB-36	99.13	93.46 (SD-33)	93.46 (SD-34)	48"
CB-37	109.18	102.89 (SD-31) 102.89 (SD-36)	102.89 (SD-32)	48"
CB-38	109.18		103.09 (SD-31)	48"
CB-39	118.92	113.14 (SD-35) 113.34 (SD-107)	113.14 (SD-36)	48"
CB-40	118.92		113.34 (SD-35)	48"
CB-71	102.18	95.04 (SD-68) 95.00 (SD-99)	95.04 (SD-66)	48"
CB-72	101.00	95.55 (SD-67)	95.55 (SD-68)	48"
CB-73	101.00		95.75 (SD-67)	48"
CB-89	102.18		95.20 (SD-99)	48"
CB-94	113.62		108.49 (SD-103) 108.49 (SD-104)	48"
CB-96	93.86		88.61 (SD-46)	48"
CB-97	93.86	88.41 (SD-46)	88.41 (SD-47)	48"
DMH-5	124.58	115.24 (SD-108)	115.24 (SD-107)	48"

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-21	15"	14'	1.43%
SD-22	15"	215'	0.51%
SD-23	15"	14'	1.43%
SD-24	15"	110'	2.93%
SD-25	15"	14'	1.43%
SD-26	15"	151'	2.81%
SD-27	18"	14'	1.43%
SD-31	15"	14'	1.43%
SD-32	15"	190'	4.73%
SD-33	18"	14'	1.43%
SD-34	18"	47'	0.97%
SD-35	15"	14'	1.43%
SD-36	15"	196'	5.23%
SD-46	15"	14'	1.43%
SD-47	15"	117'	10.58%
SD-66	15"	194'	0.58%
SD-67	15"	14'	1.43%
SD-68	15"	98'	0.52%
SD-90	18"	169'	7.78%
SD-99	15"	14'	1.43%
SD-103	15"	25'	8.15%
SD-104	15"	92'	0.51%
SD-105	15"	27'	15.76%
SD-107	15"	131'	1.45%
SD-108	15"	228'	1.04%

STATE OF MAINE
JEFFREY D. AMOS
PE 10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
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565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
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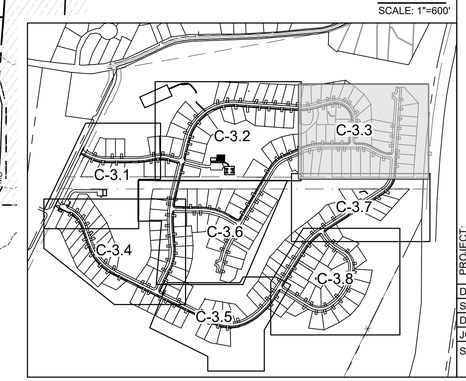
SITE KEY
SCALE: 1"=600'



PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
GRADING AND DRAINAGE PLAN - 3

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-3.3

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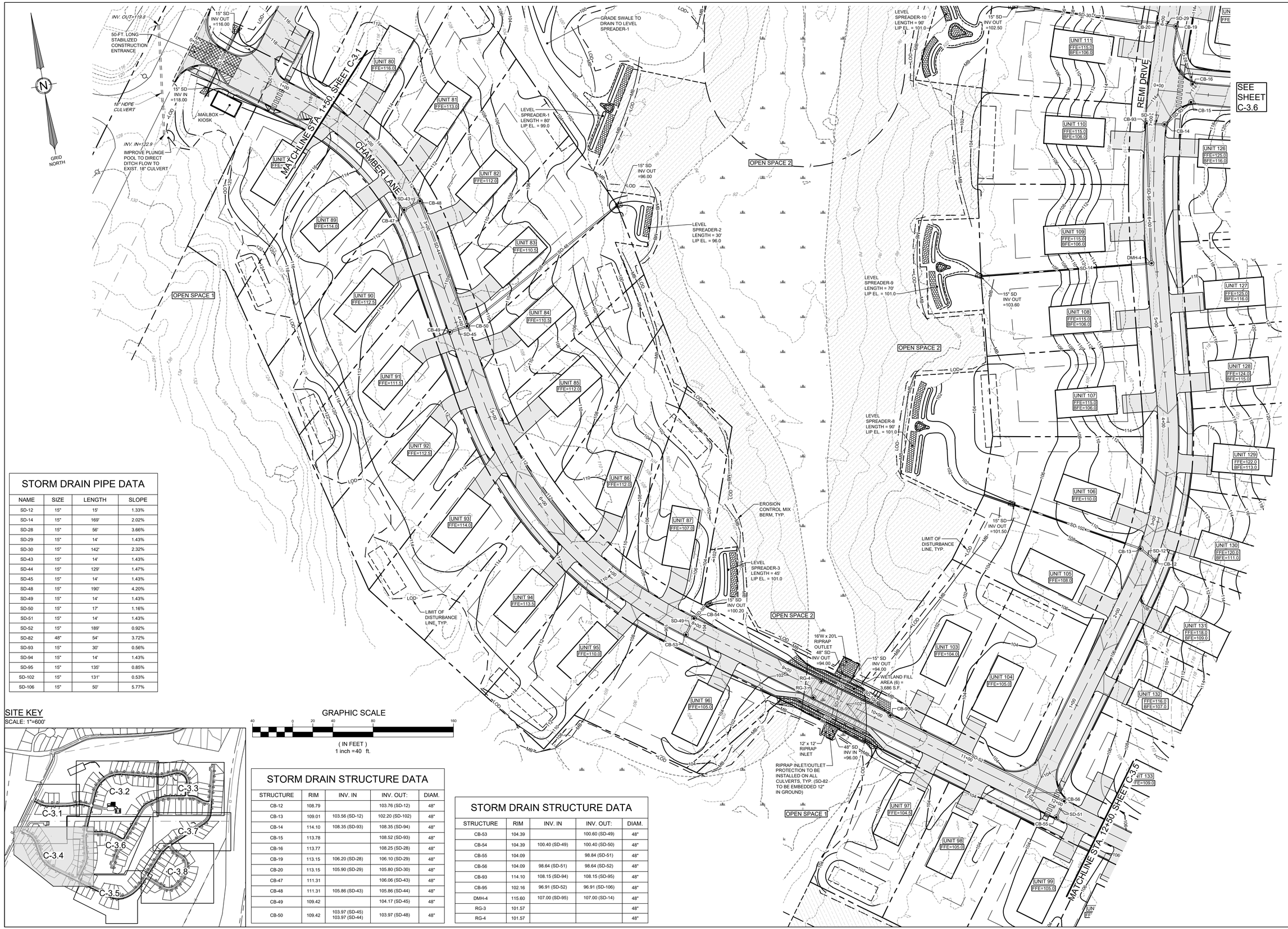

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-12	15"	15'	1.33%
SD-14	15"	169'	2.02%
SD-28	15"	56'	3.66%
SD-29	15"	14'	1.43%
SD-30	15"	142'	2.32%
SD-43	15"	14'	1.43%
SD-44	15"	129'	1.47%
SD-45	15"	14'	1.43%
SD-48	15"	190'	4.20%
SD-49	15"	14'	1.43%
SD-50	15"	17'	1.16%
SD-51	15"	14'	1.43%
SD-52	15"	189'	0.92%
SD-82	48"	54'	3.72%
SD-93	15"	30'	0.56%
SD-94	15"	14'	1.43%
SD-95	15"	135'	0.85%
SD-102	15"	131'	0.53%
SD-106	15"	50'	5.77%

SITE KEY
SCALE: 1"=600'

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-12	108.79		103.76 (SD-12)	48"
CB-13	109.01	103.56 (SD-12)	102.20 (SD-102)	48"
CB-14	114.10	108.35 (SD-93)	108.35 (SD-94)	48"
CB-15	113.78		108.52 (SD-93)	48"
CB-16	113.77		108.25 (SD-28)	48"
CB-19	113.15	106.20 (SD-28)	106.10 (SD-29)	48"
CB-20	113.15	105.90 (SD-29)	105.80 (SD-30)	48"
CB-47	111.31		106.06 (SD-43)	48"
CB-48	111.31	105.86 (SD-43)	105.86 (SD-44)	48"
CB-49	109.42		104.17 (SD-45)	48"
CB-50	109.42	103.97 (SD-45) 103.97 (SD-44)	103.97 (SD-48)	48"

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-53	104.39		100.60 (SD-49)	48"
CB-54	104.39	100.40 (SD-49)	100.40 (SD-50)	48"
CB-55	104.09		98.84 (SD-51)	48"
CB-56	104.09	98.64 (SD-51)	98.64 (SD-52)	48"
CB-93	114.10	108.15 (SD-94)	108.15 (SD-95)	48"
CB-95	102.16	96.91 (SD-52)	96.91 (SD-106)	48"
DMH-4	115.60	107.00 (SD-95)	107.00 (SD-14)	48"
RG-3	101.57			48"
RG-4	101.57			48"

STATE OF MAINE
JEFFREY D. AMOS
No. 10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
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www.terradynconsultants.com
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
GRADING AND DRAINAGE PLAN - 4

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-3.4

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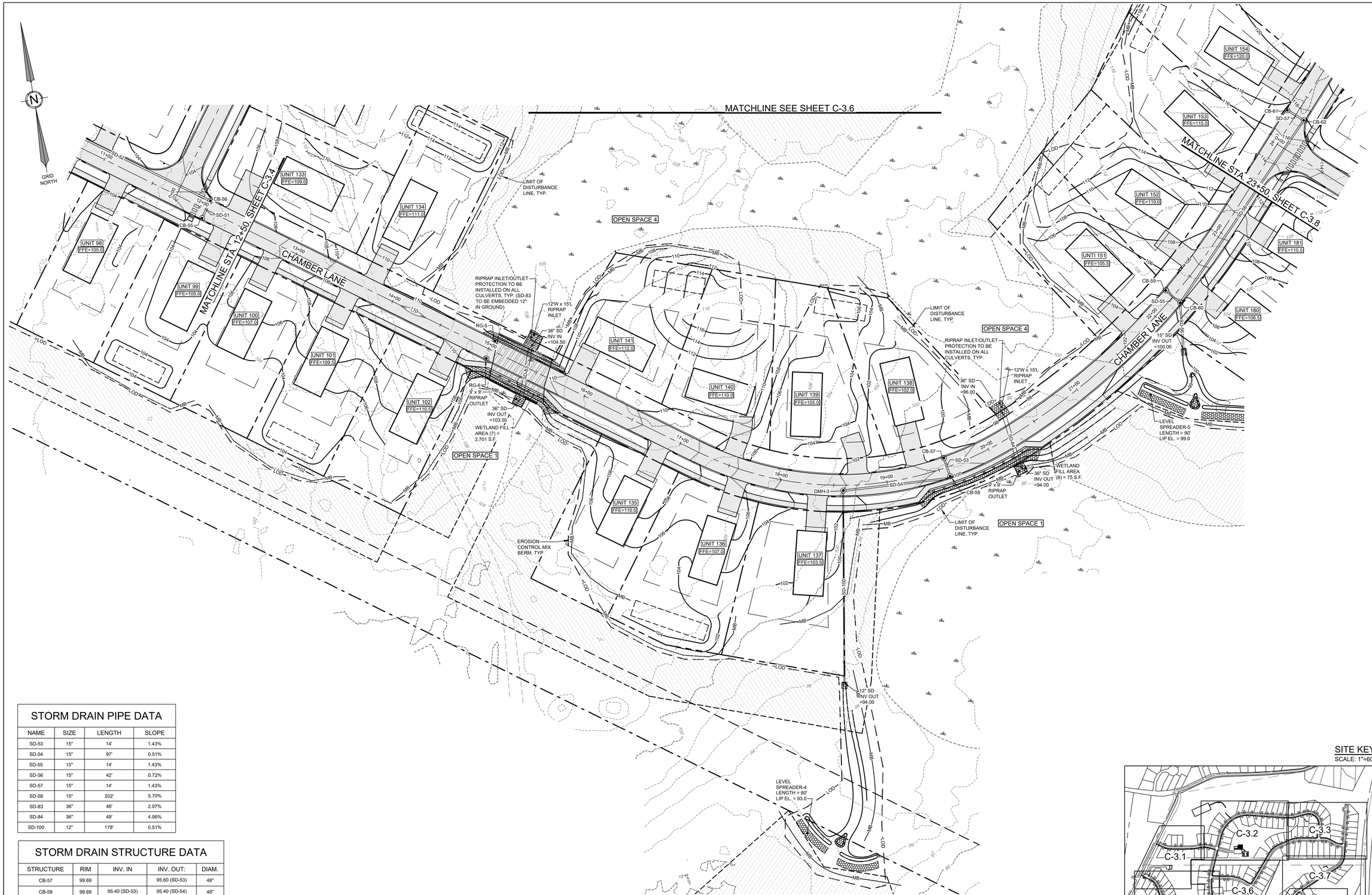


GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

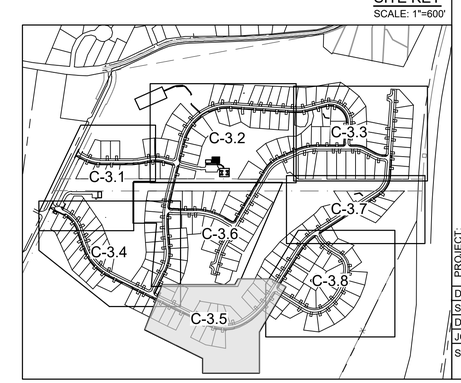
STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-53	15"	14'	1.43%
SD-54	15"	97'	0.51%
SD-55	15"	14'	1.43%
SD-56	15"	42'	0.72%
SD-57	15"	14'	1.43%
SD-58	15"	202'	5.70%
SD-83	36"	48'	2.07%
SD-84	36"	49'	4.06%
SD-100	12"	178'	0.51%

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-57	99.69		95.60 (SD-53)	48"
CB-58	99.69	95.40 (SD-53)	95.40 (SD-54)	48"
CB-59	103.75		100.50 (SD-55)	48"
CB-60	103.75	100.30 (SD-55) 100.30 (SD-58)	100.30 (SD-56)	48"
CB-61	117.27		112.02 (SD-57)	48"
CB-62	117.27	111.82 (SD-57)	111.82 (SD-58)	48"
DMH-3	102.00	94.90 (SD-54)	94.90 (SD-100)	48"
RG-5	109.01			48"
RG-6	109.01			48"

SITE KEY
SCALE: 1"=600'



STATE OF MAINE JEFFREY D. AMOS No. 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE
SUITE 201
NEW GLOUCESTER, ME 04260
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
555 CONGRESS STREET
SUITE 200
PORTLAND, ME 04102
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
GRADING AND DRAINAGE PLAN - 5

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-3.5

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STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-12	15"	15'	1.33%
SD-14	15"	169'	2.02%
SD-28	15"	56'	3.66%
SD-29	15"	14'	1.43%
SD-30	15"	142'	2.32%
SD-39	15"	14'	1.43%
SD-40	15"	23'	0.88%
SD-41	15"	14'	1.43%
SD-42	15"	35'	0.86%
SD-91	15"	14'	1.43%

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-12	108.79		103.76 (SD-12)	48"
CB-13	109.01	103.56 (SD-12)	102.20 (SD-102)	48"
CB-14	114.10	108.35 (SD-93)	108.35 (SD-94)	48"
CB-15	113.78		108.52 (SD-93)	48"
CB-16	113.77		108.25 (SD-28)	48"
CB-19	113.15	106.20 (SD-28)	106.10 (SD-29)	48"
CB-20	113.15	105.90 (SD-29)	105.80 (SD-30)	48"
CB-43	128.42		124.40 (SD-39)	48"
CB-44	128.42	124.20 (SD-39)	124.20 (SD-40)	48"
CB-45	125.39		122.00 (SD-41)	48"
CB-46	125.39	121.80 (SD-41)	121.80 (SD-42)	48"
CB-90	128.76	124.81 (SD-91)	124.81 (SD-101)	48"
CB-91	128.76		125.01 (SD-91)	48"
CB-93	114.10	108.15 (SD-94)	108.15 (SD-95)	48"
DMH-4	115.60	107.00 (SD-14)	107.00 (SD-14)	48"

SITE KEY
SCALE: 1"=600'

STATE OF MAINE JEFFREY D. AMOS No. 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
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TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE SUITE 301 NEW GLOUCESTER, ME 04260
555 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
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PERMIT DRAWING
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
GRADING AND DRAINAGE PLAN - 6

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-3.6

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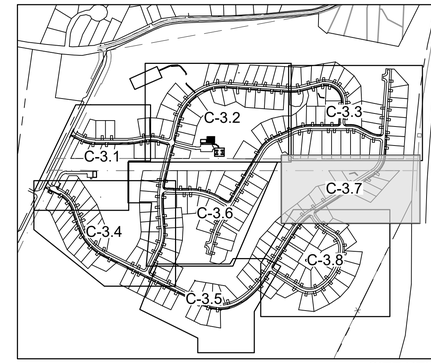
STORM DRAIN STRUCTURE DATA

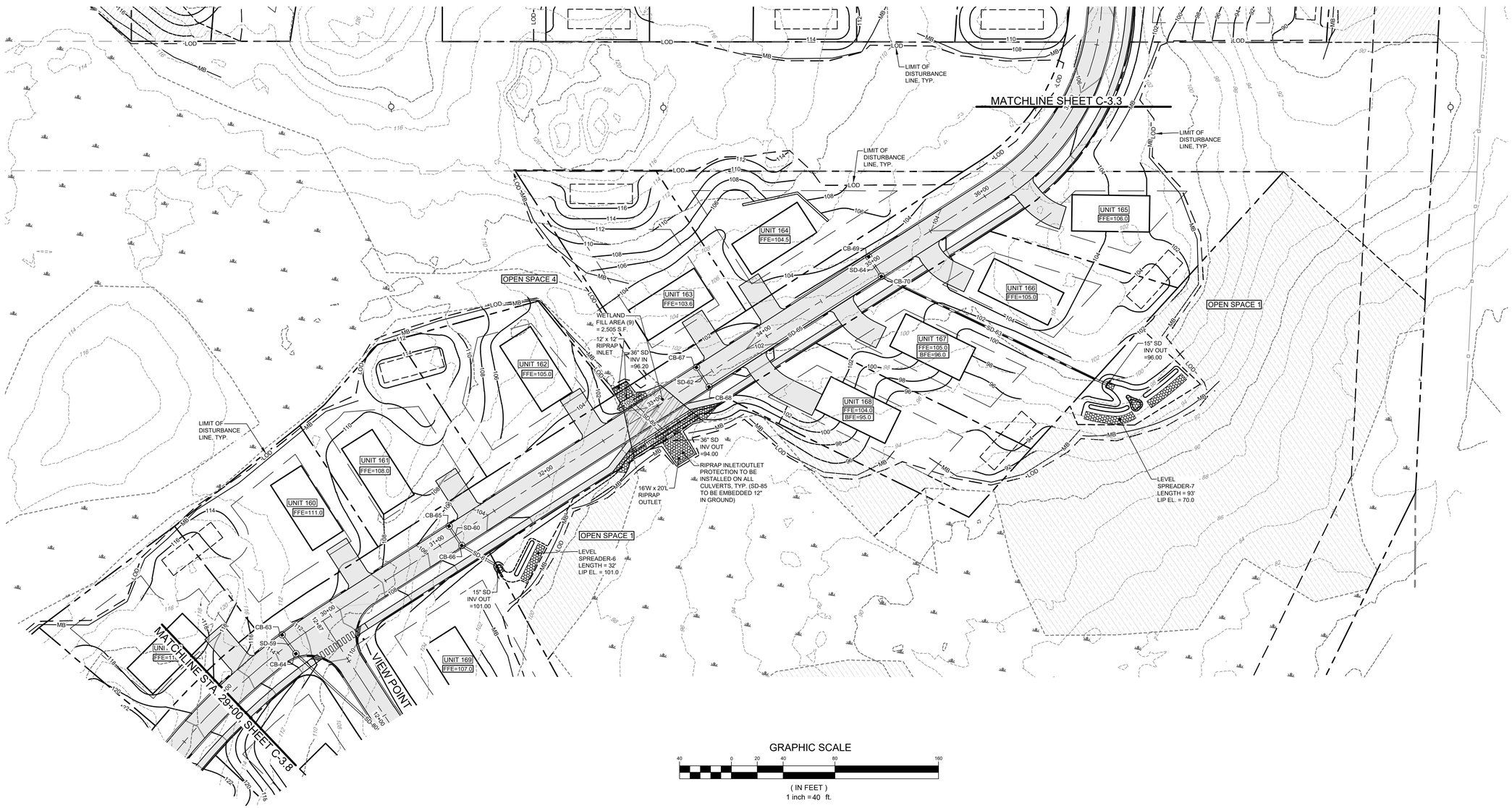
STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-63	112.92		107.67 (SD-59)	48"
CB-64	112.92	107.47 (SD-59)	107.47 (SD-80)	48"
CB-65	104.67		101.40 (SD-60)	48"
CB-66	104.66	101.20 (SD-60)	101.20 (SD-61)	48"
CB-67	101.59		97.96 (SD-62)	48"
CB-68	101.59	97.76 (SD-62)	97.76 (SD-65)	48"
CB-69	103.08		97.17 (SD-64)	48"
CB-70	103.08	96.97 (SD-64) 96.97 (SD-65)	96.97 (SD-63)	48"

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-59	15"	14'	1.43%
SD-60	15"	14'	1.44%
SD-61	15"	30'	0.66%
SD-62	15"	14'	1.43%
SD-63	15"	192'	0.51%
SD-64	15"	14'	1.43%
SD-65	15"	154'	0.51%
SD-80	15"	154'	5.30%
SD-85	36"	48'	4.63%



SITE KEY
SCALE: 1"=600'



GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE
JEFFREY D. AMOS
PE 10167
LICENSED
PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

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TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE
SUITE 301
NEW GLOUCESTER, ME 04260
565 CONGRESS STREET
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
GRADING AND DRAINAGE PLAN - 7

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-3.7

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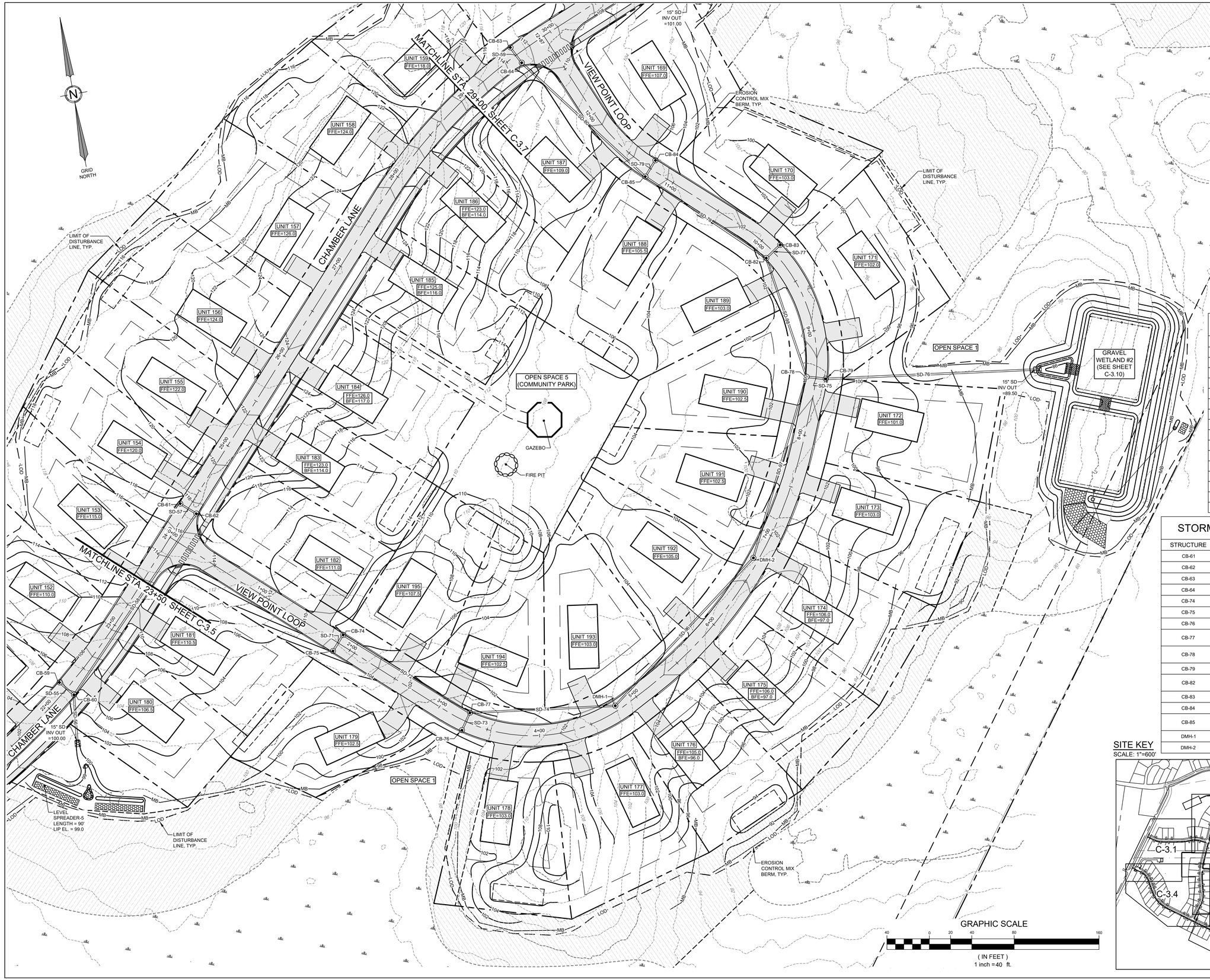


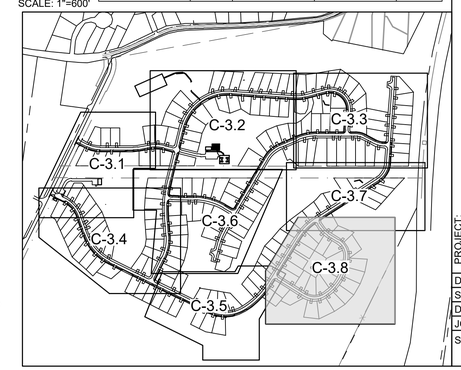
STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-57	15"	14'	1.43%
SD-58	15"	202'	5.70%
SD-59	15"	14'	1.43%
SD-71	15"	14'	1.43%
SD-72	15"	136'	4.98%
SD-73	15"	14'	1.43%
SD-74	15"	133'	0.66%
SD-75	15"	14'	1.43%
SD-76	15"	195'	1.02%
SD-77	15"	14'	1.43%
SD-78	15"	134'	2.64%
SD-79	15"	14'	1.43%
SD-80	15"	154'	5.30%
SD-96	15"	187'	0.54%
SD-97	15"	174'	0.75%
SD-98	15"	114'	3.55%

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-61	117.27		112.02 (SD-57)	48"
CB-62	117.27	111.82 (SD-57)	111.82 (SD-58)	48"
CB-63	112.92		107.67 (SD-59)	48"
CB-64	112.92	107.47 (SD-59)	107.47 (SD-80)	48"
CB-74	107.12	101.67 (SD-71)	101.67 (SD-72)	48"
CB-75	107.12		101.87 (SD-71)	48"
CB-76	100.34		95.08 (SD-73)	48"
CB-77	100.44	94.88 (SD-73) 94.88 (SD-72)	94.88 (SD-74)	48"
CB-78	99.75	91.70 (SD-97) 91.70 (SD-98)	91.70 (SD-75)	48"
CB-79	99.75	91.50 (SD-75)	91.50 (SD-76)	48"
CB-82	101.31	95.76 (SD-77) 95.76 (SD-78)	95.76 (SD-98)	48"
CB-83	101.21		95.96 (SD-77)	48"
CB-84	104.73		99.48 (SD-79)	48"
CB-85	104.73	99.28 (SD-79) 99.28 (SD-80)	99.28 (SD-78)	48"
DMH-1	102.94	94.00 (SD-74)	94.00 (SD-96)	48"
DMH-2	103.12	93.00 (SD-96)	93.00 (SD-97)	48"

SITE KEY
SCALE: 1"=600'



STATE OF MAINE JEFFREY D. AMOS No. 10167 LICENSED PROFESSIONAL ENGINEER

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SUITE 307
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
GRADING AND DRAINAGE PLAN - 8

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-3.8

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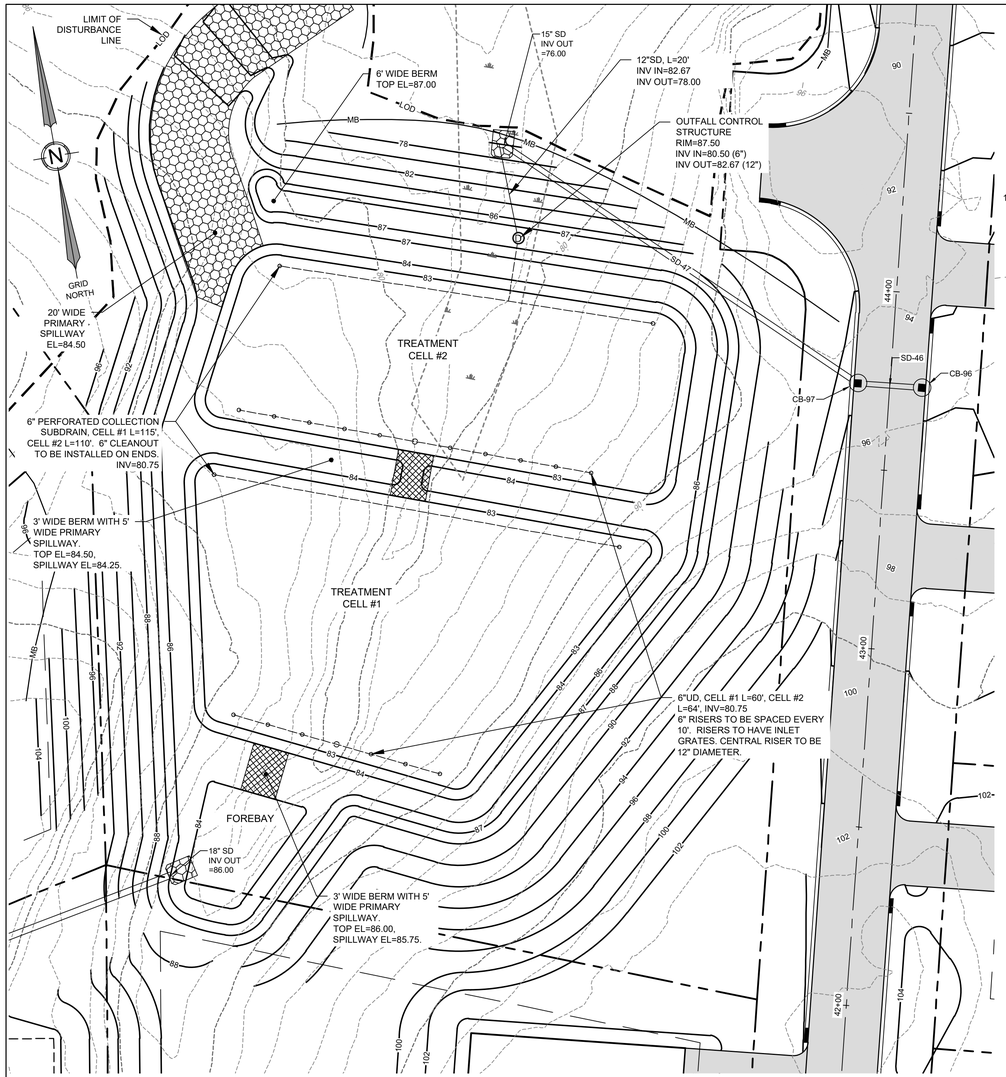
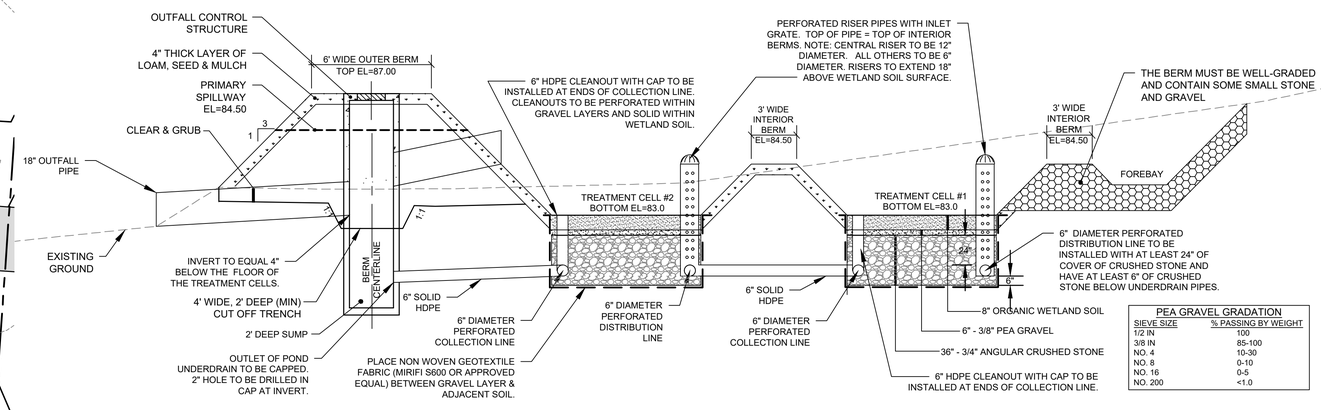


GRAPHIC SCALE

20 0 10 20 40 80

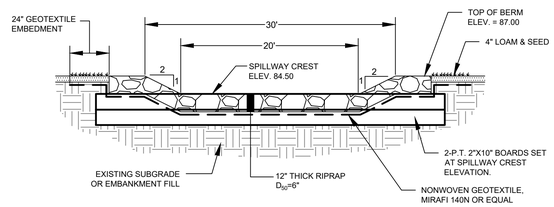
(IN FEET)
1 inch =20 ft.



CROSS SECTION VIEW - GRAVEL WETLAND

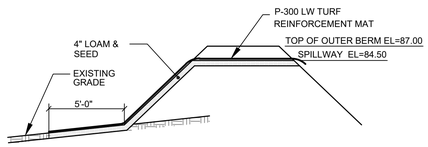
NOT TO SCALE

PEA GRAVEL GRADATION	
SIEVE SIZE	% PASSING BY WEIGHT
1/2 IN	100
3/8 IN	85-100
NO. 4	10-30
NO. 8	0-10
NO. 16	0-5
NO. 200	<1.0



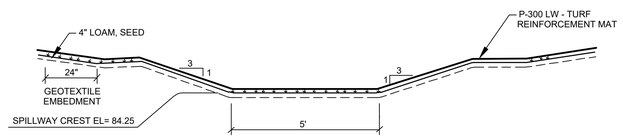
PRIMARY SPILLWAY CROSS SECTION

NOT TO SCALE



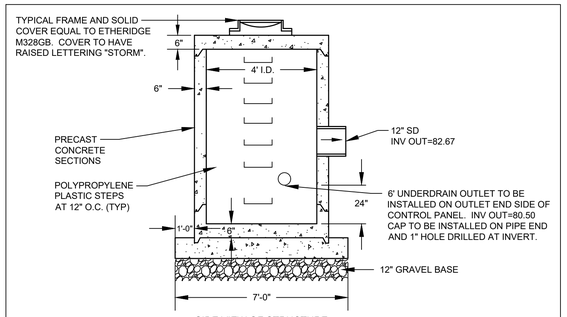
SPILLWAY EMBANKMENT SECTION

NOT TO SCALE

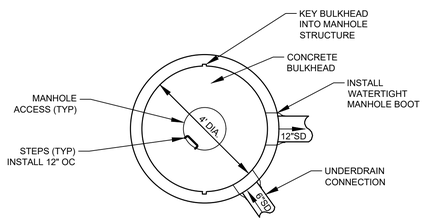


INTERNAL BERM SPILLWAY CROSS-SECTIONS

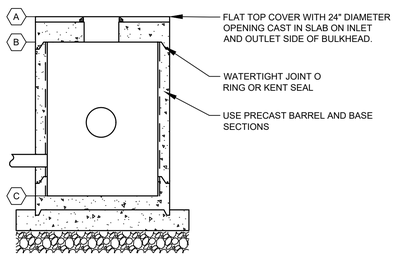
NOT TO SCALE



SIDE VIEW OF STRUCTURE



TOP VIEW OF STRUCTURE



SIDE VIEW

NOTES:
1. SUBMIT SHOP DRAWINGS FOR OWNER/ ENGINEER APPROVAL.
2. STRUCTURE SHALL BE DESIGNED FOR H-20 LOADING.
3. CASTINGS SHALL PROVIDE FOR A 24" CLEAR OPENING.

SCHEDULE A OUTLET CONTROL STRUCTURE	
ITEM DESCRIPTION	DIMENSION / ELEVATION
A. TOP OF STRUCTURE	87.50
B. UNDERSIDE OF SLAB	87.00
C. BOTTOM OF STRUCTURE	78.50

OUTLET CONTROL STRUCTURE (OCS)

NOT TO SCALE

GRAVEL WETLAND INSTALLATION NOTES:

1. THE MINIMUM SPACING BETWEEN THE SUBSURFACE PERFORATED DISTRIBUTION LINE AND THE SUBSURFACE PERFORATED COLLECTION DRAIN AT EITHER END OF THE GRAVEL IN EACH TREATMENT CELL IS 15 FT.

2. THERE SHOULD BE A MINIMUM HORIZONTAL TRAVEL DISTANCE OF 15 FT WITHIN THE GRAVEL LAYER IN EACH CELL.

3. VERTICAL PERFORATED OR SLOTTED RISER PIPES DELIVER WATER FROM THE SURFACE DOWN TO THE SUBSURFACE, PERFORATED OR SLOTTED DISTRIBUTION LINES. THESE RISERS SHALL HAVE A MAXIMUM SPACING OF 10 FEET.

4. SLOTTED VERTICAL RISERS SHALL HAVE A MINIMUM DIAMETER OF 12" FOR THE CENTRAL RISER AND 6" FOR END RISERS. THE VERTICAL RISERS SHALL NOT BE CAPPED, BUT RATHER COVERED WITH AN INLET GRATE.

5. VERTICAL CLEANOUTS CONNECTED TO THE DISTRIBUTION AND COLLECTION SUBDRAINS, AT EACH END, SHALL BE PERFORATED OR SLOTTED ONLY WITHIN THE GRAVEL LAYER, AND SOLID WITHIN THE WETLAND SOIL AND STORAGE AREA ABOVE.

6. TREATMENT CELL FLOOR TO BE GRADED FLAT.

7. BERMS AND WEIRS SEPARATING THE FOREBAY AND TREATMENT CELLS SHOULD BE CONSTRUCTED WITH CLAY, OR NON-CONDUCTIVE SOILS, AND/OR A FINE GEOTEXTILE, OR SOME COMBINATION THEREOF, TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THESE EARTHEN DIVIDERS.

8. THE SYSTEM SHOULD BE PLANTED TO ACHIEVE A RIGOROUS ROOT MAT WITH GRASSES, FORBS, AND SHRUBS WITH OBLIGATE AND FACULTATIVE WETLAND SPECIES.

9. THE SUBAREA DRAINING TO A CREATED WETLAND MUST BE COMPLETELY STABLE BEFORE RUNOFF IS DIRECTED TO THE BASIN TO PREVENT SEDIMENTATION OF THE DRAINAGE LAYER; OR ALL RUNOFF SHOULD BE RE-DIRECTED UNTIL CONSTRUCTION IS FINALIZED. THE VEGETATION WITHIN THE STRUCTURE IS EQUALLY IMPORTANT AND MUST BE WELL ESTABLISHED BEFORE IT CAN ACCEPT ANY RUNOFF.

10. GRAVEL WETLAND STORMWATER AREA TO BE SEEDED WITH "NEW ENGLAND WETMIX" AS DISTRIBUTED BY NEW ENGLAND WETLAND PLANTS, INC., 820 WEST STREET, AMHERST, MA 01002, PHONE 413-548-8000, EMAIL INFO@NEWP.COM, OR APPROVED EQUIVALENT. APPLY AT A RATE OF 1 LB/2,500 SF.

11. THE SEEDS WILL NOT GERMINATE UNDER INUNDATED CONDITIONS. IF PLANTED DURING THE FALL MONTHS THE SEED MIX WILL GERMINATE THE FOLLOWING SPRING. DURING THE FIRST SEASON OF GROWTH SEVERAL SPECIES WILL PRODUCE SEEDS WHILE OTHER SPECIES WILL PRODUCE SEEDS AFTER THE SECOND GROWING SEASON. NOT ALL SPECIES WILL GROW IN ALL WETLAND SITUATIONS. THIS MIX IS COMPRISED OF THE WETLAND SPECIES MOST LIKELY TO GROW IN CREATED/RESTORED WETLANDS AND SHOULD PRODUCE MORE THAN 75% GROUND COVER IN TWO FULL GROWING SEASONS.

12. THE WETLAND SEEDS IN THIS MIX CAN BE SOWN BY HAND, WITH A HAND-HELD SPREADER, OR HYDRO-SEEDED ON LARGE OR HARD TO REACH SITES. LIGHTLY RAKE TO ENSURE GOOD SEED-TO-SOIL CONTACT. SEEDING CAN TAKE PLACE ON FROZEN SOIL, AS THE FREEZING AND THAWING WEATHER OF LATE FALL AND LATE WINTER WILL WORK THE SEED INTO THE SOIL. IF SPRING CONDITIONS ARE DRIER THAN USUAL, WATERING MAY BE REQUIRED. IF SOWING DURING THE SUMMER MONTHS, SUPPLEMENTAL WATERING WILL LIKELY BE REQUIRED UNTIL GERMINATION. A LIGHT MULCH OF CLEAN, WEED FREE STRAW IS RECOMMENDED.

13. THE POND CONSTRUCTION SHOULD BE ONLY CONSTRUCTED UNDER THE SUPERVISION OF THE DESIGN ENGINEER.

POND CONSTRUCTION NOTES:
1. CONTRACTOR SHALL REMOVE ALL TOPSOIL AND ORGANIC MATERIAL FROM EMBANKMENT AND POND CONSTRUCTION AREA.
2. SCARIFY SUBGRADE TO ESTABLISH INTERFACE FOR ALL FILLS.
3. CONSTRUCTION MATERIAL SHALL MEET M.D.O.T. SPEC 703.18
4. COMPACT IN 12" LIFTS TO 92% OF MAXIMUM DRY DENSITY.
5. INSTALL RIPRAP AND EROSION CONTROL MESH WHERE SPECIFIED.
6. LOAM, SEED & STABILIZE IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN & NOTES.

CONSTRUCTION INSPECTION NOTES:
INSPECTION BY A PROFESSIONAL ENGINEER WILL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT THE INSTALLATION OF EACH POND'S EMBANKMENT CONSTRUCTION, STORMWATER INLET, UNDERDRAINS, FILTER MATERIAL MAKEUP AND PLACEMENT, OUTLET CONTROL STRUCTURE, CLAY LINER (IF APPLICABLE), AND EMERGENCY SPILLWAY CONSTRUCTION FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE POND. AN INSPECTION OF THE UNDERDRAINED GRAVEL OUTLET SHALL ALSO BE PERFORMED ONE YEAR AFTER THE FINAL STABILIZATION OF THE POND.

ORGANIC WETLAND SOIL MIXTURE:
THE WETLAND SOIL SHOULD HAVE A LOW HYDRAULIC CONDUCTIVITY (0.1-0.01 FT/DAY). THIS SOIL CAN BE MANUFACTURED USING COMPOST, SAND AND FINE SOILS, INTO A BLEND WITH MORE THATN 15% ORGANIC MATTER. IT SHOULD CONTAIN MORE THAN 15% SILT (PASSING THE #200 SIEVE); BUT WITH A CLAY SIZE PORTION THAT IS LESS THAN 15%. DO NOT USE GEOTEXTILES BETWEEN THE HORIZONTAL LAYERS OF THIS SYSTEM AS THEY WILL CLOG DUE TO FINES AND MAY RESTRICT ROOT GROWTH.

WETLAND SOIL GRADATION	
SIEVE SIZE	% PASSING BY WEIGHT
1/2 IN	100
NO. 10	75-90
NO. 100	40-50
NO. 200	25-50

EMBANKMENT CONSTRUCTION:
1. CONSTRUCTION OF COMMON BORROW MATERIAL MEETING M.D.O.T. SPECIFICATION 703.
2. PLACE BORROW MATERIAL IN 12" LIFTS COMPACTED TO 95% OF MAXIMUM DRY DENSITY.
3. INSTALL RIPRAP AND EROSION CONTROL MESH WHERE SPECIFIED ON PLANS
4. LOAM, SEED, AND STABILIZE IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN.

STATE OF MAINE JEFFREY D. AMOS No. 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting
41 CAMPUS DRIVE SUITE 301 NEW GLOUCESTER, ME 04260
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
565 CONGRESS STREET SUITE 200 PORTLAND, ME 04102

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE: GRAVEL WETLAND - 1 PLAN

CLIENT: SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-3.9

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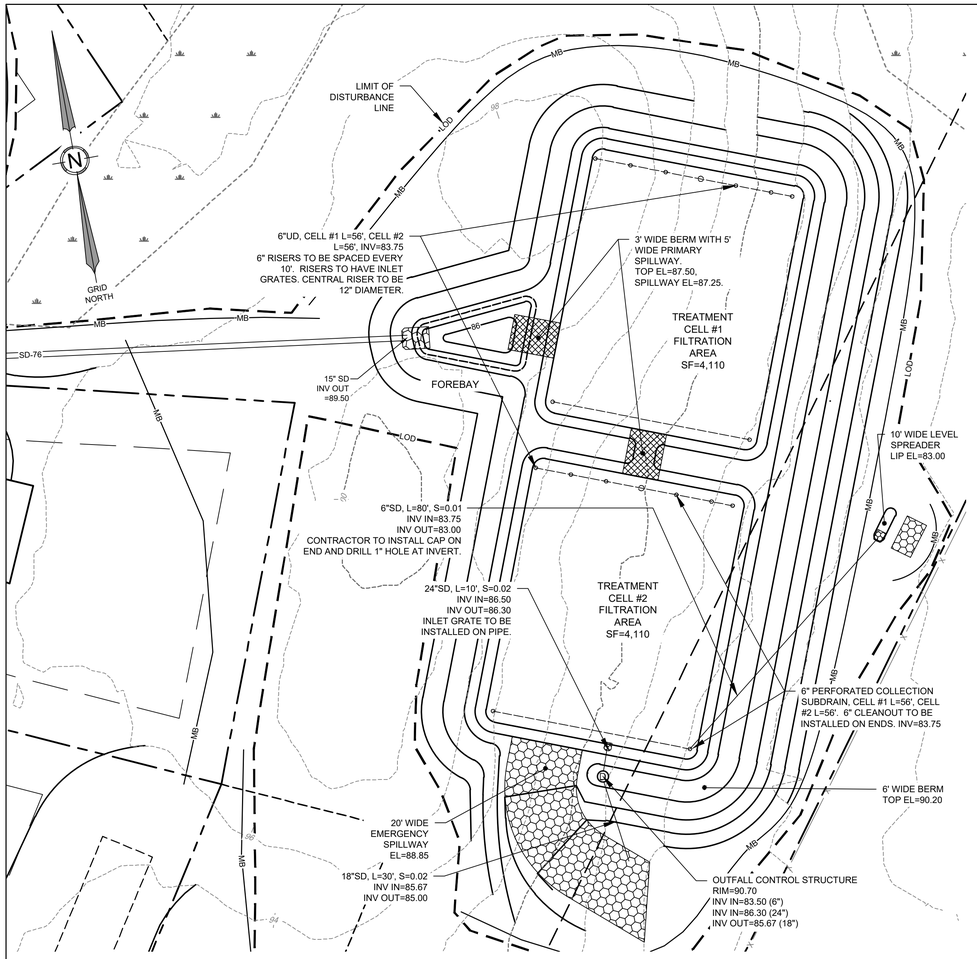

GRAPHIC SCALE

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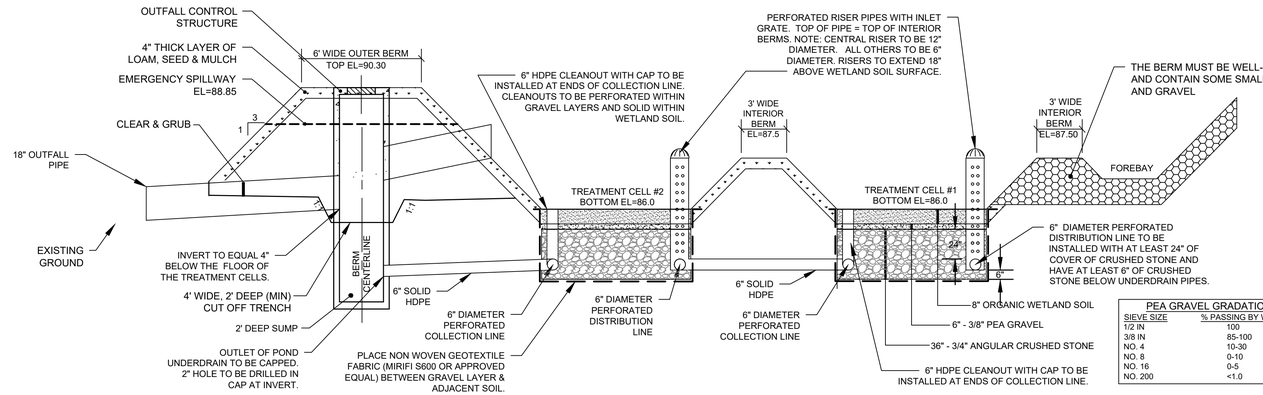
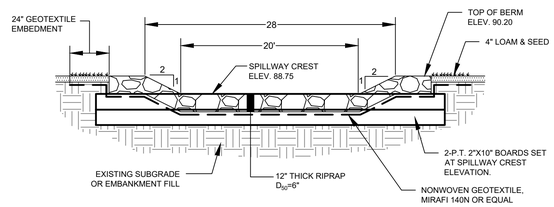
(IN FEET)
1 inch = 20 ft.



PEA GRAVEL GRADATION	
SIEVE SIZE	% PASSING BY WEIGHT
1/2 IN	100
3/8 IN	85-100
NO. 4	10-30
NO. 8	0-10
NO. 16	0-5
NO. 200	<1.0

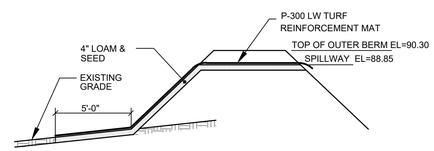
CROSS SECTION VIEW - GRAVEL WETLAND

NOT TO SCALE



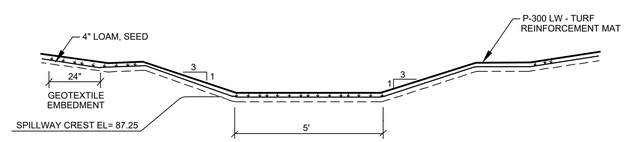
EMERGENCY SPILLWAY CROSS SECTION

NOT TO SCALE



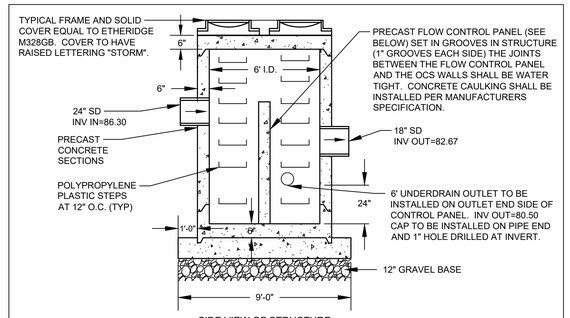
SPILLWAY EMBANKMENT SECTION

NOT TO SCALE

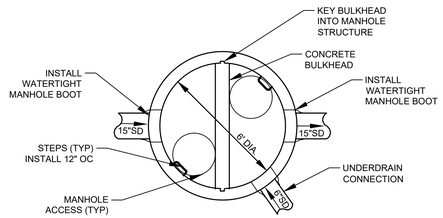


INTERNAL BERM SPILLWAY CROSS-SECTIONS

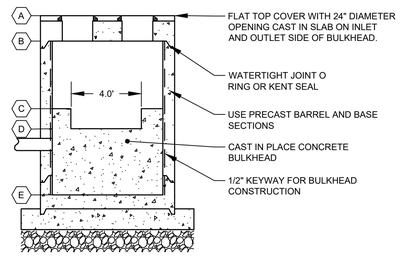
NOT TO SCALE



SIDE VIEW OF STRUCTURE



TOP VIEW OF STRUCTURE



SIDE VIEW & WEIR WALL

NOTES:
1. SUBMIT SHOP DRAWINGS FOR OWNER/ ENGINEER APPROVAL.
2. STRUCTURE SHALL BE DESIGNED FOR H-20 LOADING.
3. CASTINGS SHALL PROVIDE FOR A 24" CLEAR OPENING.

SCHEDULE A OUTLET CONTROL STRUCTURE	
ITEM DESCRIPTION	DIMENSION / ELEVATION
A. TOP OF STRUCTURE	90.70
B. UNDERSIDE OF SLAB	90.20
C. TOP OF CONCRETE BULKHEAD	88.75
D. BOTTOM OF WEIR SLOT	87.50
E. BOTTOM OF STRUCTURE	81.50

OUTLET CONTROL STRUCTURE (OCS)

NOT TO SCALE

GRAVEL WETLAND INSTALLATION NOTES:

1. THE MINIMUM SPACING BETWEEN THE SUBSURFACE PERFORATED DISTRIBUTION LINE AND THE SUBSURFACE PERFORATED COLLECTION DRAIN AT EITHER END OF THE GRAVEL IN EACH TREATMENT CELL IS 15 FT.

2. THERE SHOULD BE A MINIMUM HORIZONTAL TRAVEL DISTANCE OF 15 FT WITHIN THE GRAVEL LAYER IN EACH CELL.

3. VERTICAL PERFORATED OR SLOTTED RISER PIPES DELIVER WATER FROM THE SURFACE DOWN TO THE SUBSURFACE, PERFORATED OR SLOTTED DISTRIBUTION LINES. THESE RISERS SHALL HAVE A MAXIMUM SPACING OF 10 FEET.

4. SLOTTED VERTICAL RISERS SHALL HAVE A MINIMUM DIAMETER OF 12" FOR THE CENTRAL RISER AND 6" FOR END RISERS. THE VERTICAL RISERS SHALL NOT BE CAPPED, BUT RATHER COVERED WITH AN INLET GRATE.

5. VERTICAL CLEANOUTS CONNECTED TO THE DISTRIBUTION AND COLLECTION SUBDRAINS, AT EACH END, SHALL BE PERFORATED OR SLOTTED ONLY WITHIN THE GRAVEL LAYER, AND SOLID WITHIN THE WETLAND SOIL AND STORAGE AREA ABOVE.

6. TREATMENT CELL FLOOR TO BE GRADED FLAT.

7. BERMS AND WEIRS SEPARATING THE FOREBAY AND TREATMENT CELLS SHOULD BE CONSTRUCTED WITH CLAY, OR NON-CONDUCTIVE SOILS, AND/OR A FINE GEOTEXTILE, OR SOME COMBINATION THEREOF, TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THESE EARTHEN DIVIDERS.

8. THE SYSTEM SHOULD BE PLANTED TO ACHIEVE A RIGOROUS ROOT MAT WITH GRASSES, FORBS, AND SHRUBS WITH OBLIGATE AND FACULTATIVE WETLAND SPECIES.

9. THE SUBAREA DRAINING TO A CREATED WETLAND MUST BE COMPLETELY STABLE BEFORE RUNOFF IS DIRECTED TO THE BASIN TO PREVENT SEDIMENTATION OF THE DRAINAGE LAYER; OR ALL RUNOFF SHOULD BE RE-DIRECTED UNTIL CONSTRUCTION IS FINALIZED. THE VEGETATION WITHIN THE STRUCTURE IS EQUALLY IMPORTANT AND MUST BE WELL ESTABLISHED BEFORE IT CAN ACCEPT ANY RUNOFF.

10. GRAVEL WETLAND STORMWATER AREA TO BE SEEDED WITH "NEW ENGLAND WETMIX" AS DISTRIBUTED BY NEW ENGLAND WETLAND PLANTS, INC., 820 WEST STREET, AMHERST, MA 01002, PHONE 413-548-8000, EMAIL INFO@NEWP.COM, OR APPROVED EQUIVALENT. APPLY AT A RATE OF 1 LB/2,500 SF.

11. THE SEEDS WILL NOT GERMINATE UNDER INUNDATED CONDITIONS. IF PLANTED DURING THE FALL MONTHS THE SEED MIX WILL GERMINATE THE FOLLOWING SPRING. DURING THE FIRST SEASON OF GROWTH SEVERAL SPECIES WILL PRODUCE SEEDS WHILE OTHER SPECIES WILL PRODUCE SEEDS AFTER THE SECOND GROWING SEASON. NOT ALL SPECIES WILL GROW IN ALL WETLAND SITUATIONS. THIS MIX IS COMPRISED OF THE WETLAND SPECIES MOST LIKELY TO GROW IN CREATED/RESTORED WETLANDS AND SHOULD PRODUCE MORE THAN 75% GROUND COVER IN TWO FULL GROWING SEASONS.

12. THE WETLAND SEEDS IN THIS MIX CAN BE SOWN BY HAND, WITH A HAND-HELD SPREADER, OR HYDRO-SEEDED ON LARGE OR HARD TO REACH SITES. LIGHTLY RAKE TO ENSURE GOOD SEED-TO-SOIL CONTACT. SEEDING CAN TAKE PLACE ON FROZEN SOIL, AS THE FREEZING AND THAWING WEATHER OF LATE FALL AND LATE WINTER WILL WORK THE SEED INTO THE SOIL. IF SPRING CONDITIONS ARE DRIER THAN USUAL, WATERING MAY BE REQUIRED. IF SOWING DURING THE SUMMER MONTHS, SUPPLEMENTAL WATERING WILL LIKELY BE REQUIRED UNTIL GERMINATION. A LIGHT MULCH OF CLEAN, WEED FREE STRAW IS RECOMMENDED.

13. THE POND CONSTRUCTION SHOULD BE ONLY CONSTRUCTED UNDER THE SUPERVISION OF THE DESIGN ENGINEER.

POND CONSTRUCTION NOTES:
1. CONTRACTOR SHALL REMOVE ALL TOPSOIL AND ORGANIC MATERIAL FROM EMBANKMENT AND POND CONSTRUCTION AREA.
2. SCARIFY SUBGRADE TO ESTABLISH INTERFACE FOR ALL FILLS.
3. CONSTRUCTION MATERIAL SHALL MEET M.D.O.T. SPEC 703.18
4. COMPACT IN 12" LIFTS TO 92% OF MAXIMUM DRY DENSITY.
5. INSTALL RIPRAP AND EROSION CONTROL MESH WHERE SPECIFIED.
6. LOAM, SEED & STABILIZE IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN & NOTES.

CONSTRUCTION INSPECTION NOTES:
INSPECTION BY A PROFESSIONAL ENGINEER WILL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT THE INSTALLATION OF EACH POND'S EMBANKMENT CONSTRUCTION, STORMWATER INLET, UNDERDRAINS, FILTER MATERIAL MAKEUP AND PLACEMENT, OUTLET CONTROL STRUCTURE, CLAY LINER (IF APPLICABLE), AND EMERGENCY SPILLWAY CONSTRUCTION FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE POND. AN INSPECTION OF THE UNDERDRAINED GRAVEL OUTLET SHALL ALSO BE PERFORMED ONE YEAR AFTER THE FINAL STABILIZATION OF THE POND.

ORGANIC WETLAND SOIL MIXTURE:
THE WETLAND SOIL SHOULD HAVE A LOW HYDRAULIC CONDUCTIVITY (0.1-0.01 FT/DAY). THIS SOIL CAN BE MANUFACTURED USING COMPOST, SAND AND FINE SOILS, INTO A BLEND WITH MORE THATN 15% ORGANIC MATTER. IT SHOULD CONTAIN MORE THAN 15% SILT (PASSING THE #200 SIEVE); BUT WITH A CLAY SIZE PORTION THAT IS LESS THAN 15%. DO NOT USE GEOTEXTILES BETWEEN THE HORIZONTAL LAYERS OF THIS SYSTEM AS THEY WILL CLOG DUE TO FINES AND MAY RESTRICT ROOT GROWTH.

WETLAND SOIL GRADATION	
SIEVE SIZE	% PASSING BY WEIGHT
1/2 IN	100
NO. 10	75-90
NO. 100	40-50
NO. 200	25-50

EMBANKMENT CONSTRUCTION:
1. CONSTRUCTION OF COMMON BORROW MATERIAL MEETING M.D.O.T. SPECIFICATION 703.
2. PLACE BORROW MATERIAL IN 12" LIFTS COMPACTED TO 95% OF MAXIMUM DRY DENSITY.
3. INSTALL RIPRAP AND EROSION CONTROL MESH WHERE SPECIFIED ON PLANS
4. LOAM, SEED, AND STABILIZE IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN.

STATE OF MAINE JEFFREY D. AMOS No. 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE SUITE 307 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

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NOT FOR CONSTRUCTION

PROJECT: HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE: GRAVEL WETLAND - 2 PLAN

CLIENT: SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-3.10

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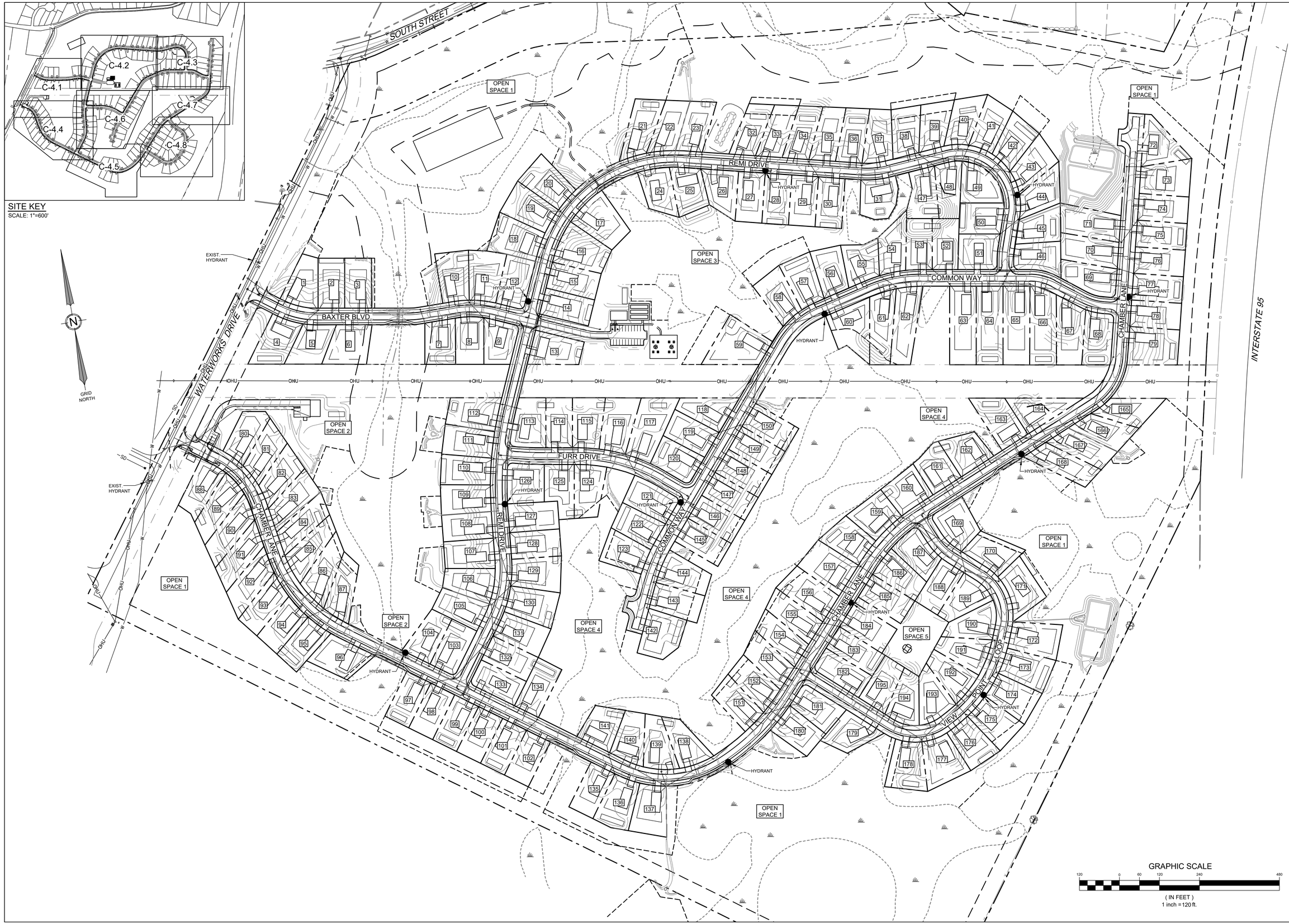

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE.	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

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565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
OVERALL UTILITY PLAN

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 120'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-4.0

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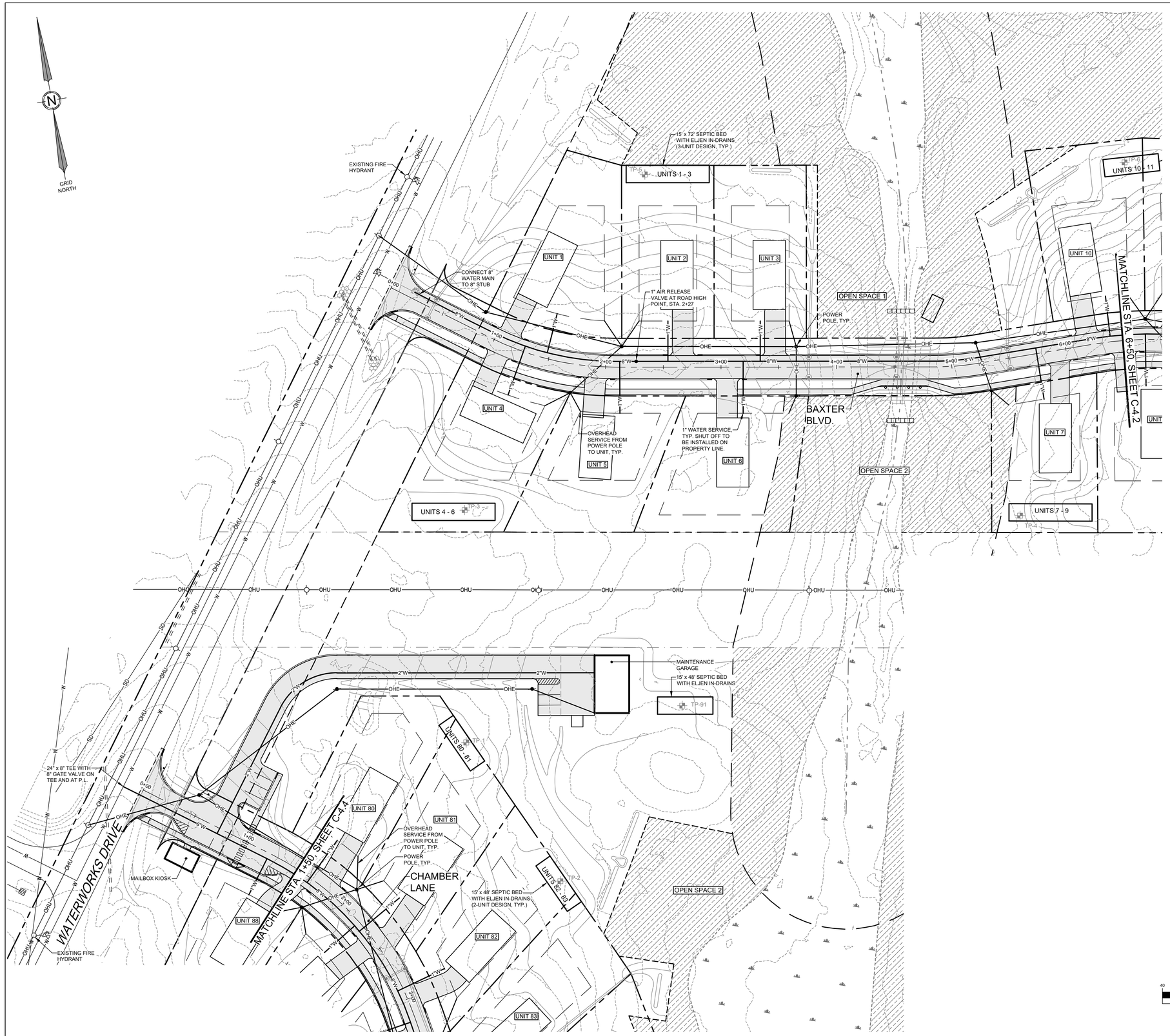

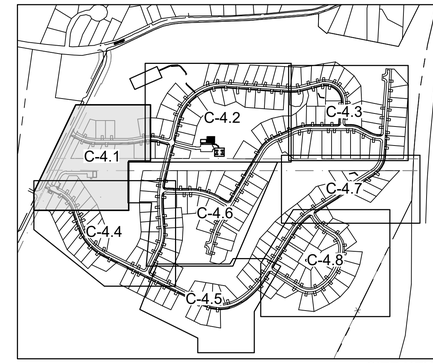

SITE KEY
SCALE: 1"=600'

WATER MAIN CONSTRUCTION NOTES:

1. 8" WATER MAIN TO BE INSTALLED 5-FT. FROM ROADWAY CENTERLINE.
2. MAINTAIN 10-FT. SEPARATION BETWEEN 8" WATER MAIN AND ALL OTHER UNDERGROUND UTILITIES, AND 12" MIN. VERTICAL SEPARATION AT ALL CROSSINGS. INSTALL 2" RIGID FOAM INSULATION ABOVE WATER MAIN, TYP.
3. INSTALL TWO LAYERS OF RIGID INSULATION BETWEEN 1" WATER SERVICES AND CULVERTS, TYP. AT ALL CROSSINGS.
4. CURB STOPS LOCATED WITHIN PAVED AREAS SHALL BE IN A VALVE BOX TO SECTION.
5. 5.5-FT. OF COVER ON ALL WATER MAINS AND SERVICES, TYP.
6. TESTABLE DCVA ON ALL FIRE SERVICES BEFORE RISER PIPE, TYP.

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE JEFFREY D. AMOS No. 10167 LICENSED PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

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41 CAMPUS DRIVE
SUITE 201
NEW GLOUCESTER, ME 04260

505 CONGRESS STREET
SUITE 200
PORTLAND, ME 04102

OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
UTILITY PLAN - 1

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-4.1

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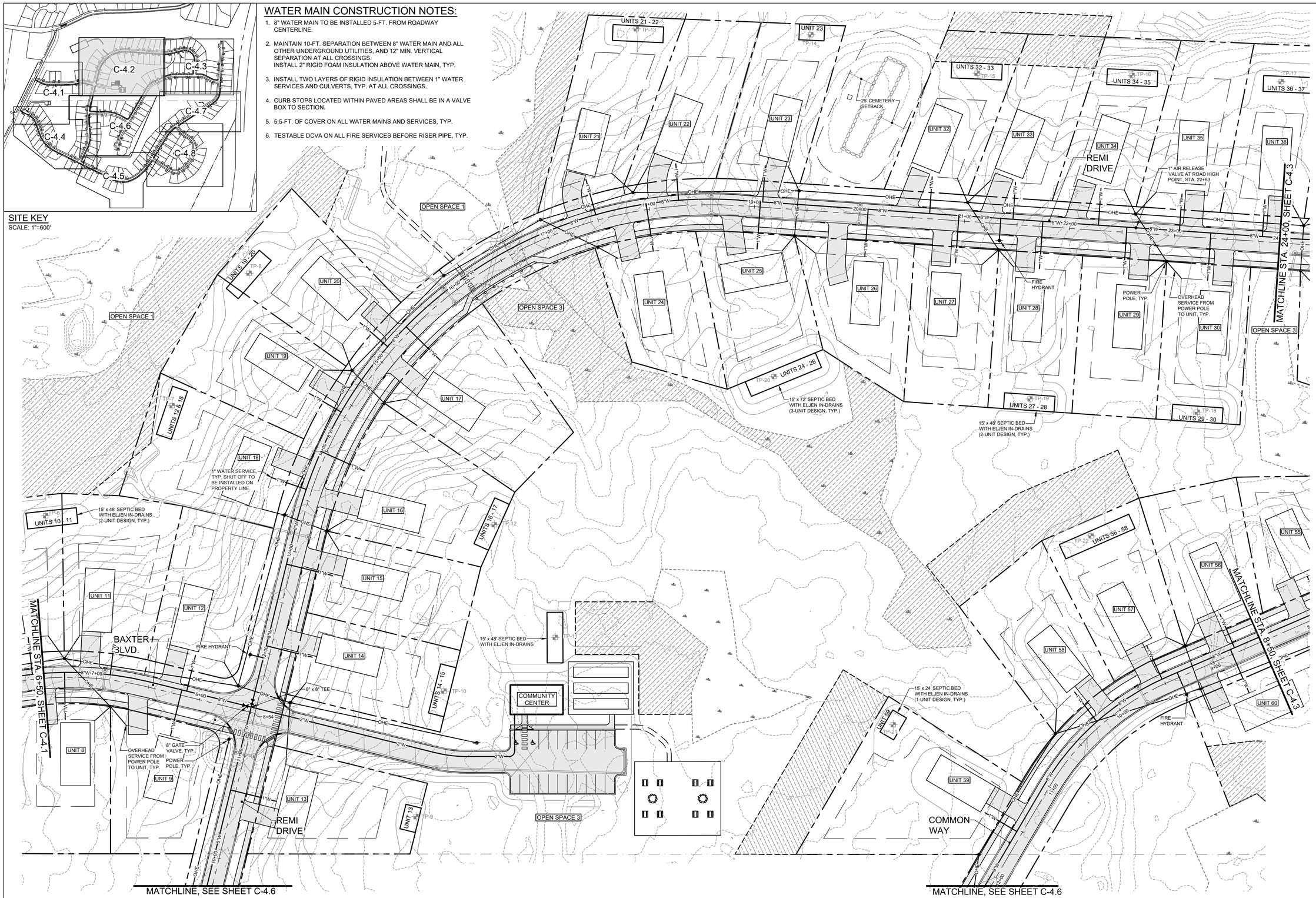
WATER MAIN CONSTRUCTION NOTES:

1. 8" WATER MAIN TO BE INSTALLED 5-FT. FROM ROADWAY CENTERLINE.
2. MAINTAIN 10-FT. SEPARATION BETWEEN 8" WATER MAIN AND ALL OTHER UNDERGROUND UTILITIES, AND 12" MIN. VERTICAL SEPARATION AT ALL CROSSINGS. INSTALL 2" RIGID FOAM INSULATION ABOVE WATER MAIN, TYP.
3. INSTALL TWO LAYERS OF RIGID INSULATION BETWEEN 1" WATER SERVICES AND CULVERTS, TYP. AT ALL CROSSINGS.
4. CURB STOPS LOCATED WITHIN PAVED AREAS SHALL BE IN A VALVE BOX TO SECTION.
5. 5.5-FT. OF COVER ON ALL WATER MAINS AND SERVICES, TYP.
6. TESTABLE DCVA ON ALL FIRE SERVICES BEFORE RISER PIPE, TYP.

SITE KEY
SCALE: 1"=600'



GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch =40 ft.

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
UTILITY PLAN - 2

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-4.2

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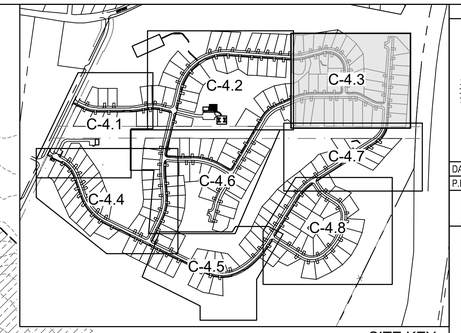

SITE KEY
SCALE: 1"=600'

WATER MAIN CONSTRUCTION NOTES:

1. 8" WATER MAIN TO BE INSTALLED 5-FT. FROM ROADWAY CENTERLINE.
2. MAINTAIN 10-FT. SEPARATION BETWEEN 8" WATER MAIN AND ALL OTHER UNDERGROUND UTILITIES, AND 12" MIN. VERTICAL SEPARATION AT ALL CROSSINGS.
   INSTALL 2" RIGID FOAM INSULATION ABOVE WATER MAIN, TYP.
3. INSTALL TWO LAYERS OF RIGID INSULATION BETWEEN 1" WATER SERVICES AND CULVERTS, TYP. AT ALL CROSSINGS.
4. CURB STOPS LOCATED WITHIN PAVED AREAS SHALL BE IN A VALVE BOX TO SECTION.
5. 5.5-FT. OF COVER ON ALL WATER MAINS AND SERVICES, TYP.
6. TESTABLE DCVA ON ALL FIRE SERVICES BEFORE RISER PIPE, TYP.

GRAPHIC SCALE
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STATE OF MAINE
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
UTILITY PLAN - 3

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-4.3

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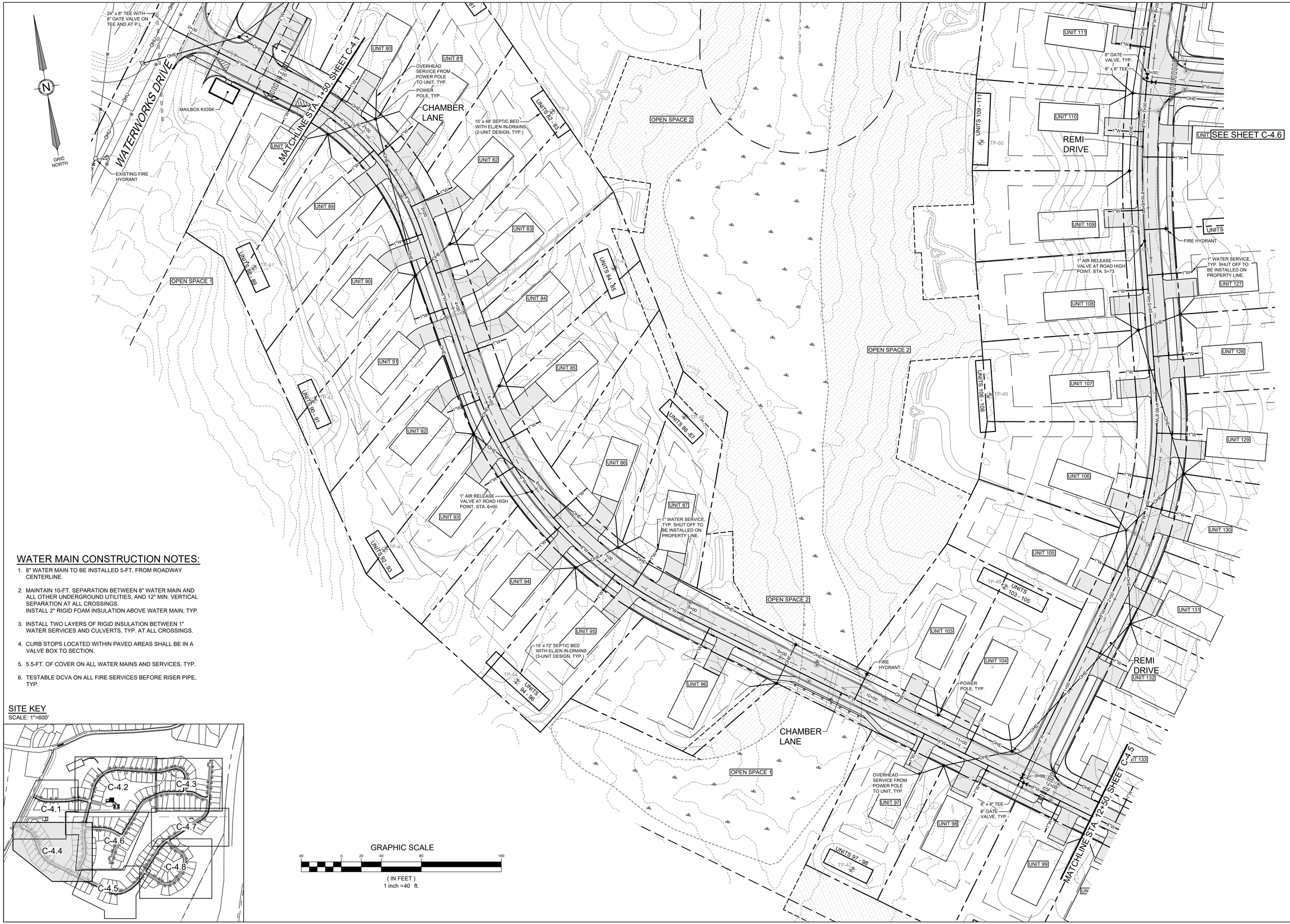

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6. TESTABLE DCVA ON ALL FIRE SERVICES BEFORE RISER PIPE, TYP.

SITE KEY

SCALE: 1"=600'

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565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
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PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE: UTILITY PLAN - 4

CLIENT: SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-4.4

C:\Users\MARKLO~1\AppData\Local\Temp\AcPublish_3500\21-13 UTIL.dwg

WATER MAIN CONSTRUCTION NOTES:

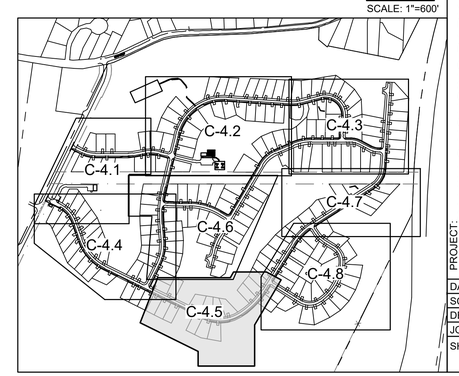
1. 8" WATER MAIN TO BE INSTALLED 5-FT. FROM ROADWAY CENTERLINE.
2. MAINTAIN 10-FT. SEPARATION BETWEEN 8" WATER MAIN AND ALL OTHER UNDERGROUND UTILITIES, AND 12" MIN. VERTICAL SEPARATION AT ALL CROSSINGS.
   INSTALL 2" RIGID FOAM INSULATION ABOVE WATER MAIN, TYP.
3. INSTALL TWO LAYERS OF RIGID INSULATION BETWEEN 1" WATER SERVICES AND CULVERTS, TYP. AT ALL CROSSINGS.
4. CURB STOPS LOCATED WITHIN PAVED AREAS SHALL BE IN A VALVE BOX TO SECTION.
5. 5.5-FT. OF COVER ON ALL WATER MAINS AND SERVICES, TYP.
6. TESTABLE DCVA ON ALL FIRE SERVICES BEFORE RISER PIPE, TYP.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch =40 ft.

SITE KEY
SCALE: 1"=600'



STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE.	11-16-2022
P.E..	JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

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565 CONGRESS STREET
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
UTILITY PLAN - 5

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-4.5

C:\Users\MARKLO~1\AppData\Local\Temp\AcPublish_8500\21-13 UTIL.dwg

WATER MAIN CONSTRUCTION NOTES:

1. 8" WATER MAIN TO BE INSTALLED 5-FT. FROM ROADWAY CENTERLINE.
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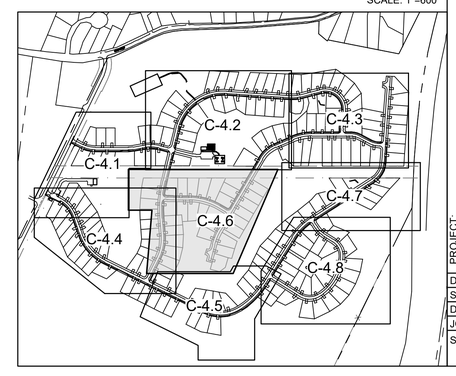
3. INSTALL TWO LAYERS OF RIGID INSULATION BETWEEN 1" WATER SERVICES AND CULVERTS, TYP. AT ALL CROSSINGS.
4. CURB STOPS LOCATED WITHIN PAVED AREAS SHALL BE IN A VALVE BOX TO SECTION.
5. 5.5-FT. OF COVER ON ALL WATER MAINS AND SERVICES, TYP.
6. TESTABLE DCVA ON ALL FIRE SERVICES BEFORE RISER PIPE, TYP.

SITE KEY
SCALE: 1"=600'



STATE OF MAINE
JEFFREY D. AMOS
No. 10167
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PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

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41 CAMPUS DRIVE
SUITE 201
NEW GLOUCESTER, ME 04260

565 CONGRESS STREET
SUITE 401
PORTLAND, ME 04102

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
UTILITY PLAN - 6

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-4.6

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WATER MAIN CONSTRUCTION NOTES:

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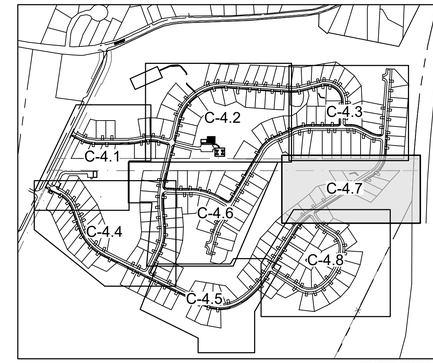
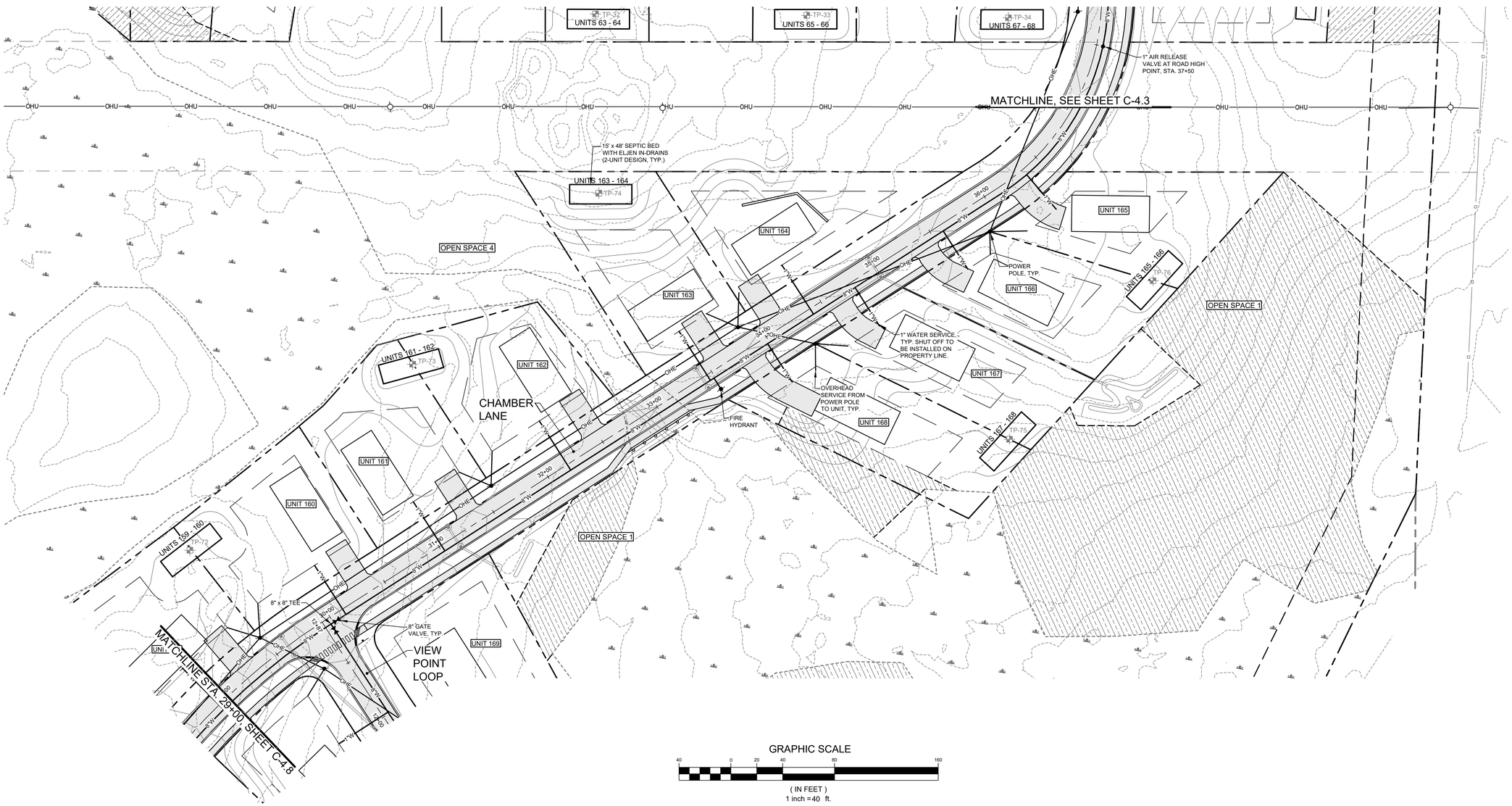


SITE KEY
SCALE: 1"=600'



GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

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DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

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SUITE 200
PORTLAND, ME 04102
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PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
UTILITY PLAN - 7

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-4.7

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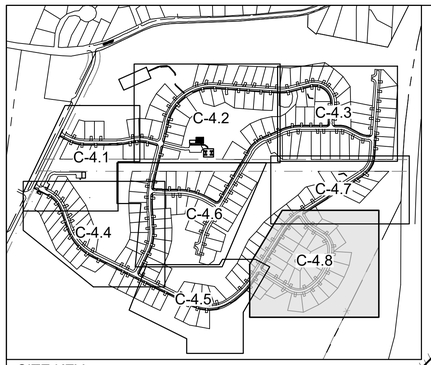
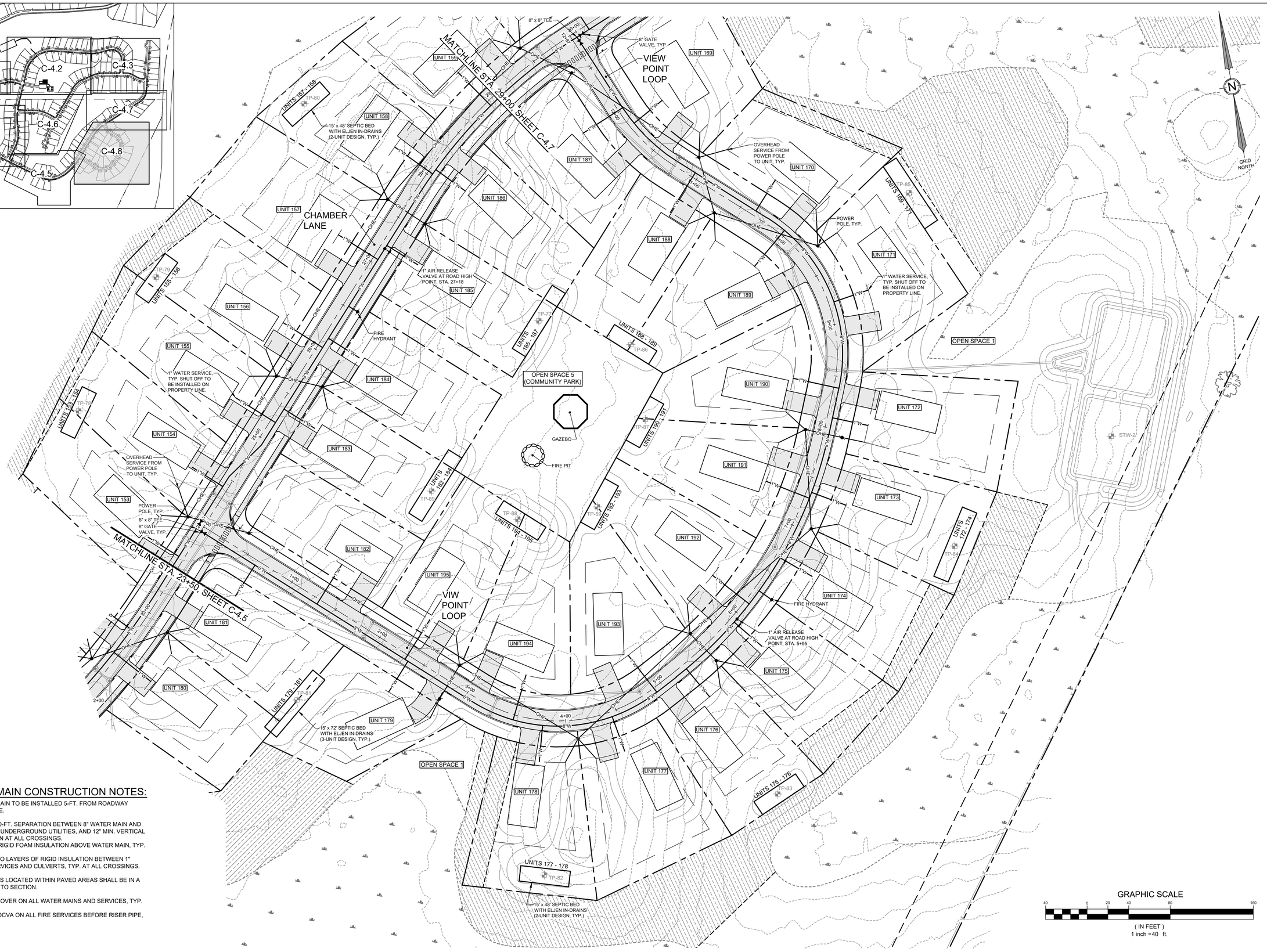


SITE KEY
SCALE: 1"=600'



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GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch =40 ft.

STATE OF MAINE JEFFREY D. AMOS No. 10167 LICENSED PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
UTILITY PLAN - 8

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-4.8

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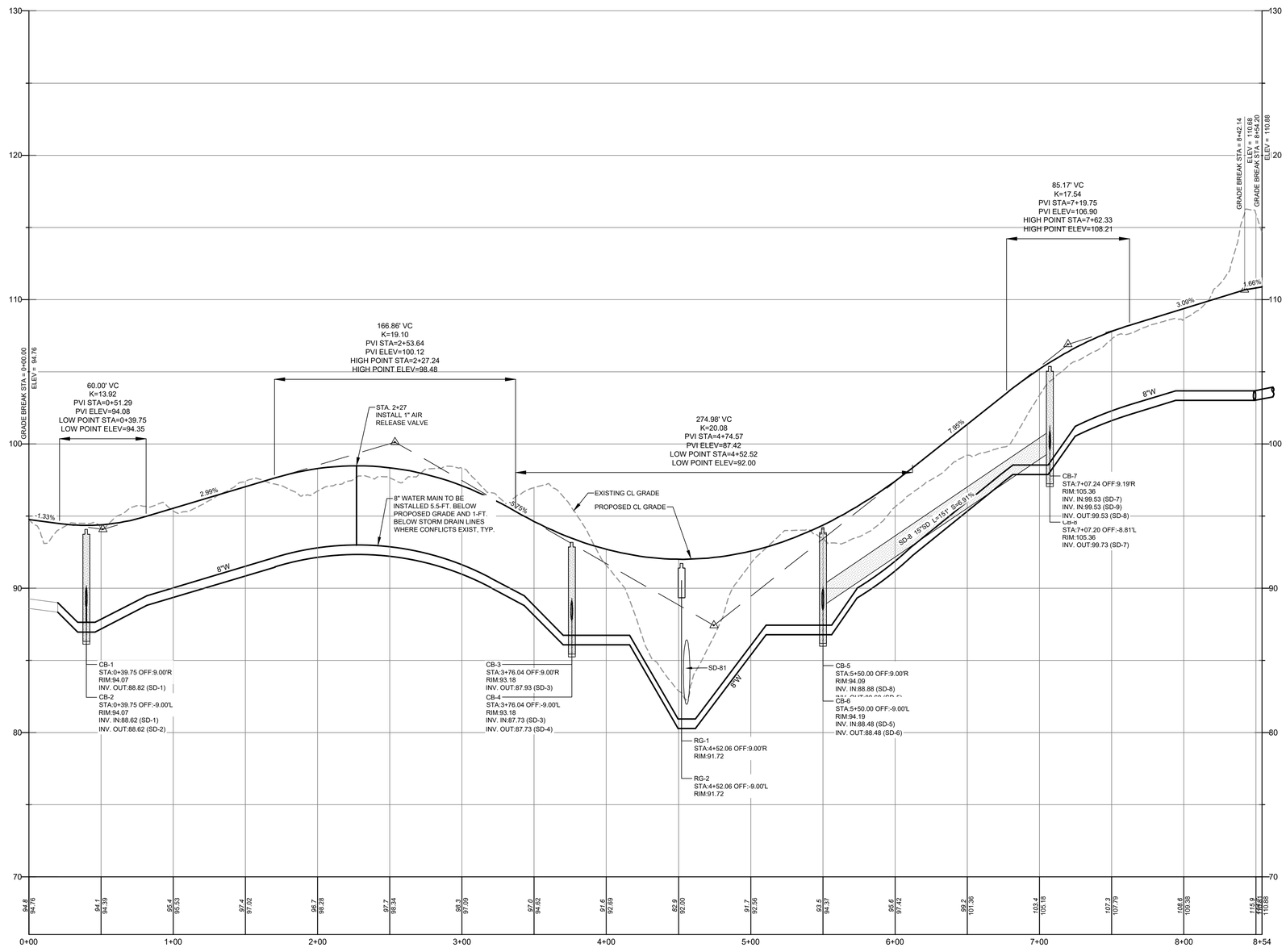

BAXTER BLVD.

STA. 0+00 TO STA. 8+26
SCALE: 1" = 40' HORIZ.
1" = 4' VERT

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PROFILE - BAXTER BLVD.

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-5.1

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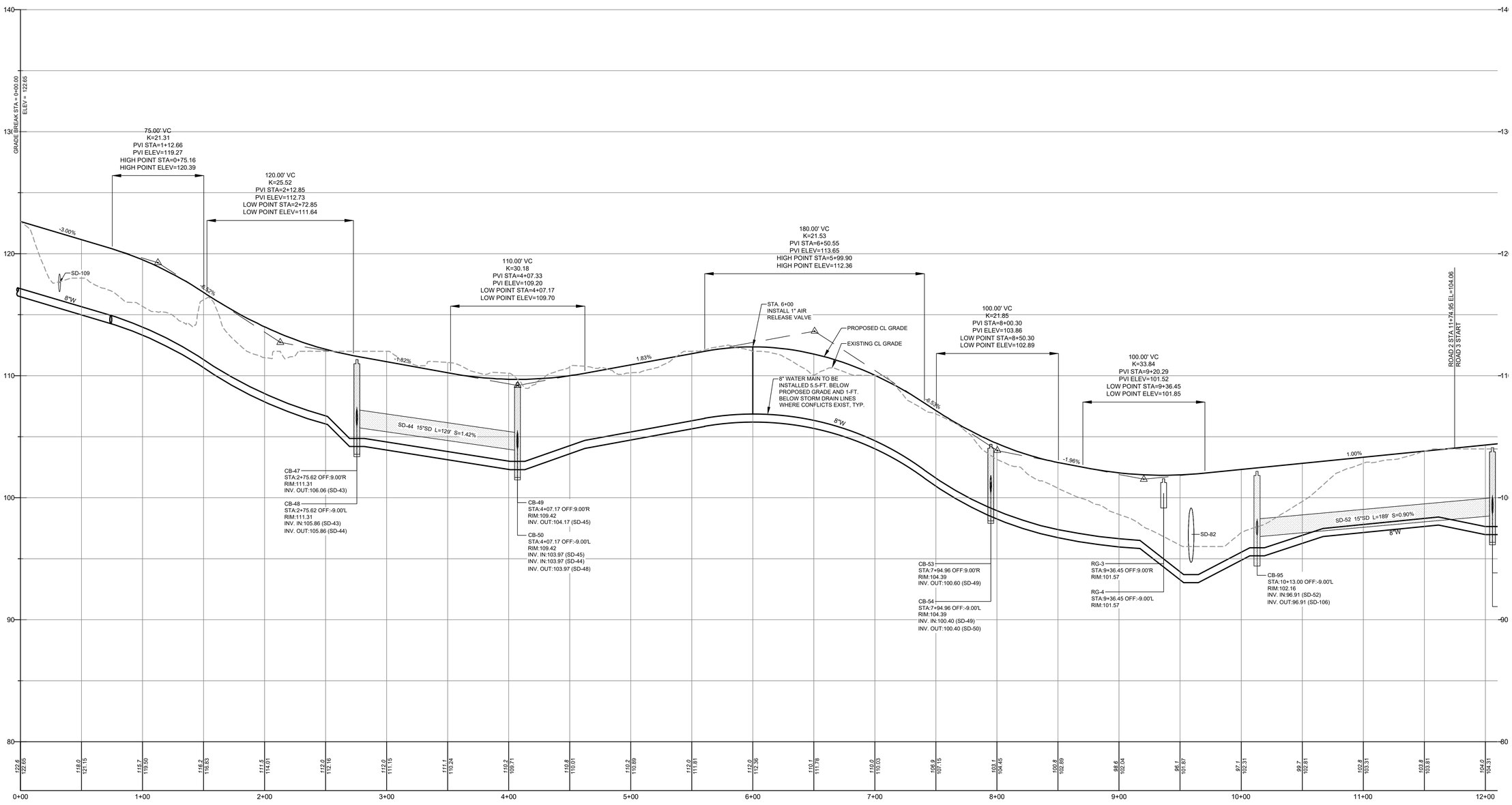

CHAMBER LANE

STA. 0+00 TO STA. 12+00
SCALE: 1" = 40' HORIZ.
1" = 4' VERT

STATE OF MAINE
JEFFREY D. AMOS
10167
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PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PROFILE - CHAMBER LANE

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-5.2

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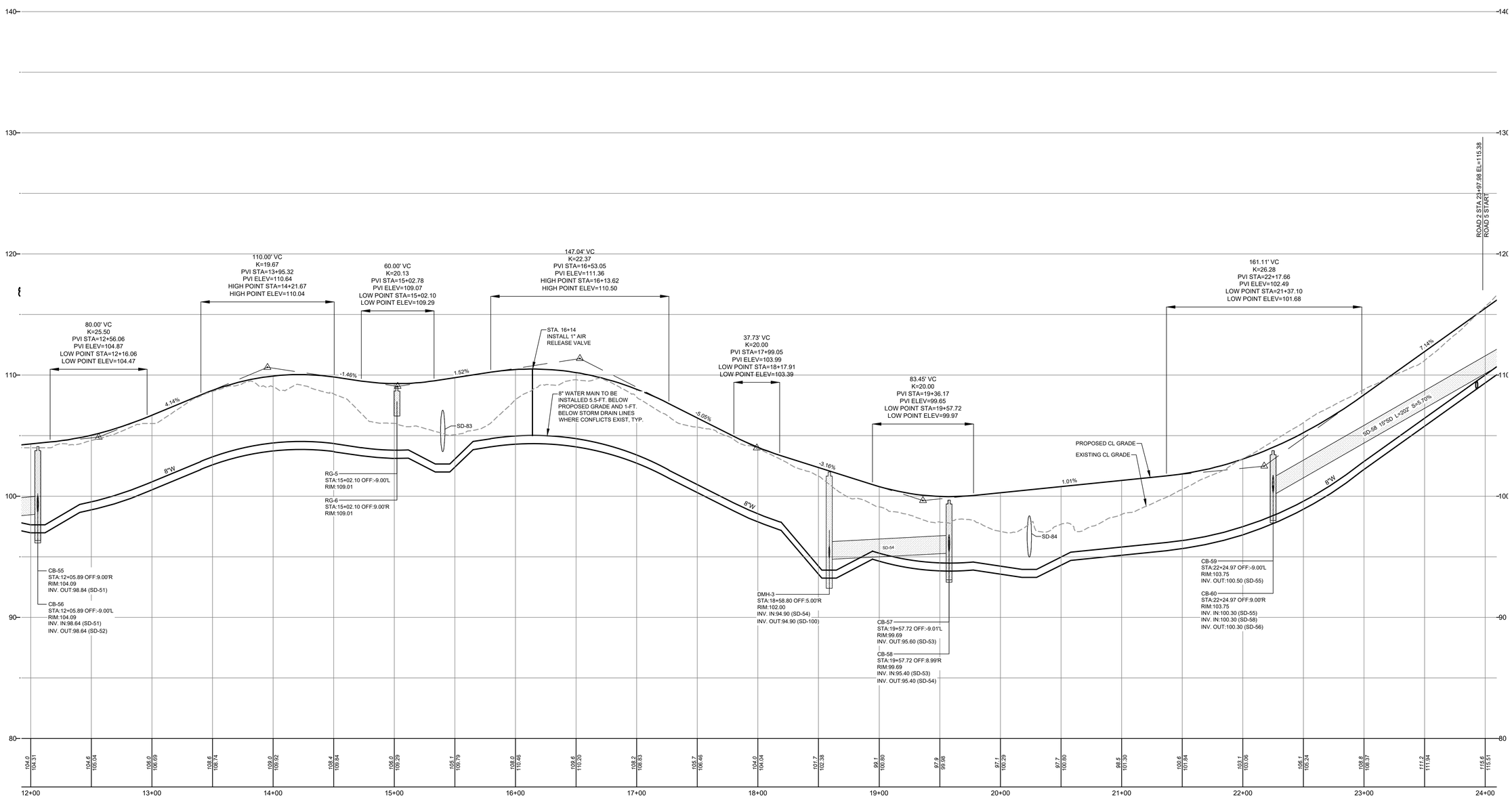

CHAMBER LANE

STA. 12+00 TO STA. 24+00
SCALE: 1" = 40' HORIZ.
1" = 4' VERT

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PROFILE - CHAMBER LANE

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-5.3

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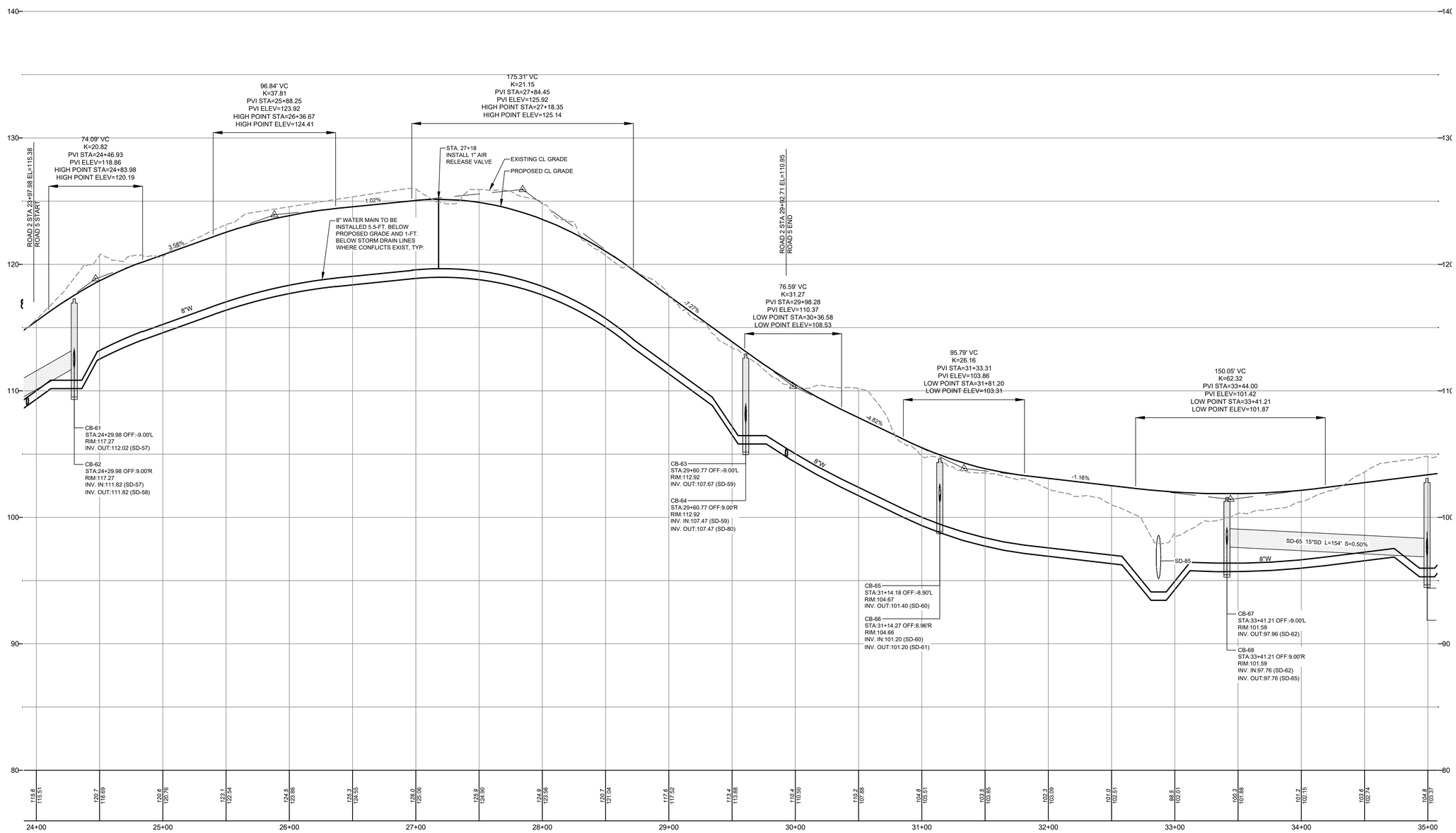

CHAMBER LANE

STA. 24+00 TO STA. 35+00
SCALE: 1" = 40' HORIZ.
1" = 4' VERT

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PROFILE - CHAMBER LANE

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-5.4

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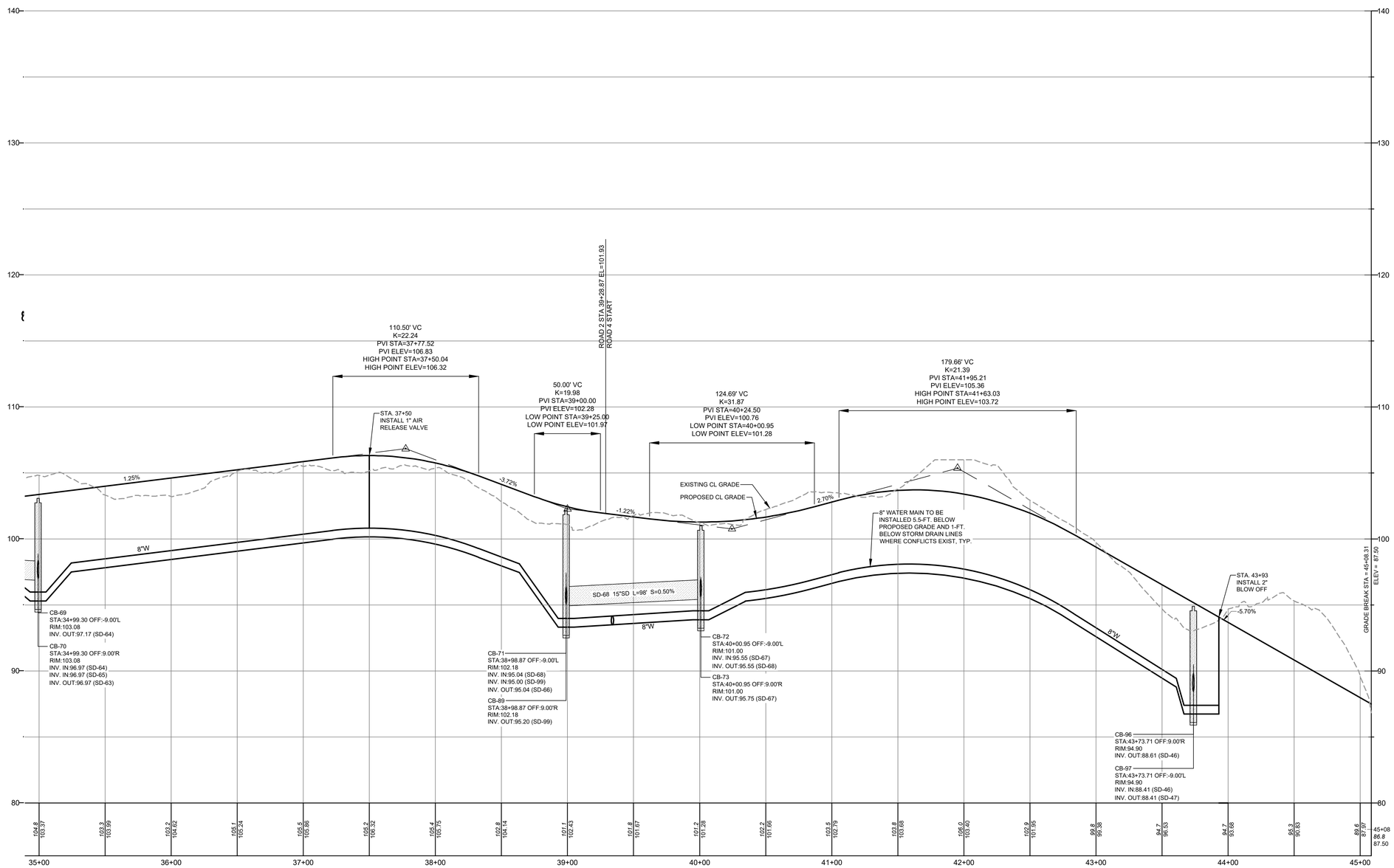

CHAMBER LANE

STA. 35+00 TO STA. 45+08
SCALE: 1" = 40' HORIZ.
1" = 4' VERT

STATE OF MAINE
JEFFREY D. AMOS
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PROFILE - CHAMBER LANE

CLIENT:
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762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

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SHEET	C-5.5

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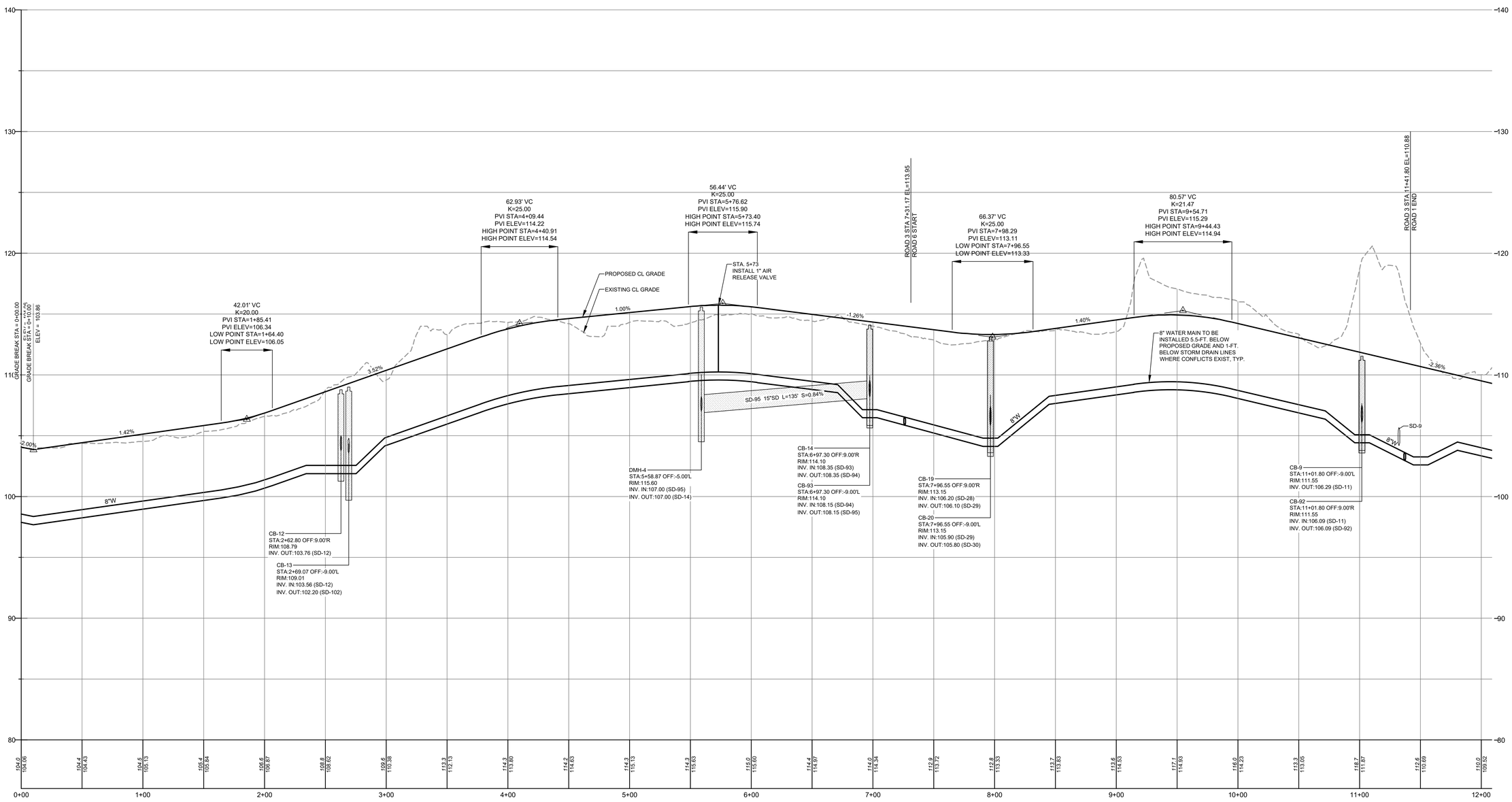

REMI DRIVE

STA. 0+00 TO STA. 12+00
SCALE: 1" = 40' HORIZ.
1" = 4' VERT

STATE OF MAINE
JEFFREY D. AMOS
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PROFESSIONAL ENGINEER

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE
PROFILE - REMI DRIVE

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
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SHEET	C-5.6

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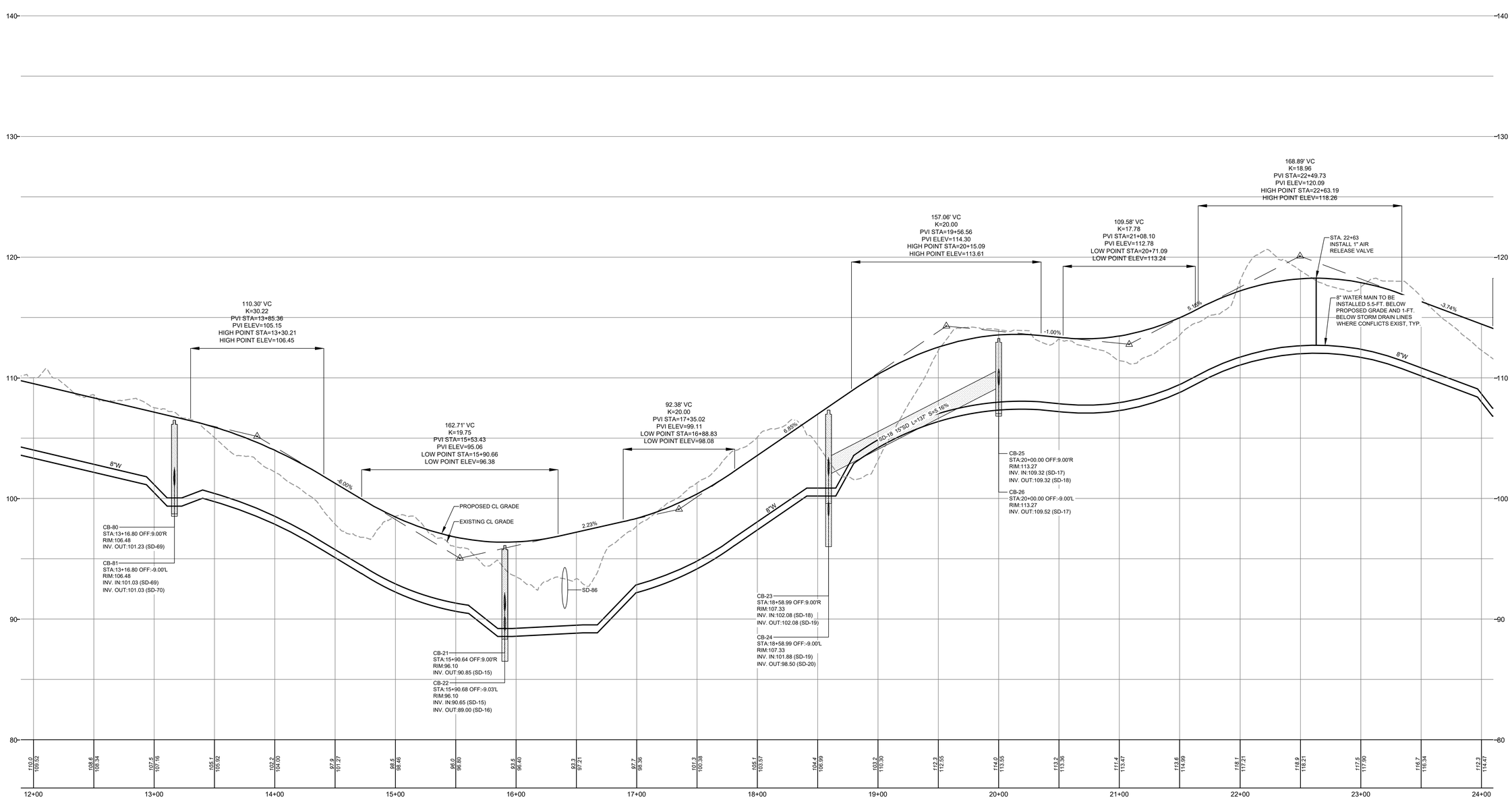

REMI DRIVE

STA. 12+00 TO STA. 24+00
SCALE: 1" = 40' HORIZ.
1" = 4' VERT

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PORTLAND, ME 04102

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PROFILE - REMI DRIVE

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-5.7

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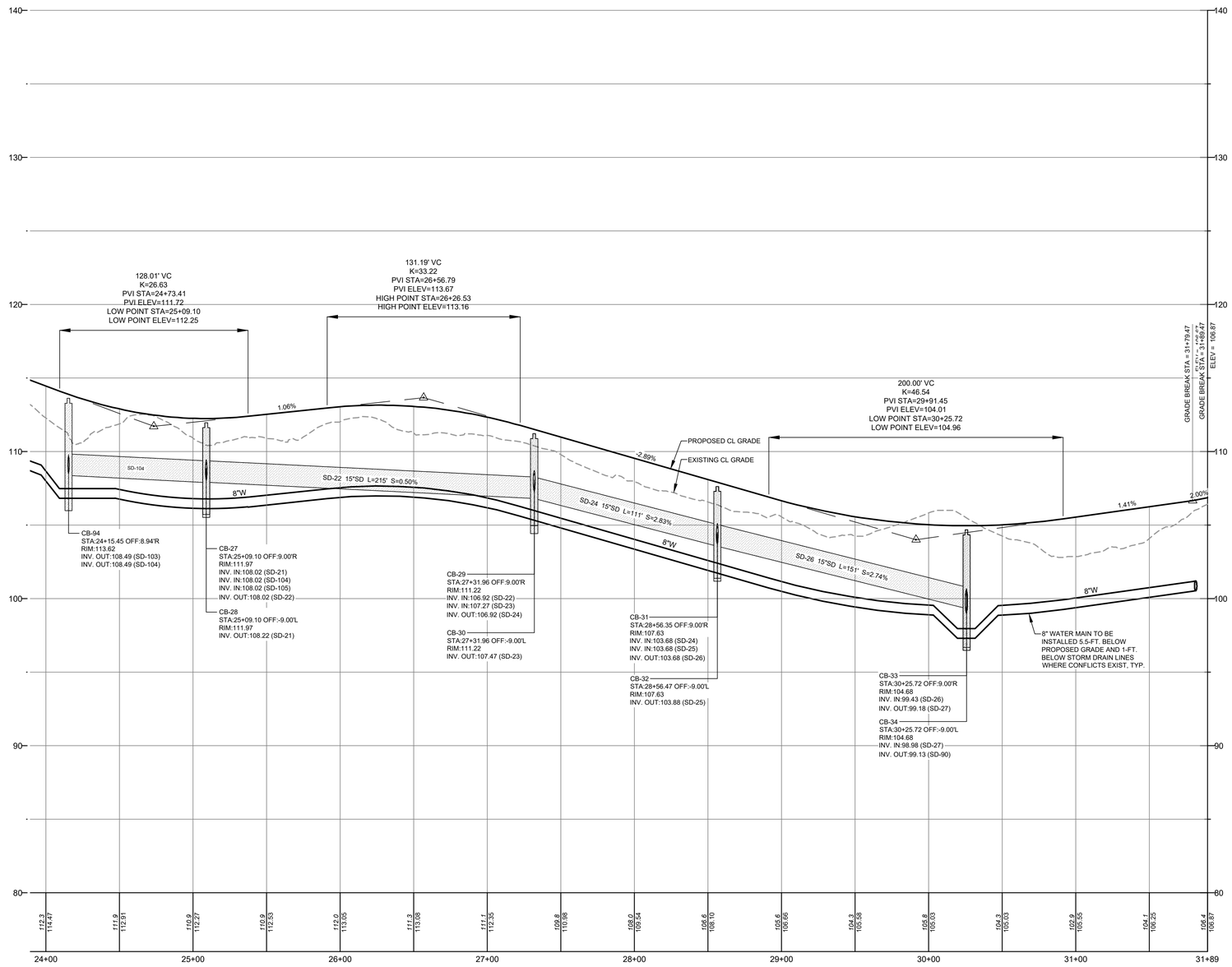

REMI DRIVE

STA. 24+00 TO STA. 31+89
SCALE: 1" = 4' HORIZ.
1" = 4' VERT

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

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782 MAIN STREET
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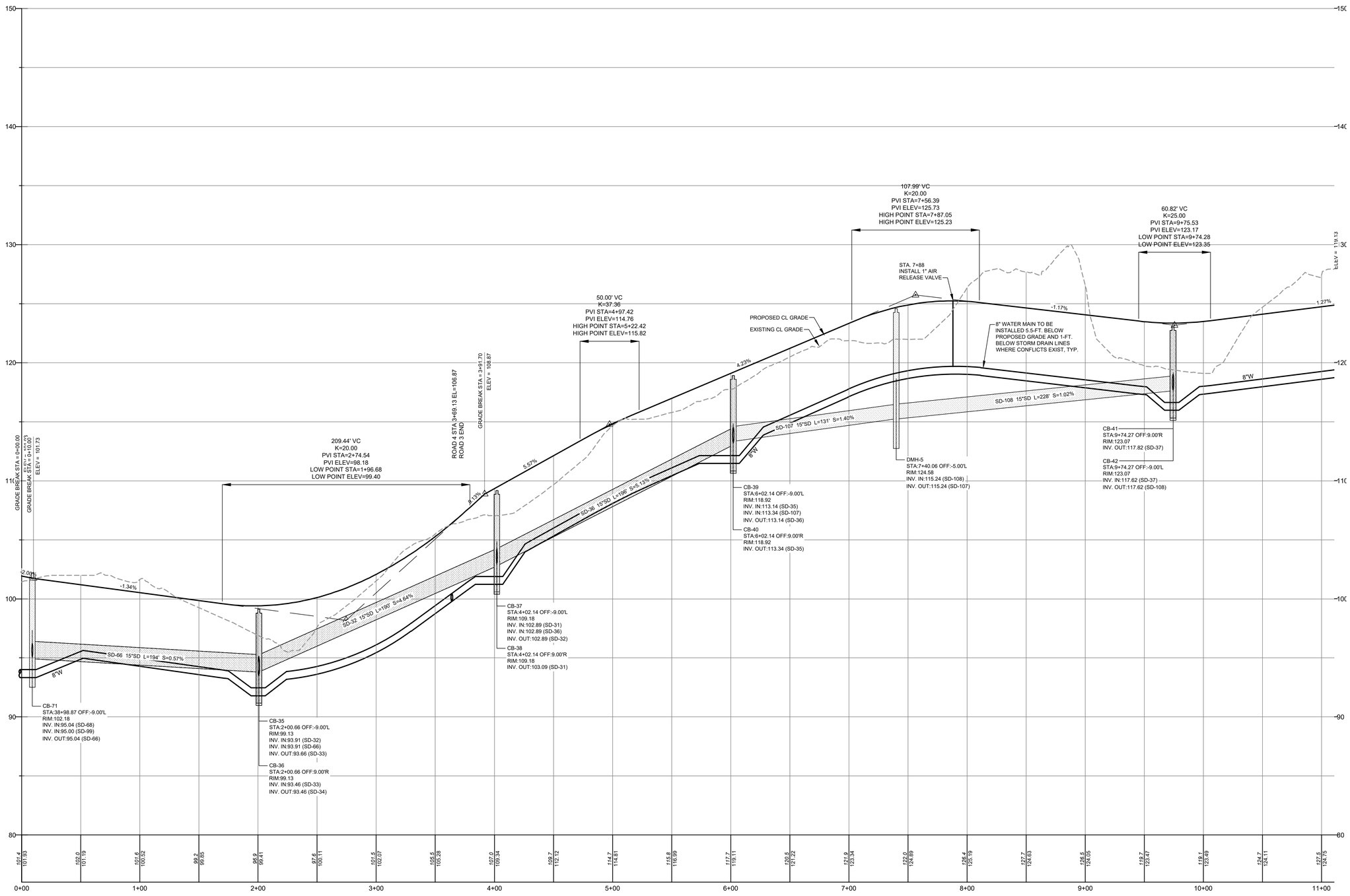

COMMON WAY

STA. 0+00 TO STA. 11+00
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PROFILE - COMMON WAY

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

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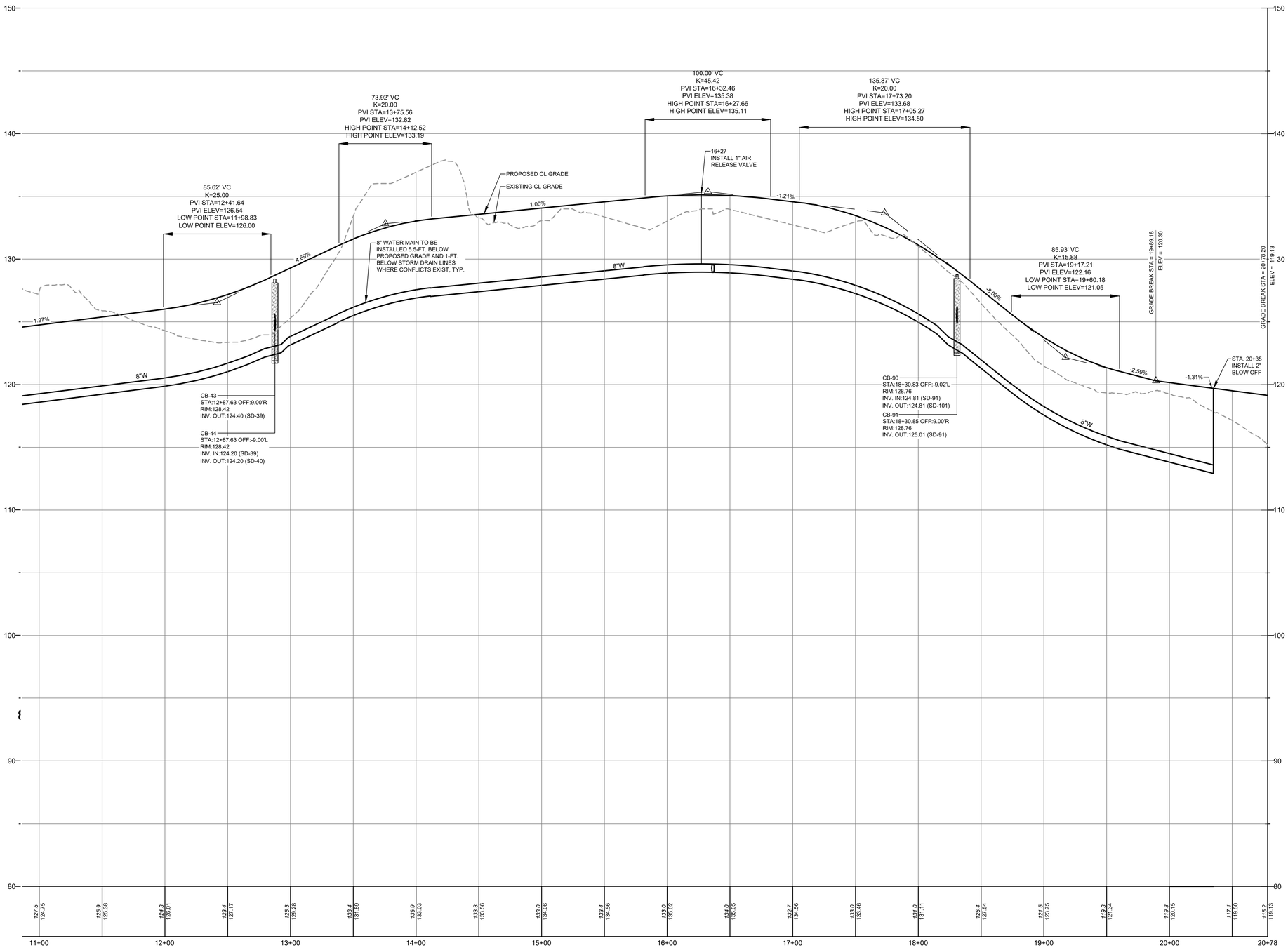

COMMON WAY

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SCALE: 1" = 40' HORIZ.
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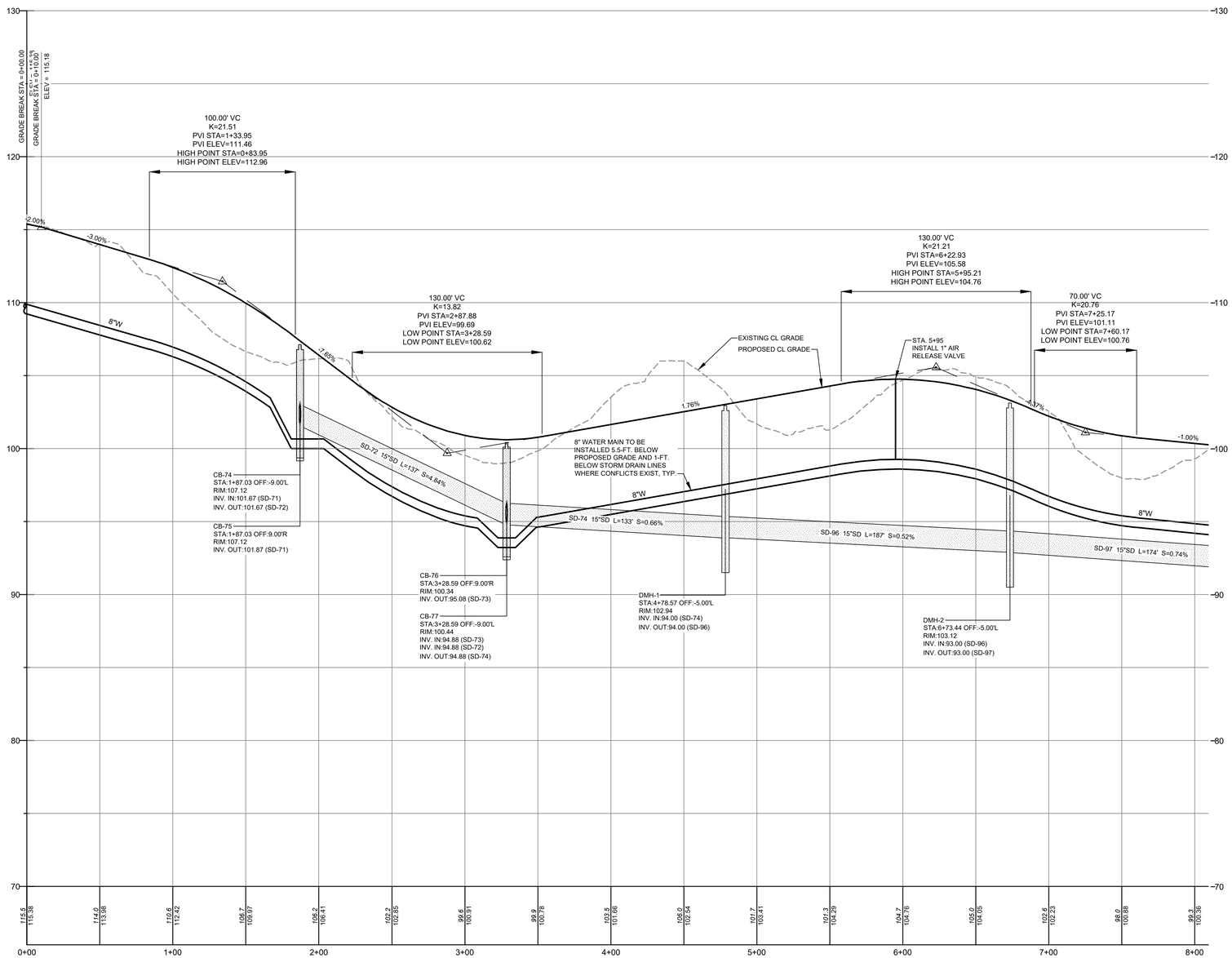

VIEW POINT LOOP

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1" = 4' VERT

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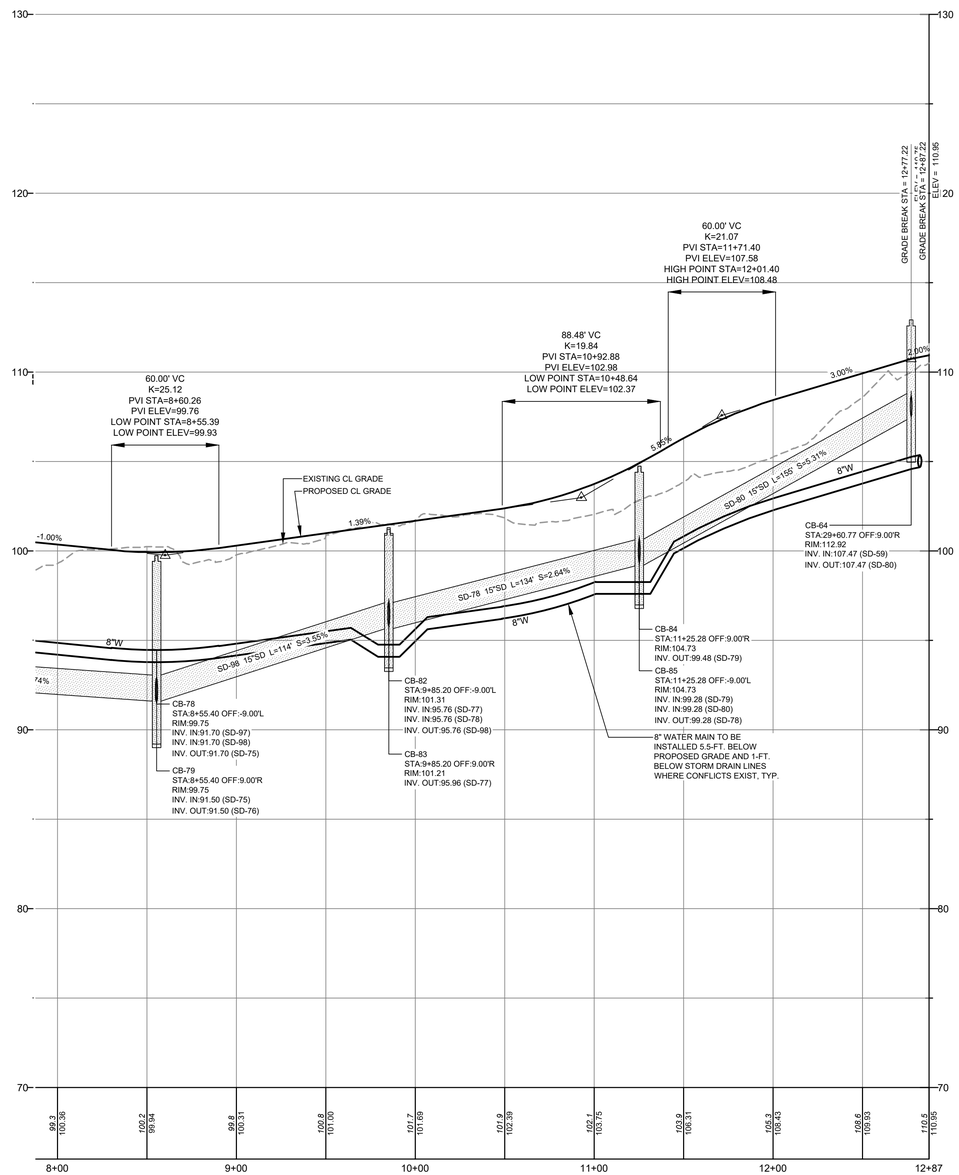

VIEW POINT LOOP

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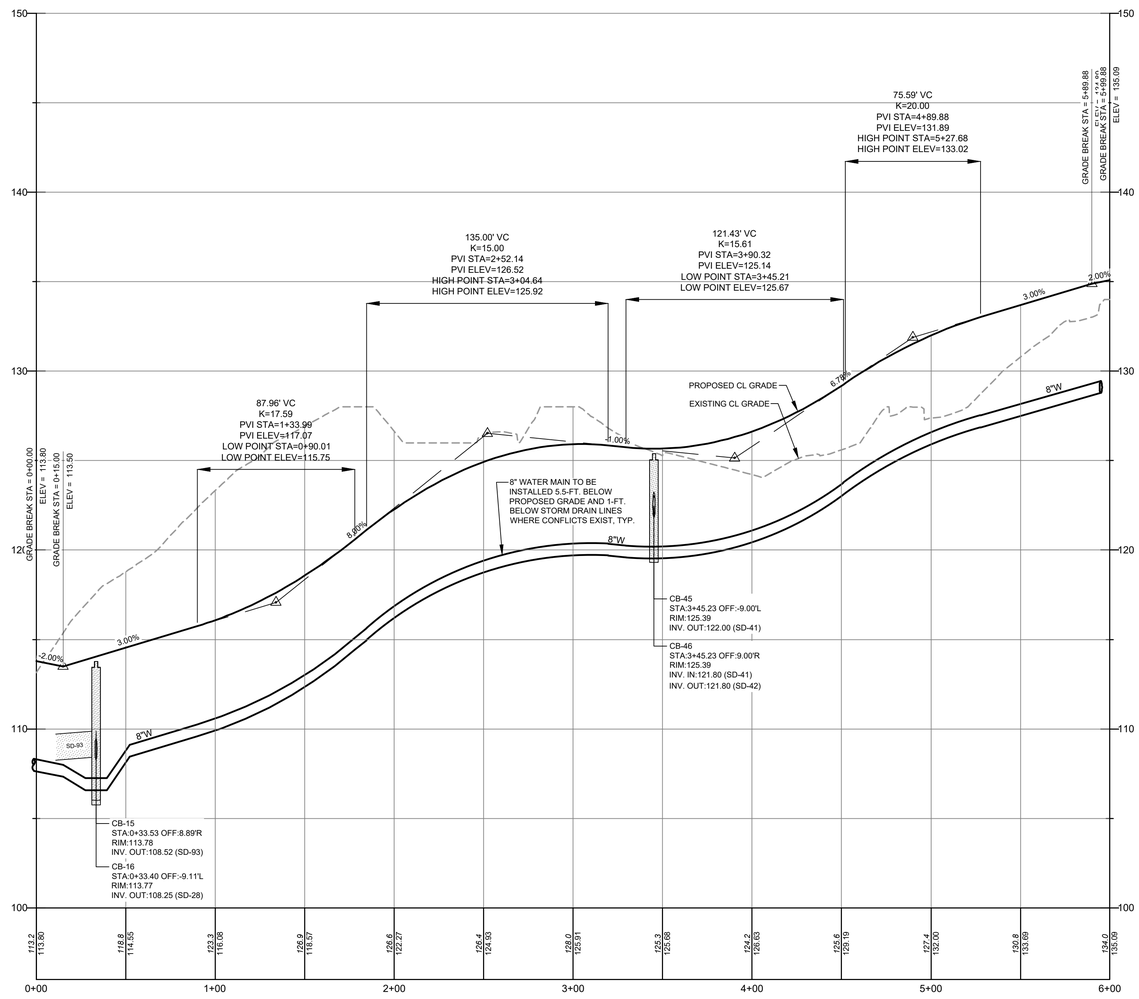

FURR DRIVE

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STORMWATER MANAGEMENT SYSTEM, INSPECTION, MAINTENANCE & HOUSEKEEPING - CONSTRUCTION PHASE

1. **INSPECTION:** FOR THE DURATION OF CONSTRUCTION ACTIVITY, IT IS THE SITE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE INSPECTION AND MAINTENANCE PROCEDURES OUTLINED IN THIS SECTION. THESE RESPONSIBILITIES INCLUDE INSPECTING DISTURBED AND IMPERVIOUS AREAS, EROSION CONTROL MEASURES, MATERIALS STORAGE AREAS THAT ARE EXPOSED TO PRECIPITATION, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE. THESE AREAS SHALL BE INSPECTED AT LEAST ONCE A WEEK AS WELL AS BEFORE AND AFTER A STORM EVENT, AND PRIOR TO COMPLETING PERMANENT STABILIZATION MEASURES. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN ANY APPLICABLE PERMITS, SHALL CONDUCT THE INSPECTIONS.
2. **MAINTENANCE:** ALL MEASURES SHALL BE MAINTAINED IN AN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED. IF BEST MANAGEMENT PRACTICES (BMPS) NEED TO BE MAINTAINED OR MODIFIED, ADDITIONAL BMPS ARE NECESSARY, OR OTHER CORRECTIVE ACTION IS NEEDED, IMPLEMENTATION MUST BE COMPLETED WITHIN SEVEN (7) CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (RAINFALL).
3. **DOCUMENTATION:** A LOG SUMMARIZING THE INSPECTIONS AND ANY CORRECTIVE ACTION TAKEN MUST BE MAINTAINED ON-SITE. THE LOG MUST INCLUDE THE NAME(S) AND QUALIFICATIONS OF THE PERSON MAKING THE INSPECTIONS, THE DATE(S) OF THE INSPECTIONS, AND MAJOR OBSERVATIONS ABOUT THE OPERATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS, MATERIAL STORAGE AREAS, AND VEHICLE ACCESS POINTS TO THE SITE. MAJOR OBSERVATIONS MUST INCLUDE BMPS THAT NEED MAINTENANCE, BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVIDED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATIONS WHERE ADDITIONAL BMPS ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEEDING REPLACEMENT, AND LOCATION NEEDING ADDITIONAL BMPS, NOTE IN THE LOG THE CORRECTIVE ACTION TAKEN AND WHEN IT WAS TAKEN.
THE LOG MUST BE MADE ACCESSIBLE TO THE APPROPRIATE REGULATORY AGENCY UPON REQUEST. THE PERMITTEE SHALL RETAIN A COPY OF THE LOG FOR A PERIOD OF AT LEAST THREE (3) YEARS FROM THE COMPLETION OF PERMANENT STABILIZATION.
4. **SPECIFIC INSPECTION AND MAINTENANCE TASKS:** THE FOLLOWING IS A LIST OF EROSION CONTROL AND STORMWATER MANAGEMENT MEASURES AND THE SPECIFIC INSPECTION AND MAINTENANCE TASKS TO BE PERFORMED DURING CONSTRUCTION.

A. SEDIMENT BARRIERS:
- HAY BALE BARRIERS, SILT FENCES, AND FILTER BERMS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
- IF THE FABRIC ON A SILT FENCE OR FILTER BARRIER SHOULD DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, IT SHALL BE REPLACED.
- SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED BEFORE DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
- FILTER BERMS SHALL BE RESHAPED AS NEEDED.
- ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHOULD BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED, AND SEEDED.

B. RIPRAP MATERIALS:
- ONCE A RIPRAP INSTALLATION HAS BEEN COMPLETED, IT SHOULD REQUIRE VERY LITTLE MAINTENANCE. IT SHALL, HOWEVER, BE INSPECTED PERIODICALLY TO DETERMINE IF HIGH FLOWS HAVE CAUSED SCOUR BENEATH THE RIPRAP OR DISLODGED ANY OF THE STONE.
- ANNULLY INSPECT RIPRAP AND REMOVE WOODY VEGETATION WHEN DISCOVERED.

C. EROSION CONTROL BLANKETS:
- INSPECT THESE REINFORCED AREAS SEMI-ANNUALLY AND AFTER SIGNIFICANT RAINFALL EVENTS FOR SLUMPING, SLIDING, SEEPAGE, AND SCOUR. PAY CLOSE ATTENTION TO UNREINFORCED AREAS ADJACENT TO THE EROSION CONTROL BLANKETS, WHICH MAY EXPERIENCE ACCELERATED EROSION.
- REVIEW ALL APPLICABLE INSPECTION AND MAINTENANCE PROCEDURES RECOMMENDED BY THE SPECIFIC BLANKET MANUFACTURER. THESE TASKS SHALL BE INCLUDED IN ADDITION TO THIS PLAN.

D. TEMPORARY STORM DRAIN INLET PROTECTION:
- THE INLET PROTECTION STRUCTURE SHALL BE INSPECTED BEFORE EACH RAIN EVENT AND REPAIRED AS NECESSARY.
- SEDIMENT SHALL BE REMOVED AND THE STORM DRAIN SEDIMENT BARRIER RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO HALF OF THE DESIGN DEPTH OF THE TRAP.
- STRUCTURES SHALL BE REMOVED UPON PERMANENT STABILIZATION OF THE TRIBUTARY AREA.
- UPON REMOVAL OF THE STRUCTURE, ALL ACCUMULATED SEDIMENTS DOWNSTREAM OF THE STRUCTURE SHALL BE CLEANED FROM THE STORM DRAIN SYSTEM.
- THE PERMANENT STORM DRAINAGE SYSTEM SHALL BE FLUSHED AND CLEANED ONCE THE SITE IS STABILIZED AND PRIOR TO DEMOBILIZATION FROM THE SITE.

E. STABILIZED CONSTRUCTION ENTRANCES/EXITS:
- THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY.
- WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHALL BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL. THE ENTRANCE SHOULD THEN BE RECONSTRUCTED.
- AREAS THAT HAVE RECEIVED MUD-TRACKING OR SEDIMENT DEPOSITS SHALL BE SWEPT OR WASHED. WASHING SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT-TRAPPING DEVICE (NOT INTO STORM DRAINS, DITCHES, OR WATERWAYS).

F. TEMPORARY SEED AND MULCH:
- MULCHED AREAS SHOULD BE INSPECTED AFTER RAIN EVENTS TO CHECK FOR RILL EROSION.
- IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE APPLIED IN BARE AREAS.
- IN APPLICATIONS WHERE SEEDING AND MULCH HAVE BEEN APPLIED IN CONJUNCTION WITH EROSION CONTROL BLANKETS, THE BLANKETS MUST BE INSPECTED AFTER RAIN EVENTS FOR DISLOCATION OR UNDERCUTTING.
- MULCH SHALL CONTINUE TO BE REAPPLIED UNTIL 95% OF THE SOIL SURFACE HAS ESTABLISHED TEMPORARY VEGETATIVE COVER.

G. STABILIZED DRAINAGE SWALES:
- CONSTRUCT AND STABILIZE THE WATERWAY IN ADVANCE OF ANY OTHER CHANNELS OR STRUCTURE THAT WILL DISCHARGE INTO IT. DIVERT ALL FLOW FROM THE WATERWAY DURING THE ESTABLISHMET OF VEGETATION.
- SEDIMENT ACCUMULATION IN THE SWALE SHALL BE REMOVED ONCE THE CROSS SECTION OF THE SWALE IS REDUCED BY 25%.
- THE SWALES SHALL BE INSPECTED AFTER RAINFALL EVENTS. ANY EVIDENCE OF SLOUGHING OF THE SIDE SLOPES OR CHANNEL EROSION SHALL BE REPAIRED AND CORRECTIVE ACTION SHOULD BE TAKEN TO PREVENT REOCCURRENCE OF THE PROBLEM.
- IN ADDITION TO THE STABILIZED LINING OF THE CHANNEL (I.E. EROSION CONTROL BLANKETS), STONE CHECK DAMS MAY BE NEEDED TO FURTHER REDUCE CHANNEL VELOCITY.

H. DEWATERING
- THE SITE CONTRACTOR SHALL ESTABLISH AN ON-SITE CONTAINMENT AREA WHICH SHALL INCLUDE SEDIMENT BARRIER TO MITIGATE THE TRANSPORT OF THE SEDIMENT TO THE ENVIRONMENT FROM DEWATERING ACTIVITY.
- THE CONTAINMENT AREA SHALL BE LOCATED A MINIMUM OF 25 FEET FROM ANY STORM DRAIN STRUCTURE OR CULVERT AND A MINIMUM OF 25 FEET FROM ANY SLOPE GREATER THAN 4:1.
- THE CONTAINMENT AREA SHALL INCLUDE A DIRT BAG OR SIMILAR SEDIMENT TRAP FOR TREATMENT OF THE COLLECTED WATER.
- THE CONTAINMENT AREA SHALL BE INSPECTED AFTER EACH USE TO ENSURE THAT NO DOWNGRADIENT EROSION OR SEDIMENTATION OFFSITE IS OCCURRING.

5. **HOUSEKEEPING:** THE FOLLOWING GENERAL PERFORMANCE STANDARDS APPLY TO THE PROPOSED PROJECT.

A. SPILL PREVENTION: CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM BEING DISCHARGED FROM MATERIALS ON-SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.

B. GROUNDWATER PROTECTION: DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS, ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS.

C. FUGITIVE SEDIMENT AND DUST: ACTIONS MUST BE TAKEN TO INSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL.

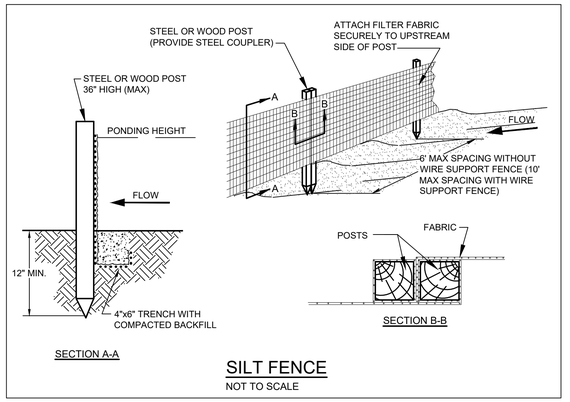
D. DEBRIS AND OTHER MATERIALS: LITTER, CONSTRUCTION DEBRIS, AND CHEMICALS EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

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

EROSION AND SEDIMENT CONTROL PLAN

PRE-CONSTRUCTION PHASE
A PERSON WHO CONDUCTS, OR CAUSES TO BE CONDUCTED, AN ACTIVITY THAT INVOLVES FILLING, DISPLACING OR EXPOSING SOIL OR OTHER EARTHEN MATERIALS SHALL TAKE MEASURES TO PREVENT UNREASONABLE EROSION OF SOIL OR SEDIMENT BEYOND THE PROJECT SITE OR INTO A PROTECTED NATURAL RESOURCE AS DEFINED IN 38 MRSA § 480-B. EROSION CONTROL MEASURES MUST BE IN PLACE BEFORE THE ACTIVITY BEGINS. MEASURES MUST REMAIN IN PLACE AND FUNCTIONAL UNTIL THE SITE IS PERMANENTLY STABILIZED. ADEQUATE AND TIMELY TEMPORARY AND PERMANENT STABILIZATION MEASURES MUST BE TAKEN. THE SITE MUST BE MAINTAINED TO PREVENT UNREASONABLE EROSION AND SEDIMENTATION. MINIMIZE DISTURBED AREAS AND PROTECT NATURAL DOWNGRADIENT BUFFER AREAS TO THE EXTENT PRACTICABLE.
BMP CONSTRUCTION PHASE
A. SEDIMENT BARRIERS. PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, PROPERLY INSTALL SEDIMENT BARRIERS AT THE EDGE OF ANY DOWNGRADIENT DISTURBED AREA AND ADJACENT TO ANY DRAINAGE CHANNELS WITHIN THE PROPOSED DISTURBED AREA. MAINTAIN THE SEDIMENT BARRIERS UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED.
B. CONSTRUCTION ENTRANCE: PRIOR TO ANY CLEARING OR GRUBBING, A CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT THE INTERSECTION WITH THE PROPOSED ACCESS DRIVE AND THE EXISTING ROADWAY TO AVOID TRACKING OF MUD, DUST AND DEBRIS FROM THE SITE.
C. RIPRAP: SINCE RIPRAP IS USED WHERE EROSION POTENTIAL IS HIGH, CONSTRUCTION MUST BE SEQUENCED SO THAT THE RIPRAP IS PUT IN PLACE WITH THE MINIMUM DELAY. DISTURBANCE OF AREAS WHERE RIPRAP IS TO BE PLACED SHOULD BE UNDERTAKEN ONLY WHEN FINAL PREPARATION AND PLACEMENT OF THE RIPRAP CAN FOLLOW IMMEDIATELY BEHIND THE INITIAL DISTURBANCE. WHERE RIPRAP IS USED FOR OUTLET PROTECTION, THE RIPRAP SHOULD BE PLACED BEFORE OR IN CONJUNCTION WITH THE CONSTRUCTION OF THE PIPE OR CHANNEL SO THAT IT IS IN PLACE WHEN THE PIPE OR CHANNEL BEGINS TO OPERATE. MAINTAIN TEMPORARY RIPRAP, SUCH AS TEMPORARY CHECK DAMS UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED.
D. TEMPORARY STABILIZATION. STABILIZE WITH TEMPORARY SEEDING, MULCH, OR OTHER NON-ERODABLE COVER ANY EXPOSED SOILS THAT WILL REMAIN UNWORKED FOR MORE THAN 14 DAYS EXCEPT, STABILIZE AREAS WITHIN 100 FEET OF A WETLAND OR WATERBODY WITHIN 7 DAYS OR PRIOR TO A PREDICTED STORM EVENT, WHICHEVER COMES FIRST. IF HAY OR STRAW MULCH IS USED, THE APPLICATION RATE MUST BE 2 BALES (70-90 POUNDS) PER 1000 SF OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 75 TO 90% OF THE GROUND SURFACE. HAY MULCH MUST BE KEPT MOIST OR ANCHORED TO PREVENT WIND BLOWING. AN EROSION CONTROL BLANKET OR MAT SHALL BE USED AT THE BASE OF GRASSED WATERWAYS, STEEP SLOPES (15% OR GREATER) AND ON ANY DISTURBED SOIL WITHIN 100 FEET OF LAKES, STREAMS AND WETLANDS. GRADING SHALL BE PLANNED SO AS TO MINIMIZE THE LENGTH OF TIME BETWEEN INITIAL SOIL EXPOSURE AND FINAL GRADING. ON LARGE PROJECTS THIS SHOULD BE ACCOMPLISHED BY PHASING THE OPERATION AND COMPLETING THE FIRST PHASE UP TO FINAL GRADING AND SEEDING BEFORE STARTING THE SECOND PHASE, AND SO ON.
E. VEGETATED WATERWAY. UPON FINAL GRADING, THE DISTURBED AREAS SHALL BE IMMEDIATELY SEEDED TO PERMANENT VEGETATION AND MULCHED AND WILL NOT BE USED AS OUTLETS UNTIL A DENSE, VIGOROUS VEGETATIVE COVER HAS BEEN OBTAINED. ONCE SOIL IS EXPOSED FOR WATERWAY CONSTRUCTION, IT SHOULD BE IMMEDIATELY SHAPED, GRADED AND STABILIZED. VEGETATED WATERWAYS NEED TO BE STABILIZED EARLY DURING THE GROWING SEASON (PRIOR TO SEPTEMBER 15). IF FINAL SEEDING OF WATERWAYS IS DELAYED PAST SEPTEMBER 15, EMERGENCY PROVISIONS SUCH AS SOD OR RIPRAP MAY BE REQUIRED TO STABILIZE THE CHANNEL. WATERWAYS SHOULD BE FULLY STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
PERMANENT STABILIZATION DEFINED
A. SEEDED AREAS. FOR SEEDED AREAS, PERMANENT STABILIZATION MEANS AN 90% COVER OF THE DISTURBED AREA WITH MATURE, HEALTHY PLANTS WITH NO EVIDENCE OF WASHING OR RILLING OF THE TOPSOIL.
B. SODDED AREAS. FOR SODDED AREAS, PERMANENT STABILIZATION MEANS THE COMPLETE BINDING OF THE SOD ROOTS INTO THE UNDERLYING SOIL WITH NO SLUMPING OF THE SOD OR DIE-OFF.
C. PERMANENT MULCH. FOR MULCHED AREAS, PERMANENT MULCHING MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL. EROSION CONTROL MIX MAY BE USED AS MULCH FOR PERMANENT STABILIZATION ACCORDING TO THE APPROVED APPLICATION RATES AND LIMITATIONS.
D. RIPRAP. FOR AREAS STABILIZED WITH RIPRAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIPRAP HAVE AN APPROPRIATE BACKING OF A WELL-GRADED GRAVEL OR APPROVED GEOTEXTILE TO PREVENT SOIL MOVEMENT FROM BEHIND THE RIPRAP. STONE MUST BE SIZED APPROPRIATELY. IT IS RECOMMENDED THAT ANGULAR STONE BE USED.
E. AGRICULTURAL USE. FOR CONSTRUCTION PROJECTS ON LAND USED FOR AGRICULTURAL PURPOSES (E.G., PIPELINES ACROSS CROP LAND), PERMANENT STABILIZATION MAY BE ACCOMPLISHED BY RETURNING THE DISTURBED LAND TO AGRICULTURAL USE.
F. PAVED AREAS. FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE COMPACTED GRAVEL SUBBASE IS COMPLETED.
G. DITCHES, CHANNELS, AND SWALES. FOR OPEN CHANNELS, PERMANENT STABILIZATION MEANS THE CHANNEL IS STABILIZED WITH MATURE VEGETATION AT LEAST THREE INCHES IN HEIGHT, WITH WELL-GRADED RIPRAP, OR WITH ANOTHER NON-ERODIBLE LINING CAPABLE OF WITHSTANDING THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHOUT RELIANCE ON CHECK DAMS TO SLOW FLOW. THERE MUST BE NO EVIDENCE OF SLUMPING OF THE LINING, UNDERCUTTING OF THE BANKS, OR DOWN-CUTTING OF THE CHANNEL.
GENERAL CONSTRUCTION PHASE
THE FOLLOWING EROSION CONTROL MEASURES SHALL BE FOLLOWED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION OF THIS PROJECT:
A. ALL TOPSOIL SHALL BE COLLECTED, STOCKPILED, SEEDED WITH RYE AT 3 POUNDS/1,000 SF AND MULCHED, AND REUSED AS REQUIRED. SILT FENCING SHALL BE PLACED DOWN GRADIENT FROM THE STOCKPILED LOAM. STOCKPILE TO BE LOCATED BY DESIGNATION OF THE OWNER AND INSPECTING ENGINEER.
B. THE INSPECTING ENGINEER AT HIS/HER DISCRETION, MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES AND/OR SUPPLEMENTAL VEGETATIVE PROVISIONS TO MAINTAIN STABILITY OF EARTHWORKS AND FINISH GRADED AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY SUPPLEMENTAL MEASURES AS DIRECTED BY THE INSPECTING ENGINEER. FAILURE TO COMPLY WITH THE ENGINEER'S DIRECTIONS WILL RESULT IN DISCONTINUATION OF CONSTRUCTION ACTIVITIES.
C. EROSION CONTROL MESH SHALL BE APPLIED IN ACCORDANCE WITH THE PLANS OVER ALL FINISH SEEDED AREAS AS SPECIFIED ON THE DESIGN PLANS.
D. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE ADEQUATELY STABILIZED.
E. ALL EROSION, AND SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
F. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIALS.
G. AREAS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 INCHES PRIOR TO PLACEMENT OF TOPSOIL.
H. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC., SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
I. ALL FILLS SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 8 INCHES IN THICKNESS.
J. EXCEPT FOR APPROVED LANDFILLS OR NON-STRUCTURAL FILLS, FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY LIFTS.
K. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILL SLOPES OR STRUCTURAL FILLS.
L. FILL SHALL NOT BE PLACED ON A FROZEN FOUNDATION.
M. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED APPROPRIATELY.
N. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
O. REMOVE ANY TEMPORARY CONTROL MEASURES, SUCH AS SILT FENCE, WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED. REMOVE ANY ACCUMULATED SEDIMENTS AND STABILIZE.
PERMANENT VEGETATION
PERMANENT VEGETATIVE COVER SHOULD BE ESTABLISHED ON DISTURBED AREAS WHERE PERMANENT, LONG LIVED VEGETATIVE COVER IS NEEDED TO STABILIZE THE SOIL, TO REDUCE DAMAGES FROM SEDIMENT AND RUNOFF, AND TO ENHANCE THE ENVIRONMENT.
SEEDBED PREPARATION
A. GRADE AS FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION AND ANCHORING, AND MAINTENANCE.
B. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TESTS SUCH AS THOSE OFFERED BY THE UNIVERSITY OF MAINE SOIL TESTING LABORATORY. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL COOPERATIVE EXTENSION SERVICE OFFICE. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10-20-20 (N-P2O5-K2O) OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB. PER 1,000 SQ. FT).
C. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.D. REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, CONCRETE, CLODS, LUMPS OR OTHER UNSUITABLE MATERIAL.
E. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE TILLED AND FIRMED AS ABOVE.
F. PERMANENT SEEDING SHOULD BE MADE 45 DAYS PRIOR TO THE FIRST KILLING FROST OR AS A DORMANT SEEDING WITH MULCH AFTER THE FIRST KILLING FROST AND BEFORE SNOWFALL. WHEN CROWN VETCH IS SEEDED IN LATER SUMMER, AT LEAST 35% OF THE SEED SHOULD BE HARD SEED (UNSCARIFIED). IF SEEDING CANNOT BE DONE WITHIN THE SEEDING DATES, MULCH ACCORDING TO THE TEMPORARY MULCHING BMP AND OVERWINTER STABILIZATION AND CONSTRUCTION TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
G. FOLLOWING SEED BED PREPARTATION, SWALE AREAS, FILL AREAS AND BACK SLOPES SHALL BE SEEDED AT A RATE OF 3 LBS./1,000 S.F. WITH A MIXTURE OF 35% CREEPING RED FESCUE, 6% RED TOP, 24% KENTUCKY BLUEGRASS, 10% PERENNIAL RYEGRASS, 20% ANNUAL RYEGRASS AND 5% WHITE DUTCH CLOVER.
I. AREAS WHICH HAVE BEEN TEMPORRARILY OR PERMANENTLY SEEDED SHALL BE MULCHED IMMEDIATELY FOLLOWING SEEDING.
J. AREAS WHICH CANNOT BE SEEDED WITHIN THE GROWING SEASON SHALL BE MULCHED FOR OVER-WINTER PROTECTION AND THE AREA SHOULD BE SEEDED AT THE BEGINNING OF THE GROWING SEASON.

WINTER CONSTRUCTION PHASE
IF AN AREA IS NOT STABILIZED WITH TEMPORARY OR PERMANENT MEASURES BY NOVEMBER 15, THEN THE SITE MUST BE PROTECTED WITH ADDITIONAL STABILIZATION MEASURES.
A. PERMANENT STABILIZATION CONSISTS OF AT LEAST 90% VEGETATION, PAVEMENT/GRAVEL BASE OR RIPRAP.
B. DO NOT EXPOSE SLOPES OR LEAVE SLOPES EXPOSED OVER THE WINTER OR FOR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY PROTECTED WITH MULCH.
C. APPLY HAY MULCH AT TWICE THE STANDARD RATE (150 LBS. PER 1,000 SF). THE MULCH MUST BE THICK ENOUGH SUCH THAT THE GROUND SURFACE WILL NOT BE VISIBLE AND MUST BE ANCHORED.
D. USE MULCH AND MULCH NETTING OR AN EROSION CONTROL MULCH BLANKET OR ALL SLOPES GREATER THAN 8 % OR OTHER AREAS EXPOSED TO DIRECT WIND.
E. INSTALL AN EROSION CONTROL BLANKET IN ALL DRAINAGEWAYS (BOTTOM AND SIDES) WITH A SLOPE GREATER THAN 3 %.
F. SEE THE VEGETATION MEASURES FOR MORE INFORMATION ON SEEDING DATES AND TYPES.
G. WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SO THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
H. AN AREA WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE MUST BE PROTECTED WITH A DOUBLE ROW OF SEDIMENT BARRIER.
I. TEMPORARY MULCH MUST BE APPLIED WITHIN 7 DAYS OF SOIL EXPOSURE OR PRIOR TO ANY STORM EVENT, BUT AFTER EVERY WORKDAY IN AREAS WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE.
J. AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE MUST BE PERMANENTLY MULCHED THAT SAME DAY.
K. IF SNOWFALL IS GREATER THAN 1 INCH (FRESH OR CUMULATIVE), THE SNOW SHALL BE REMOVED FROM THE AREAS DUE TO BE SEEDED AND MULCHED.
L. LOAM SHALL BE FREE OF FROZEN CLUMPS BEFORE IT IS APPLIED.
M. ALL VEGETATED DITCH LINES THAT HAVE NOT BEEN STABILIZED BY NOVEMBER 1, OR WILL BE WORKED DURING THE WINTER CONSTRUCTION PERIOD, MUST BE STABILIZED WITH AN APPROPRIATE STONE LINING BACKED BY AN APPROPRIATE GRAVEL BED OR GEOTEXTILE UNLESS SPECIFICALLY RELEASED FROM THIS STANDARD BY THE DEPARTMENT.
MAINTENANCE AND INSPECTION PHASE
A. MINIMUM EROSION CONTROL MEASURES WILL NEED TO BE IMPLEMENTED AND THE APPLICANT WILL BE RESPONSIBLE TO MAINTAIN ALL COMPONENTS OF THE EROSION CONTROL PLAN UNTIL THE SITE IS FULLY STABILIZED. HOWEVER, BASED ON SITE AND WEATHER CONDITIONS DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES MAY NEED TO BE IMPLEMENTED. ALL AREAS OF INSTABILITY AND EROSION MUST BE REPAIRED IMMEDIATELY AND ADDITIONAL BMPS AND OTHER CONTROLS MAY NEED TO BE MAINTAINED UNTIL THE SITE IS FULLY STABILIZED OR VEGETATION IS ESTABLISHED. A CONSTRUCTION LOG MUST BE MAINTAINED FOR THE EROSION AND SEDIMENTATION CONTROL INSPECTIONS AND MAINTENANCE
B. A LOG (REPORT) MUST BE KEPT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF THE PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, AND MAJOR OBSERVATIONS RELATING TO OPERATION OF EROSION AND SEDIMENTATION CONTROLS AND POLLUTION PREVENTION MEASURES. MAJOR OBSERVATIONS MUST INCLUDE: BMPS THAT NEED TO BE MAINTAINED; LOCATION(S) OF BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION; AND LOCATION(S) WHERE ADDITIONAL BMPS ARE NEEDED THAT DID NOT EXIST AT THE TIME OF INSPECTION. FOLLOW-UP TO CORRECT DEFICIENCIES OR ENHANCE CONTROLS MUST ALSO BE INDICATED IN THE LOG AND DATED, INCLUDING WHAT ACTION WAS TAKEN AND WHEN.
DEWATERING
A DEWATERING PLAN IS NEEDED TO ADDRESS EXCAVATION DE-WATERING FOLLOWING HEAVY RAINFALL EVENTS OR WHERE THE EXCAVATION MAY INTERCEPT THE GROUNDWATER TABLE DURING CONSTRUCTION. THE COLLECTED WATER NEEDS TREATMENT AND A DISCHARGE POINT THAT WILL NOT CAUSE DOWNGRADIENT EROSION AND OFFSITE SEDIMENTATION OR WITHIN A RESOURCE.



SILT FENCE
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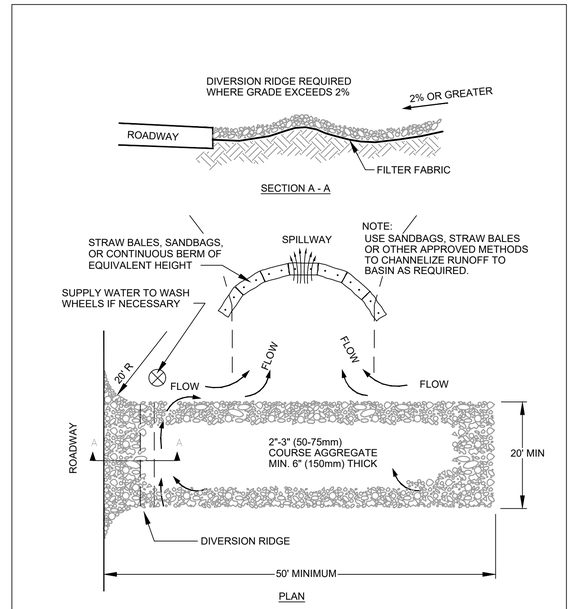
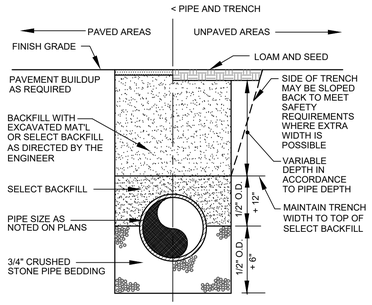

DIVERSION RIDGE REQUIRED WHERE GRADE EXCE



TYPICAL TRENCH SECTION

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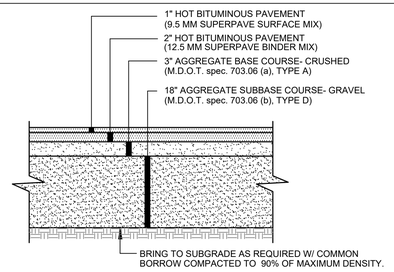

NOTES:

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

PARKING AREA PAVEMENT SECTION

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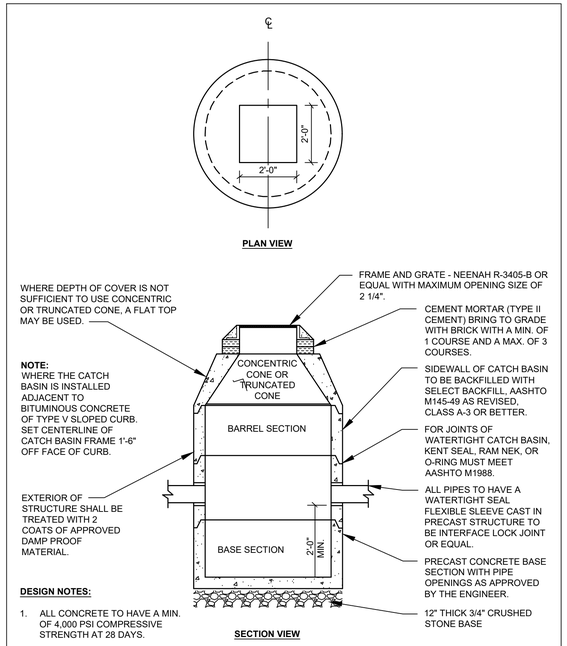

TYPICAL CATCH BASIN

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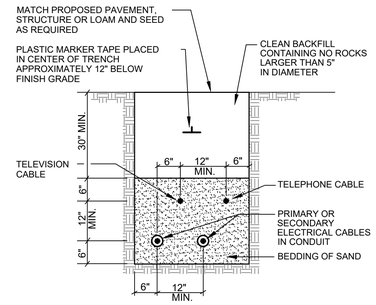

TYPICAL UNDERGROUND CABLE INSTALLATION

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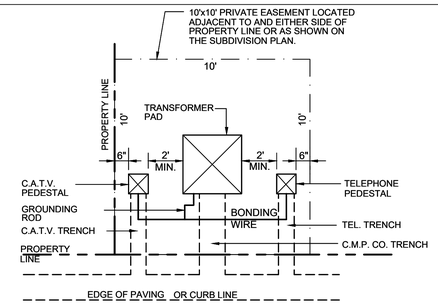
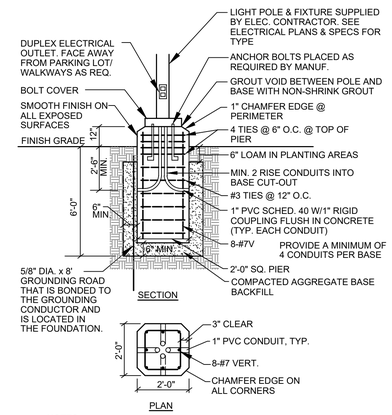


NOTE:
TRANSFORMER PAD AND COVER TO BE FIBERGLASS MEETING CENTRAL MAINE POWER SPECIFICATIONS.

TRANSFORMER DETAIL

NOT TO SCALE

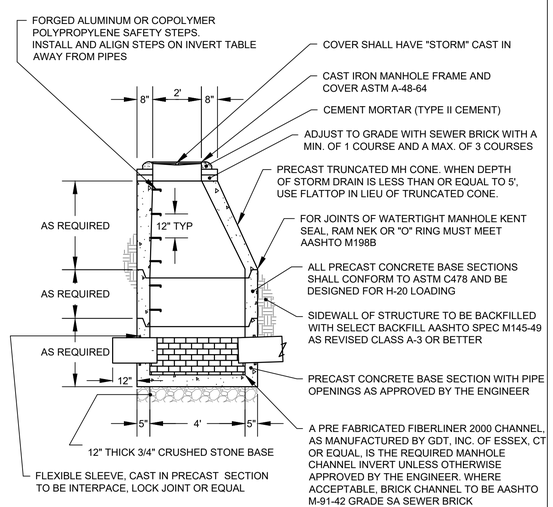


NOTES:

1. CONCRETE f'c=4000 psi.
2. REINF. STEEL GRADE 60 NEW BARS.
3. CONCRETE 3/4" AGG., 6 +/- 1% ENTRAINED AIR.
4. PROVIDE 2 COATS BITUMINOUS DAMPROOFING FOR ALL CONCRETE BELOW GRADE.
5. INSTALL BASE 3'-0" ABOVE FINISH GRADE IN LOCATIONS WHERE POLES ARE IN PARKING LOT PAVEMENT.
6. BID ALT - CONTRACTOR MAY SUBSTITUTE PRECAST CONCRETE LIGHT POLE BASE EQUAL TO ABOVE SPEC.

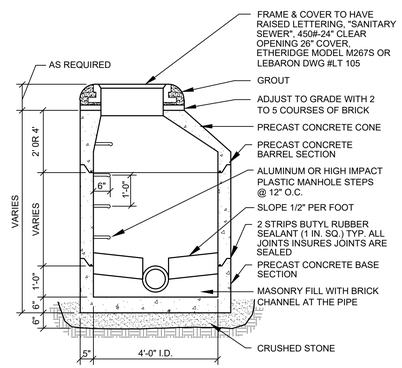
LIGHT POLE BASE

NOT TO SCALE



4' DIAMETER PRECAST STORM DRAIN MANHOLE

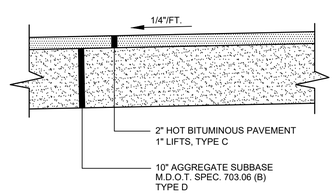
NOT TO SCALE



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

PRECAST SEWER MANHOLE

NOT TO SCALE



BITUMINOUS SIDEWALK

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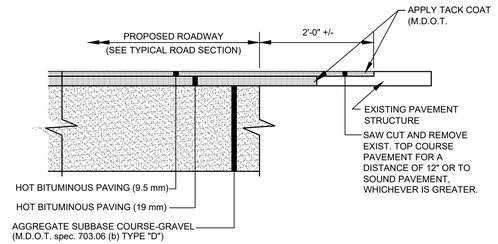

TYPICAL PAVEMENT JOINT

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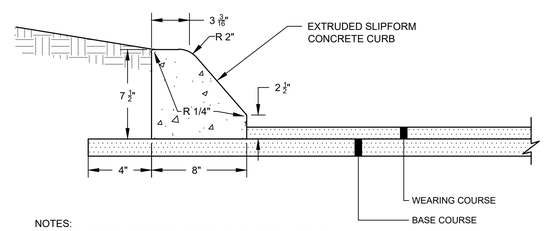
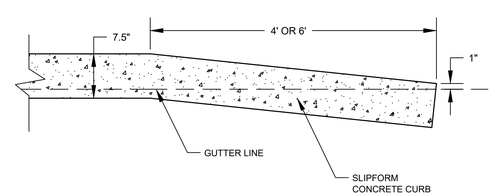


NOTES:

1. APPLY EPOXY BETWEEN BINDER PAVEMENT AND CURB
2. 1" TO 2" SLUMP
3. 5% TO 7% AIR ENTRAINMENT
4. 4,000 PSI CONCRETE WITH FIBER REINFORCEMENT

SLOPED SLIPFORM CONCRETE CURB DETAIL

NOT TO SCALE



SLIPFORM CURB TIPDOWN DETAIL

NOT TO SCALE

41 CAMPUS DRIVE SUITE 201 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE DETAILS - 2

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-6.2

C:\OD\Terradyn Consultants\Project Folders - Documents\2021 Jobs\21-13 South Street MHP\CAD\Permitting\21-13 D.dwg

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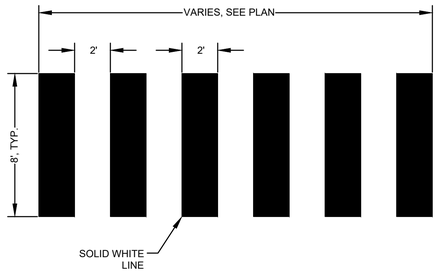
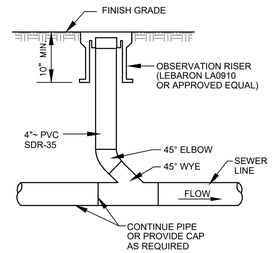


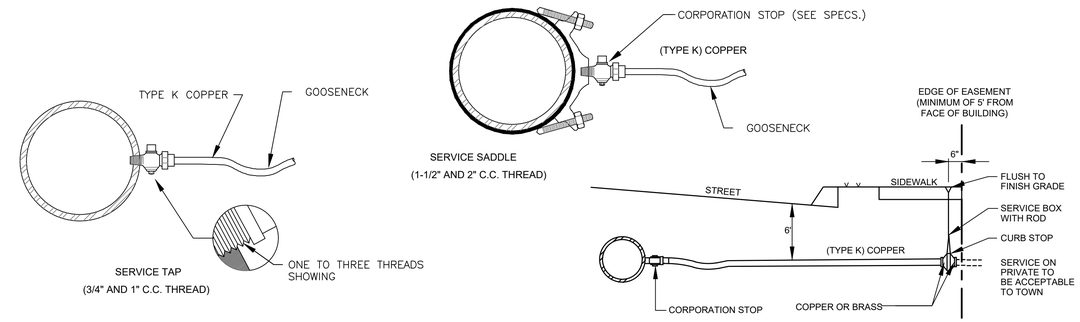
CROSSWALK STRIPING DETAIL

NOT TO SCALE



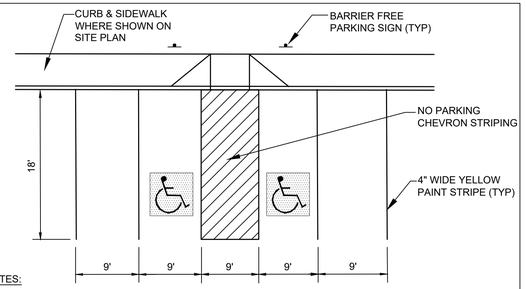
SEWER CLEANOUT

NOT TO SCALE



TYPICAL WATER SERVICE CONNECTION

NOT TO SCALE

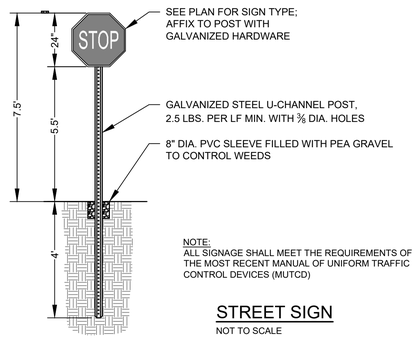


NOTES:

1. SEE SITE PLAN FOR NUMBER AND LOCATION OF BARRIER FREE PARKING SPACES.
2. BARRIER FREE GRAPHIC SYMBOL (PAINTED WHITE) TO BE CENTERED IN PARKING STALL. SYMBOL TO BE PAINTED ON BLUE NON-SKID BACKGROUND.

TYPICAL PARKING STALL DIMENSIONS

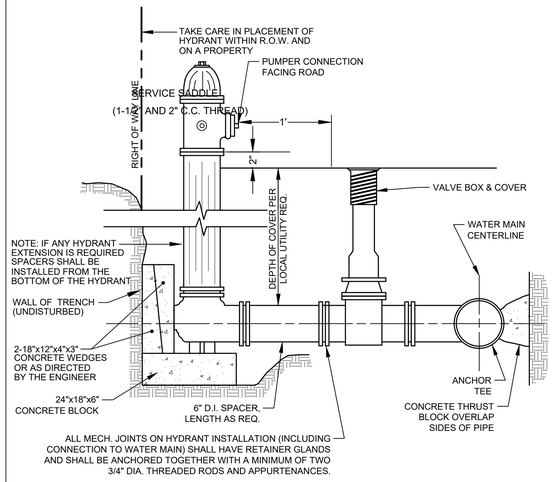
NOT TO SCALE



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

STREET SIGN

NOT TO SCALE

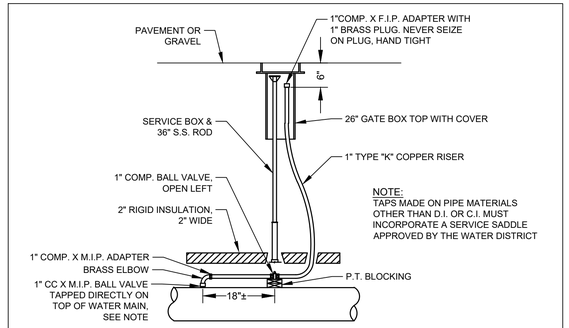


NOTES:

1. ALL MATERIALS SHALL CONFORM TO THE KENNEBUNK, KENNEBUNKPORT & WELLS WATER DISTRICT REQUIREMENTS
2. HYDRANT SHALL BE OPEN RIGHT
3. ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE

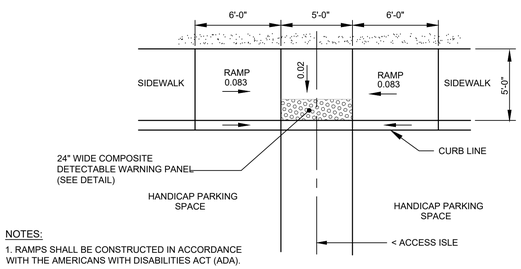
TYP. HYDRANT INSTALLATION

NOT TO SCALE



AIR RELEASE DETAIL

NOT TO SCALE

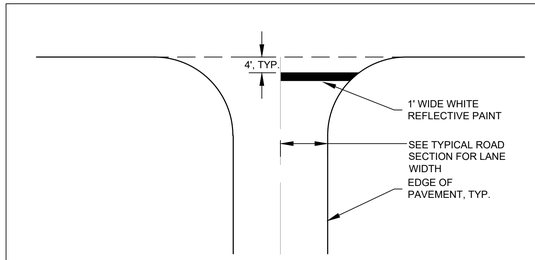


NOTES:

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

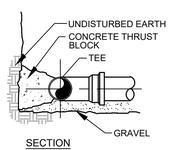
HANDICAP RAMP

NOT TO SCALE



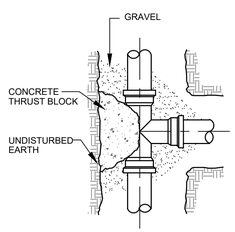
STOP BAR DETAIL

NOT TO SCALE

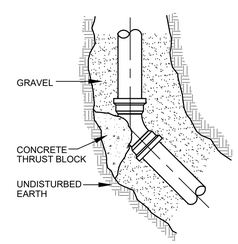


SECTION

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



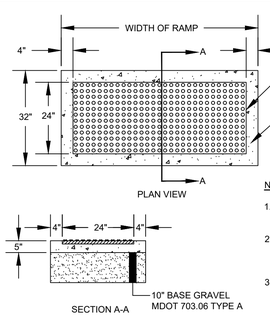
PLAN



45° BEND

TEE & BEND DETAIL

NOT TO SCALE

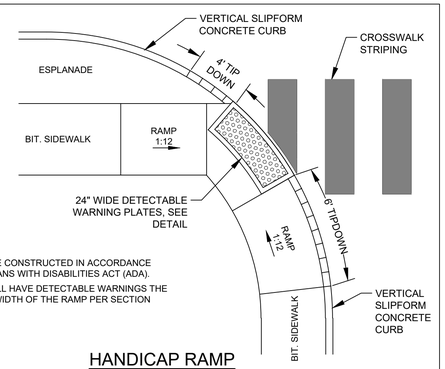


NOTES:

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

COMPOSITE DETECTABLE WARNING PANEL DETAIL

NOT TO SCALE



NOTES:

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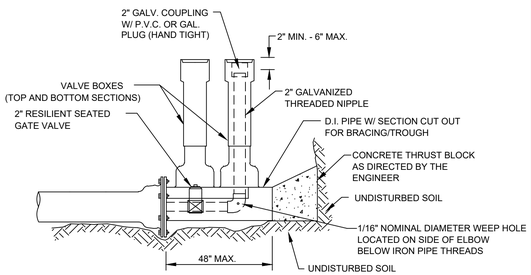
HANDICAP RAMP

NOT TO SCALE



STANDARD 2" BLOW OFF

NOT TO SCALE

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting
41 CAMPUS DRIVE SUITE 201 NEW GLOUCESTER, ME 04260
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE DETAILS - 3

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-6.3

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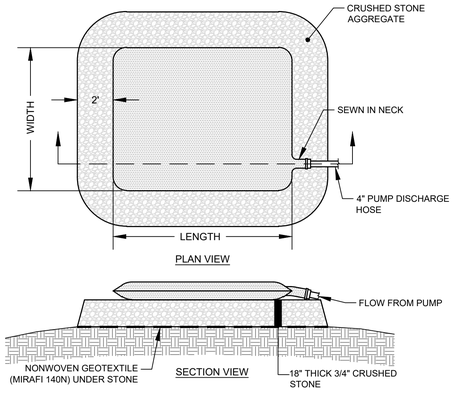
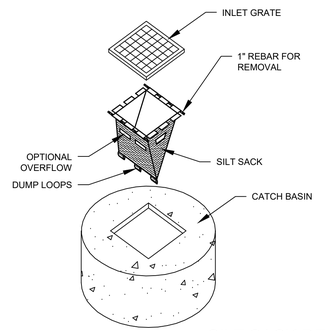
506



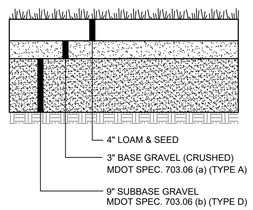
NOTES:
1. DIRTBAG BY ACF ENVIRONMENTAL
2. SEAMS MUST BE HIGH STRENGTH DOUBLE STITCHED "J" SEAMS.
3. CONSTRUCTION DEWATERING OF TURBID WATER SHALL BE PUMPED THROUGH A DIRTBAG AND RELEASED THROUGH A VEGETATED BUFFER AT LEAST 50' UPSTREAM OF WETLAND AREAS.
4. THE LOCATION OF THE DIRTBAG SHALL BE DETERMINED BY THE CONTRACTOR, BUT SHALL IT SHALL NOT BE SITED IN CRITICAL AREAS, SUCH AS WETLANDS.

DIRTBAG DETAIL
NOT TO SCALE

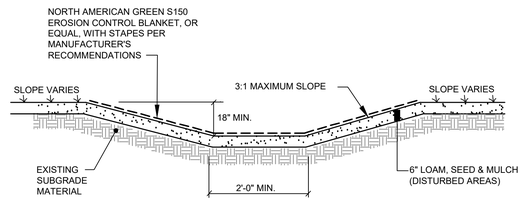


NOTES:
1. SILT SACKS TO BE INSTALLED IN ALL CATCH BASINS RECEIVING RUNOFF FROM DISTURBED AREA
2. SILT SACK TO BE MAINTAINED UNTIL TRIBUTARY ARE IS FULLY STABILIZED

SILT SACK DETAIL
NOT TO SCALE

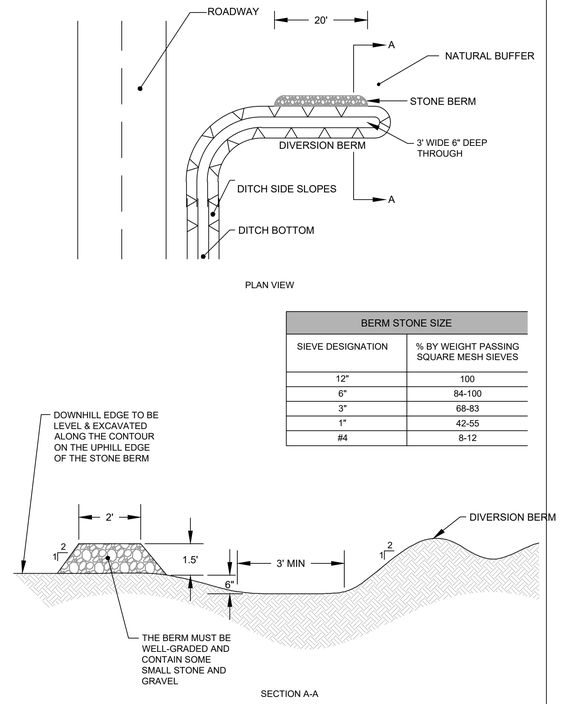


TYPICAL STORMWATER CONTROL AREA ACCESS CROSS-SECTION
NOT TO SCALE



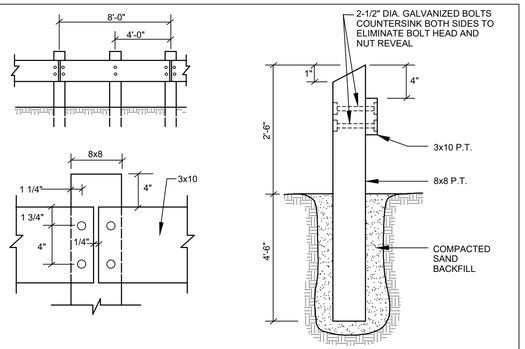
NOTE: REFER TO GRADING PLAN FOR DITCH WIDTH AND SIDE SLOPES

GRASSED SWALE
NOT TO SCALE

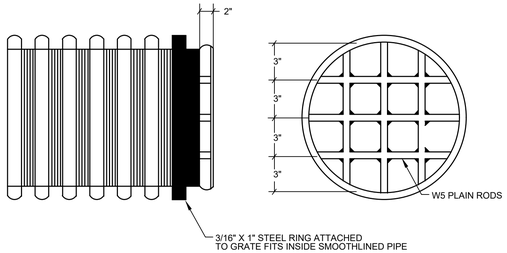


BERM STONE SIZE	
SIEVE DESIGNATION	% BY WEIGHT PASSING SQUARE MESH SIEVES
12"	100
6"	84-100
3"	68-83
1"	42-55
#4	8-12

TYPICAL LEVEL LIP SPREADER
NOT TO SCALE

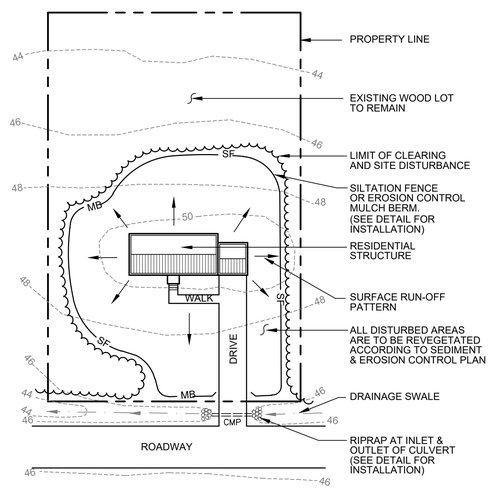


PRESSURE TREATED WOODEN GUARDRAIL
NOT TO SCALE



NOTES:
1. RODS CONFORM TO SECTION 709.1
2. GRATE TO HAVE ONE SHOP COAT OF ALUMINUM PAINT.
3. 3/8" GRADE 304 STAINLESS STEEL BOLT AND NUT (4 EA.)

INLET GRATE DETAIL
NOT TO SCALE



Inspection Notes for Lot Grading and Driveway location
Inspections by a professional engineer shall consist of a visit to the site prior to construction to consult with the earthwork contractor and a post construction meeting to confirm grading on lots and for all driveways to ensure runoff is directed according to plans and to oversee the re-stabilization of the lot into a vegetated cover.

TYPICAL EROSION CONTROL MEASURES FOR DWELLING UNITS
NOT TO SCALE

CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM OR HERSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIM OR HERSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

3. CONTRACTOR SHALL NOTIFY ENGINEER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND IN THE FIELD.

4. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND OWNER'S REQUIREMENTS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.

6. CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND SEDIMENT DEPOSITED ON PUBLIC STREETS, SIDEWALKS, ADJACENT AREAS, OR OTHER PUBLIC WAYS DUE TO CONSTRUCTION.

7. CONTRACTOR SHALL INCORPORATE PROVISIONS AS NECESSARY IN CONSTRUCTION TO PROTECT EXISTING STRUCTURES, PHYSICAL FEATURES, AND MAINTAIN SITE STABILITY DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL AREAS TO ORIGINAL CONDITION AND AS DIRECTED BY DESIGN DRAWINGS.

8. SITE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION.

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

10. THE CONTRACTOR IS HEREBY CAUTIONED THAT ALL SITE FEATURES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS BY THE SURVEYOR AND BY INFORMATION PROVIDED BY UTILITY COMPANIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT DIG SAFE (1-888-DIGSAFE) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES.

11. CONTRACTOR SHALL BE AWARE THAT DIG SAFE ONLY NOTIFIES ITS "MEMBER" UTILITIES ABOUT THE DIG. WHEN NOTIFIED, DIG SAFE WILL ADVISE CONTRACTOR OF MEMBER UTILITIES IN THE AREA. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND CONTACTING NON-MEMBER UTILITIES DIRECTLY. NON-MEMBER UTILITIES MAY INCLUDE TOWN OR CITY WATER AND SEWER DISTRICTS AND SMALL LOCAL UTILITIES, AS WELL AS USG PUBLIC WORKS SYSTEMS.

12. CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF 23 MRSA 3360-A. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE APPROPRIATE UTILITIES TO OBTAIN AUTHORIZATION PRIOR TO RELOCATION OF ANY EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS. IF A UTILITY CONFLICT ARISES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER, THE MUNICIPALITY AND APPROPRIATE UTILITY COMPANY PRIOR TO PROCEEDING WITH ANY RELOCATION.

13. ALL PAVEMENT MARKINGS AND DIRECTIONAL SIGNAGE SHOWN ON THE PLAN SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS.

14. ALL PAVEMENT JOINTS SHALL BE SAWCUT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.

15. NO HOLES, TRENCHES OR STRUCTURES SHALL BE LEFT OPEN OVERNIGHT IN ANY EXCAVATION ACCESSIBLE TO THE PUBLIC OR IN PUBLIC RIGHTS-OF-WAY.

16. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL REQUIRE A M.D.O.T. PERMIT AS WELL AS PERMITS FROM THE TOWN AS APPLICABLE.

17. THE PROPOSED LIMITS OF CLEARING SHOWN HEREON ARE APPROXIMATE BASED UPON THE PROPOSED LIMITS OF SITE GRADING. THE APPLICANT RESERVES THE RIGHT TO PERFORM NORMAL FOREST MANAGEMENT ACTIVITIES OUTSIDE OF THE CLEARING LIMIT AS SHOWN. TREE REMOVAL OUTSIDE OF THE LIMITS OF CLEARING MAY BE NECESSARY TO REMOVE DEAD OR DYING TREES OR TREE LIMBS. THIS REMOVAL IS DUE TO POTENTIAL SAFETY HAZARDS AND TO PROMOTE PROPER FOREST GROWTH.

18. IMMEDIATELY UPON COMPLETION OF CUTS/FILLS, THE CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH EROSION CONTROL NOTES AND AS SPECIFIED ON PLANS.

19. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR THE REMOVAL, REPLACEMENT AND RECTIFICATION OF ALL DAMAGED AND DEFECTIVE MATERIAL AND WORKMANSHIP IN CONNECTION WITH THE CONTRACT WORK. THE CONTRACTOR SHALL REPLACE OR REPAIR AS DIRECTED BY THE OWNER ALL SUCH DAMAGED OR DEFECTIVE MATERIALS WHICH APPEAR WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.

20. ALL WORK PERFORMED BY THE GENERAL CONTRACTOR AND/OR TRADE SUBCONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF LOCAL, STATE OR FEDERAL LAWS, AS WELL AS ANY OTHER GOVERNING REQUIREMENTS, WHETHER OR NOT SPECIFIED ON THE DRAWINGS.

21. WHERE THE TERMS "APPROVED EQUAL", "OTHER APPROVED", "EQUAL TO", "ACCEPTABLE" OR OTHER GENERAL QUALIFYING TERMS ARE USED IN THESE NOTES, IT SHALL BE UNDERSTOOD THAT REFERENCE IS MADE TO THE RULING AND JUDGMENT OF TERRADYN CONSULTANTS, LLC.

22. THE GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION FOR THE WORK UNTIL TURNED OVER TO THE OWNER.

23. THE GENERAL CONTRACTOR SHALL MAINTAIN A CURRENT AND COMPLETE SET OF CONSTRUCTION DRAWINGS ON SITE DURING ALL PHASES OF CONSTRUCTION FOR USE OF ALL TRADES.

24. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ANY CHANGES AND DEVIATION OF APPROVED PLANS NOT AUTHORIZED BY THE ARCHITECT/ENGINEER AND/OR CLIENT/OWNER.

25. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. ANY MODIFICATION TO SUIT FIELD DIMENSION AND CONDITION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY WORK.

26. BEFORE THE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS, REPAIR OR REPLACE PRIVATE OR PUBLIC PROPERTY WHICH MAY HAVE BEEN DAMAGED OR DESTROYED DURING CONSTRUCTION, CLEAN THE AREAS WITHIN AND ADJACENT TO THE PROJECT WHICH HAVE BEEN OBSTRUCTED BY HIS/HER OPERATIONS, AND LEAVE THE PROJECT AREA NEAT AND PRESENTABLE.

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
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565 CONGRESS STREET, SUITE 201, PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE: SITE DETAILS - 4

CLIENT: SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-6.4

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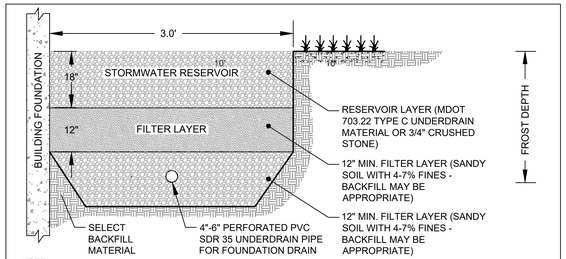
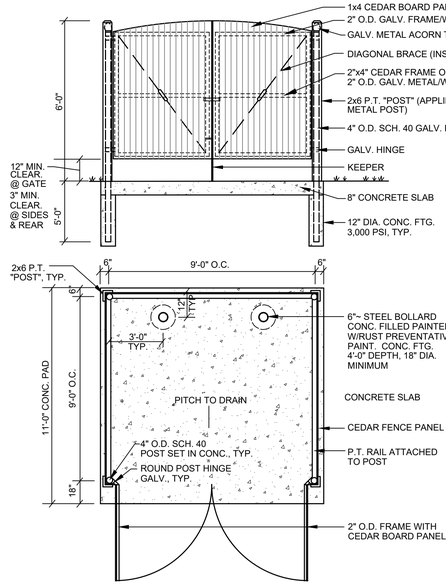


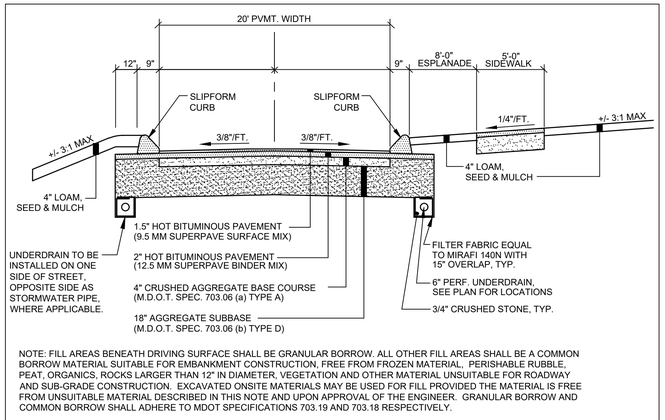
NOTE:
FILTER BED TO BE INSTALLED WITH A LOW POINT THAT ALLOWS OVERFLOW RUNOFF TO LEAVE FILTER BED VIA SHEET FLOW. LOWEST TOP ELEVATION TO BE HELD CONSTANT FOR AT LEAST 5' SO IT MAY FUNCTION SIMILARLY TO A LEVEL SPREADER.

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

ROOF DRIPLINE FILTER BED
NOT TO SCALE



TYPICAL DUMPSTER ENCLOSURE
NOT TO SCALE



NOTE: FILL AREAS BENEATH DRIVING SURFACE SHALL BE GRANULAR BORROW. ALL OTHER FILL AREAS SHALL BE A COMMON BORROW MATERIAL SUITABLE FOR EMBANKMENT CONSTRUCTION, FREE FROM FROZEN MATERIAL, PERISHABLE RUBBLE, PEAT, ORGANICS, ROCKS LARGER THAN 12" IN DIAMETER, VEGETATION AND OTHER MATERIAL UNSUITABLE FOR ROADWAY AND SUB-GRADE CONSTRUCTION. EXCAVATED ONSITE MATERIALS MAY BE USED FOR FILL PROVIDED THE MATERIAL IS FREE FROM UNSUITABLE MATERIAL DESCRIBED IN THIS NOTE AND UPON APPROVAL OF THE ENGINEER. GRANULAR BORROW AND COMMON BORROW SHALL ADHERE TO MDOT SPECIFICATIONS 703.19 AND 703.18 RESPECTIVELY.

TYPICAL MINOR LOCAL STREET SECTION
NOT TO SCALE

CONSTRUCTION INSPECTION NOTES:

1. THE DESIGN ENGINEER SHALL INSPECT THE CONSTRUCTION AND STABILIZATION OF THE GRAVEL WETLAND. INSPECTIONS SHALL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT THE CONSTRUCTION (FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE POND) OF THE POND'S EMBANKMENT, STORMWATER INLET, GRAVEL AND FILTER MATERIAL MAKEUP AND PLACEMENT, OUTLET CONTROL STRUCTURE, LINER INSTALLATION, AND EMERGENCY SPILLWAY. IF NECESSARY, THE INSPECTING ENGINEER SHALL INTERPRET THE POND'S CONSTRUCTION PLAN FOR THE CONTRACTOR. ONCE THE POND IS CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE CITY WITHIN 14 DAYS TO STATE THE POND HAS BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION SHALL BE A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT, AND INCLUDE ANY TESTING DATA OR SIEVE ANALYSIS DATA OF THE MATERIALS USED. AN INSPECTION OF THE UNDERDRAINED GRAVEL OUTLET SHALL ALSO BE PERFORMED BY A PROFESSIONAL ENGINEER ONE YEAR AFTER THE FINAL STABILIZATION OF THE POND. THE ENGINEER SHALL NOTIFY THE CITY AS TO THE OUTLET'S EFFECTIVENESS AND DETERMINE ANY MAINTENANCE ITEMS THAT ARE NEEDED.

2. THE APPLICANT SHALL BE REQUIRED TO PERFORM ROUTINE INSPECTION AND MAINTENANCE OF THE STORMWATER FACILITIES AS OUTLINED IN THE OPERATIONS AND MAINTENANCE MANUAL DEVELOPMENT SPECIFICALLY FOR THE SITE. A COPY OF THE ANNUAL INSPECTION AND MAINTENANCE REPORT INCLUDING INSPECTION LOG(S) SHALL BE SUBMITTED ANNUALLY (BY JULY 15TH OF EACH YEAR) TO THE CITY PUBLIC WORKS DEPARTMENT.

GRAVEL WETLAND INSTALLATION NOTES:

1. THE MINIMUM SPACING BETWEEN THE SUBSURFACE PERFORATED DISTRIBUTION LINE AND THE SUBSURFACE PERFORATED COLLECTION DRAIN AT EITHER END OF THE GRAVEL IN EACH TREATMENT CELL IS 15 FT.

2. THERE SHOULD BE A MINIMUM HORIZONTAL TRAVEL DISTANCE OF 15 FT WITHIN THE GRAVEL LAYER IN EACH CELL.

3. VERTICAL PERFORATED OR SLOTTED RISER PIPES DELIVER WATER FROM THE SURFACE DOWN TO THE SUBSURFACE, PERFORATED OR SLOTTED DISTRIBUTION LINES. THESE RISERS SHALL HAVE A MAXIMUM SPACING OF 10 FEET.

4. SLOTTED VERTICAL RISERS SHALL HAVE A MINIMUM DIAMETER OF 12" FOR THE CENTRAL RISER AND 6" FOR END RISERS. THE VERTICAL RISERS SHALL NOT BE CAPPED, BUT RATHER COVERED WITH AN INLET GRATE.

5. VERTICAL CLEANOUTS CONNECTED TO THE DISTRIBUTION AND COLLECTION SUBDRAINS, AT EACH END, SHALL BE PERFORATED OR SLOTTED ONLY WITHIN THE GRAVEL LAYER, AND SOLID WITHIN THE WETLAND SOIL AND STORAGE AREA ABOVE.

6. TREATMENT CELL FLOOR TO BE GRADED FLAT.

7. BERMS AND WEIRS SEPARATING THE FOREBAY AND TREATMENT CELLS SHOULD BE CONSTRUCTED WITH CLAY, OR NON-CONDUCTIVE SOILS, AND/OR A FINE GEOTEXTILE, OR SOME COMBINATION THEREOF, TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THESE EARTHEN DIVIDERS.

8. THE SYSTEM SHOULD BE PLANTED TO ACHIEVE A RIGOROUS ROOT MAT WITH GRASSES, FORBS, AND SHRUBS WITH OBLIGATE AND FACULTATIVE WETLAND SPECIES.

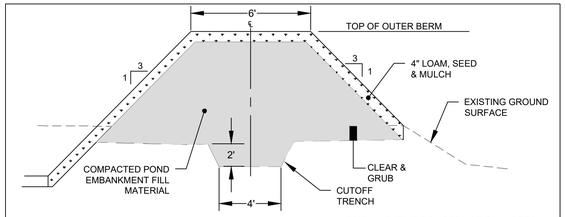
9. THE SUBAREA DRAINING TO A CREATED WETLAND MUST BE COMPLETELY STABLE BEFORE RUNOFF IS DIRECTED TO THE BASIN TO PREVENT SEDIMENTATION OF THE DRAINAGE LAYER; OR ALL RUNOFF SHOULD BE RE-DIRECTED UNTIL CONSTRUCTION IS FINALIZED. THE VEGETATION WITHIN THE STRUCTURE IS EQUALLY IMPORTANT AND MUST BE WELL ESTABLISHED BEFORE IT CAN ACCEPT ANY RUNOFF.

10. GRAVEL WETLAND STORMWATER AREA TO BE SEEDED WITH "NEW ENGLAND WETMIX" AS DISTRIBUTED BY NEW ENGLAND WETLAND PLANTS, INC., 820 WEST STREET, AMHERST, MA 01002, PHONE 413-548-8000, EMAIL INFO@NEWP.COM, OR APPROVED EQUIVALENT. APPLY AT A RATE OF 1 LB/2,500 SF.

11. THE SEEDS WILL NOT GERMINATE UNDER INUNDATED CONDITIONS. IF PLANTED DURING THE FALL MONTHS THE SEED MIX WILL GERMINATE THE FOLLOWING SPRING. DURING THE FIRST SEASON OF GROWTH SEVERAL SPECIES WILL PRODUCE SEEDS WHILE OTHER SPECIES WILL PRODUCE SEEDS AFTER THE SECOND GROWING SEASON. NOT ALL SPECIES WILL GROW IN ALL WETLAND SITUATIONS. THIS MIX IS COMPRISED OF THE WETLAND SPECIES MOST LIKELY TO GROW IN CREATED/RESTORED WETLANDS AND SHOULD PRODUCE MORE THAN 75% GROUND COVER IN TWO FULL GROWING SEASONS.

12. THE WETLAND SEEDS IN THIS MIX CAN BE SOWN BY HAND, WITH A HAND-HELD SPREADER, OR HYDRO-SEEDED ON LARGE OR HARD TO REACH SITES. LIGHTLY RAKE TO ENSURE GOOD SEED-TO-SOIL CONTACT. SEEDING CAN TAKE PLACE ON FROZEN SOIL, AS THE FREEZING AND THAWING WEATHER OF LATE FALL AND LATE WINTER WILL WORK THE SEED INTO THE SOIL. IF SPRING CONDITIONS ARE DRIER THAN USUAL, WATERING MAY BE REQUIRED. IF SOWING DURING THE SUMMER MONTHS, SUPPLEMENTAL WATERING WILL LIKELY BE REQUIRED UNTIL GERMINATION. A LIGHT MULCH OF CLEAN, WEED FREE STRAW IS RECOMMENDED.

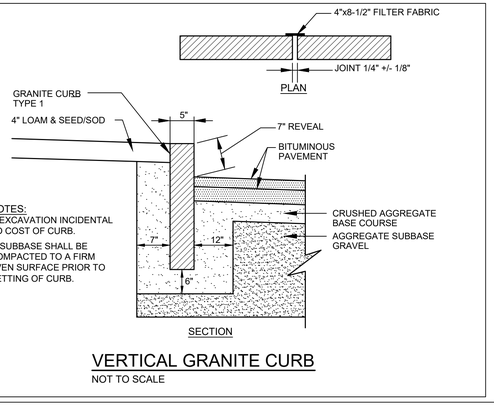
13. THE POND CONSTRUCTION SHOULD BE ONLY CONSTRUCTED UNDER THE SUPERVISION OF THE DESIGN ENGINEER.



EMBANKMENT FILL MATERIAL:
FILL MUST BE FREE OF FROZEN SOIL, ROCKS OVER SIX INCHES, AND SOD, BRUSH, STUMPS, TREE ROOTS, WOOD, OR OTHER PERISHABLE MATERIALS. EMBANKMENT FILLS LESS THAN 10 FEET IN FILL HEIGHT MUST BE COMPACTED USING COMPACTION METHODS THAT WOULD GUARANTEE A FILL DENSITY OF 90% OF THE MAXIMUM DENSITY AS DETERMINED BY STANDARD PROCTOR (ASTM-698). ALL EMBANKMENT FILLS MORE THAN 10 FEET IN FILL HEIGHT MUST BE COMPACTED TO 90% OF THE MAXIMUM DENSITY AND MUST HAVE THEIR DENSITY VERIFIED BY FIELD DENSITY TESTING.

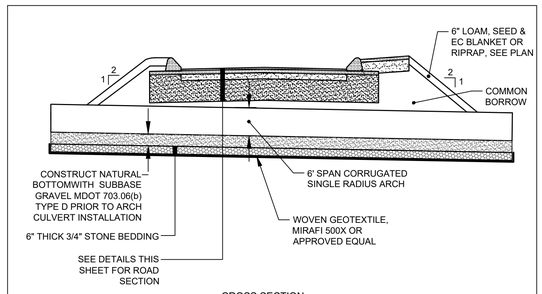
EMBANKMENT CONSTRUCTION NOTES:
1. CONTRACTOR SHALL REMOVE ALL TOPSOIL AND ORGANIC MATERIAL FROM EMBANKMENT AND POND CONSTRUCTION AREA.
2. SCARIFY SUBGRADE TO ESTABLISH INTERFACE FOR ALL FILLS.
3. COMPACT IN 12" LIFTS TO 92% OF MAXIMUM DRY DENSITY.
4. INSTALL RIPRAP AND EROSION CONTROL MESH WHERE SPECIFIED.
5. LOAM, SEED & STABILIZE IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN & NOTES.

POND EMBANKMENT DETAIL
NOT TO SCALE

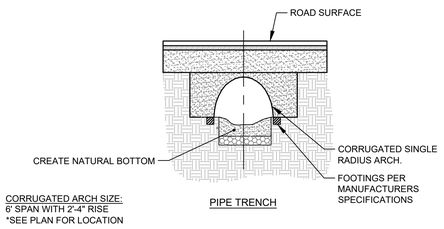


NOTES:
1. EXCAVATION INCIDENTAL TO COST OF CURB.
2. SUBBASE SHALL BE COMPACTED TO A FIRM EVEN SURFACE PRIOR TO SETTING OF CURB.

VERTICAL GRANITE CURB
NOT TO SCALE



CROSS SECTION



CORRUGATED ARCH SIZE:
6' SPAN WITH 2'-4" RISE
*SEE PLAN FOR LOCATION

PIPE TRENCH

NOTES:
1. SEE TYPICAL TRENCH DETAIL FOR BACKFILL REQUIREMENTS

STREAM CROSSING DETAIL
NOT TO SCALE

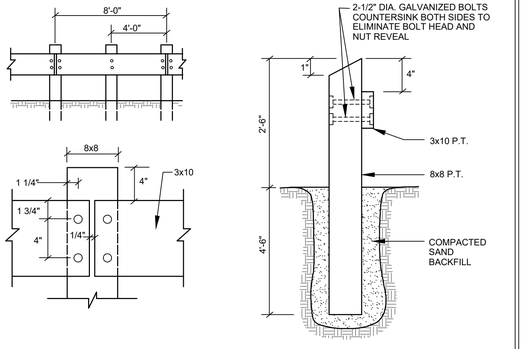
ORGANIC WETLAND SOIL MIXTURE:

1. THE WETLAND SOIL SHOULD HAVE A LOW HYDRAULIC CONDUCTIVITY (0.1-0.01 FT/DAY). THIS SOIL CAN BE MANUFACTURED USING COMPOST, SAND AND FINE SOILS, INTO A BLEND WITH MORE THAN 15% ORGANIC MATTER. IT SHOULD CONTAIN MORE THAN 15% SILT (PASSING THE #200 SIEVE); BUT WITH A CLAY SIZE PORTION THAT IS LESS THAN 2%. DO NOT USE GEOTEXTILES BETWEEN THE HORIZONTAL LAYERS OF THIS SYSTEM AS THEY WILL CLOG DUE TO FINES AND MAY RESTRICT ROOT GROWTH.

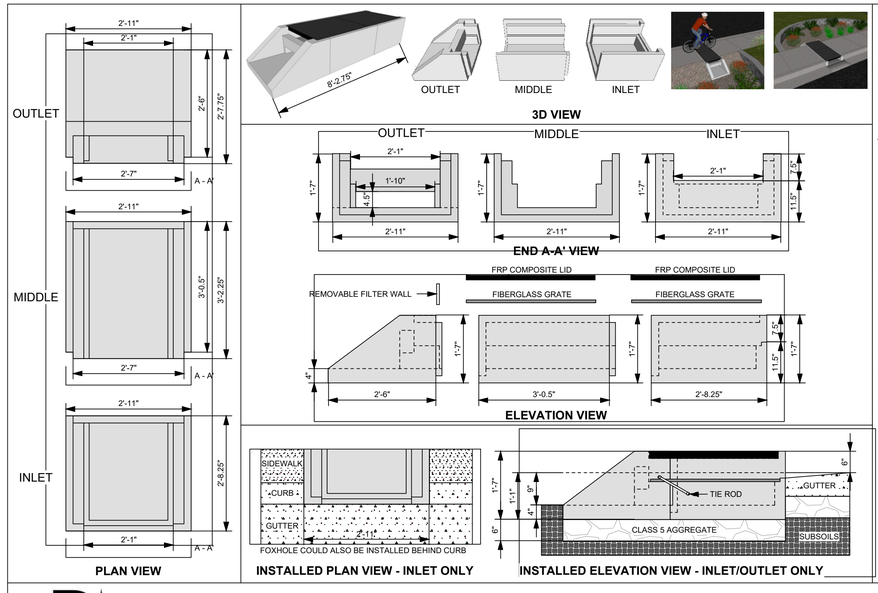
POND DEWATERING NOTES:

1. DEWATERING OF THE FOREBAY AND TREATMENT CELLS OF THE POND SHALL BE CONDUCTED SUCH THAT THE POND WILL NOT FILL WITH WATER UNTIL THE FOREBAY & TREATMENT CELL FLOORS ARE COMPLETED.

2. DEWATERING PROCEDURES SHALL BE CONDUCTED USING MDEP APPROVED TECHNIQUES AND SHALL INCLUDE THE USE OF A DIRT BAG SYSTEM. THE DIRT BAG SHALL BE USED ACCORDING TO MANUFACTURER INSTRUCTIONS.



PEDESTRIAN GUARDRAIL
NOT TO SCALE



SPECIFICATIONS
1. STEEL REINFORCED, COLD JOINT SECURED MONOLITHIC CONCRETE STRUCTURES (INLET 875 LBS, MIDDLE 965 LBS, AND OUTLET 730 LBS). CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS. CONCRETE AIR ENTRAINED (4% TO 8% BY VOLUME). MANUFACTURED AND DESIGNED TO ASTM C858.
2. 2-POINT PICK USING RECESSED LIFTING POCKETS WITH A STANDARD HOOK.
3. FIBERGLASS GRATE (11 LBS/PIECE).
4. FRP COMPOSITE LID (36 LBS/PIECE) WITH CONCENTRATED LOAD CAPACITY OF 3,400 LBS.

INSTALLATION NOTES
1. INSTALL A CLASS 5 BASE (COMPACTED TO 95% STANDARD PROCTOR). THE DISTANCE FROM THE BACK OF THE CURB MAY VARY BASED ON SITE CONDITIONS. EXCAVATE 1' 7" BELOW THE GUTTERLINE ELEVATION (I.E. THE BIORETENTION OVERFLOW ELEVATION) TO ACCOMMODATE THE 9" PONDING DEPTH, 6" CLASS 5 AGGREGATE, AND 4" RAIN GUARDIAN FOXHOLE BASE (INCLUDED). THEREFORE, THE TOP OF THE CLASS 5 COMPACTED BASE IS PRECISELY 1' 1" BELOW THE GUTTERLINE ELEVATION. THE TOP OF THE RAIN GUARDIAN FOXHOLE INLET POINT WILL BE 7-1/2" ABOVE THE TOP OF THE CONCRETE BASE AND 1-1/2" BELOW THE GUTTERLINE ELEVATION TO ACCOMMODATE A SLOPED INLET FROM THE GUTTER TO THE RAIN GUARDIAN FOXHOLE.

2. SET RAIN GUARDIAN FOXHOLE INLET FIRST, FOLLOWED BY MIDDLE SECTION(S) (FOR THIS INSTALLATION INSTALL THREE MIDDLE SECTIONS TO ACCOMMODATE THE SIDEWALK AND ESPLANADE) , AND FINALLY THE OUTLET ON THE PREPARED CLASS 5 BASE. POSITION RAIN GUARDIAN FOXHOLE OUTLET PIECE SO PRIMARY OUTLET ALIGNS WITH TOE OF BASIN SIDE SLOPE TO AVOID SOIL INTERFERENCE WITH REMOVABLE FILTER WALL.

3. SECURE MODULAR FOXHOLE PIECES AT EACH JOINT USING PROVIDED GALVANIZED TIE RODS.

4. INSTALL EXPANSION/CONTRACTION JOINT MATERIAL OR A SHEET OF POLY TO SERVE AS A BOND BREAK BETWEEN RAIN GUARDIAN FOXHOLE AND CONCRETE INLET BEFORE POURING INLET.

5. REMOVABLE FILTER WALL SHOULD BE INSTALLED WITH FILTER FABRIC FACING THE RAIN GUARDIAN FOXHOLE INLET.

MANUFACTURED BY: FORTERRA Structural & Specialty

RAIN GUARDIAN
PRETREATMENT FOR BIORETENTION
Rain Gardens • Swales • Filtration Basins • Infiltration Basins

RAIN GUARDIAN FOXHOLE
NOT TO SCALE

STATE OF MAINE
JEFFREY D. AMOS
No. PE10167
LICENSED
PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
A	04-13-2022	PRELIMINARY SUBMISSION	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA

41 CAMPUS DRIVE
SUITE 301
NEW GLOUCESTER, ME 04260

565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102

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www.terradynconsultants.com

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Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
SITE DETAILS - 5

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	C-6.5

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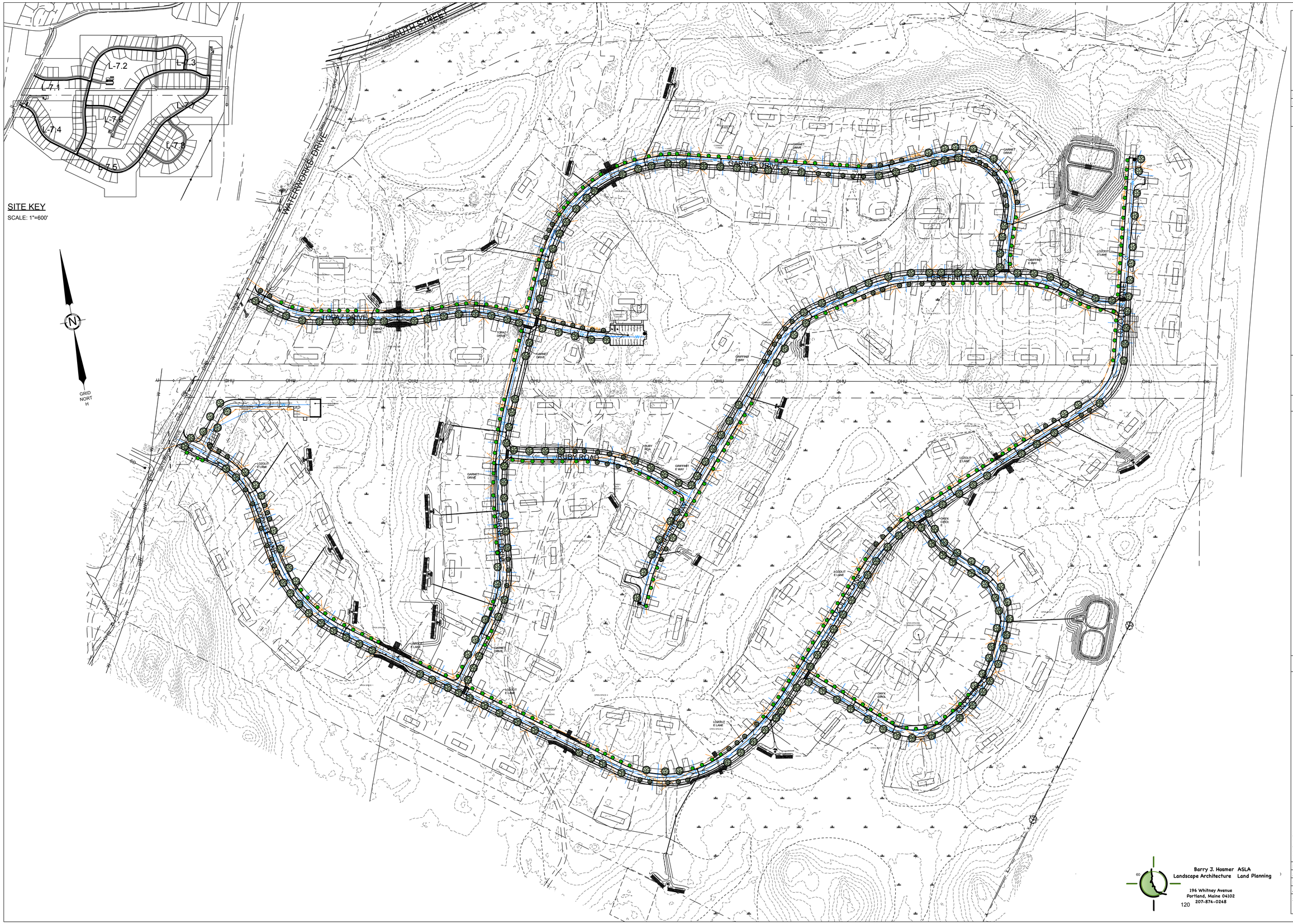
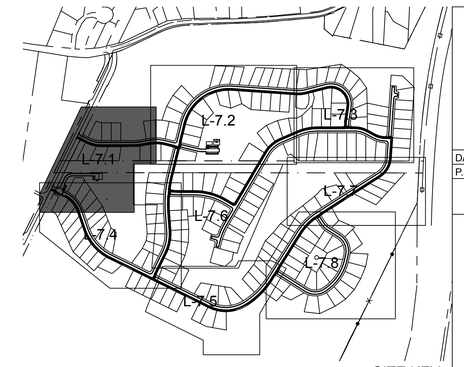

L-7.1
L-7.2
L-7.3
L-7.4
L-7.5
L-7.6
L-7.7
L-7.8
SITE KEY
SCALE: 1"=600'
GRID NORTH
SOUTH STREET
WATERWORKS DRIVE
TOPAZ DRIVE
GARNET DRIVE
GRIFFINE WAY
ONYX CIRCLE
LOZOLIT LANE
OPEN SPACE 1
OPEN SPACE 2
OPEN SPACE 3
OPEN SPACE 4
OPEN SPACE 5
OPEN SPACE 6
OPEN SPACE 7
OPEN SPACE 8
OPEN SPACE 9
OPEN SPACE 10
OPEN SPACE 11
OPEN SPACE 12
OPEN SPACE 13
OPEN SPACE



SITE KEY

SCALE: 1"=600'

Hidden Hills Selected Street Tree List (Potential Species)

Upright/Oval Trees with simple leaves

Acer x Fremanii, Hybrid Maples: Firefall, Marmo, Sienna Glen
Acer miyabei, Miyabe Maple: State Street
Acer rubrum, Red Maple: Autumn Radiance, Northwood, Red Sunset
Acer saccharum, Sugar Maple: Green Mountain
Celtis occidentalis, Common Hackberry: Magnifica
Corylus colurna, Turkish Filbert
Liquidambar styraciflua, Sweetgum: Moraine
Liriodendron tulipifera, Tuliptree: Emerald City
Nyssa sylvatica, Black Tupelo (Gum): Green Gable, Northern Splendor, Tupelo Tower
Platanus x acerfolia, London Planetree: Exclamation
Quercus bicolor, Swamp White Oak: American Dream
Quercus imbricaria, Shingle Oak:
Quercus macrocarpa, Burr Oak: Urban Pinnacle
Quercus rubra, Red Oak
Tilia americana, American Linden: American Sentry
Tilia tomentosa, Silver Linden: Sterling
Ulmus americana, American Elm: Prairie Expedition, Princeton, Valley Forge

Upright/Oval Trees with compound leaves

Cladrastis kentuckea, Yellowwood
Gleditsia Triacanthos inermis, Honeylocust: Halka, Northern Acclaim, Street Keeper
Gymnocladus dioicus, Kentucky Coffeetree: Espresso, Prairie Titan

Columnar Trees

Acer x Fremanii, Hybrid Maples: Armstrong
Acer rubrum, Red Maple: Bowhall, Karpick
Carpinus caroliniana), American Hornbeam: Firespire, Rising Fire
Celtis occidentalis, Common Hackberry: Prairie Sentinel
Liquidambar styraciflua, Sweetgum: Slender Silhouette
Liriodendron tulipifera, Tuliptree: Arnold
Parrotia persica, Persian Parrotia: Vanessa
Quercus bicolor, Swamp White Oak: Beacon
Quercus robur x alba, Hybrid Oak: Crimson Spire, Skinny Genes, Streetspire

Smaller Stature Ornamental Trees (Under Power lines)

Amelanchier x laevis and grandiflora, Serviceberry: Spring Flurry, Robin Hill
Betula platyphylla, Asian White Birch: Dakota Pinnacle, Parkland Pillar
Carpinus caroliniana, American Hornbeam: Firespire
Cornus mas, Cornelian Cheery Dogwood: Golden Glory
Maackia amurensis, Amur Maackia: Starburst, Summertime

Malus, Crabapples: Adirondack, Emerald Spire, Pink Spires, Spring Snow
Prunus sargentii, Sargent Cherry: Pink Flair
Prunus sargentii x subhirtella, Hybrid Cherry: Accolade
Pyrus calleryana, Ornamental Pear: Jack
Syringa reticulata, Japanese Tree Lilac: Ivory Silk, Snowcap

Limit the same genus to 15% to 20% of the total trees.
Trees shall be at least 1.75" - 2" caliper in size for street trees.
All trees shall be staked. Ample soil volume shall be provided for each tree prior to planting.

Street Tree Totals:

Canopy Trees: 251
Columnar Trees: 93
Ornamental Trees": 255

Barry J. Hosmer ASLA
Landscape Architecture Land Planning
196 Whitney Avenue
Portland, Maine 04102
207-874-0248

DATE:	DATE
P.E.:	P.E.

NO.	DATE	REVISION	REVISIONS	APP'D BY
NO.	DATE			

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41 CAMPUS DRIVE SUITE 301 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
LANDSCAPE PLAN - 1

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	BJH
JOB NO:	21-13
SHEET	L-7.1

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Barry J. Hosmer ASLA
Landscape Architecture Land Planning
196 Whitney Avenue
Portland, Maine 04102
207-874-0248

DATE:	DATE
P.E.:	P.E.

NO.	DATE	REVISION	APP'D BY
NO.	DATE	REVISIONS	

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NEW GLOUCESTER, ME 04260

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PORTLAND, ME 04102

OFFICE: (207) 926-5111 FAX: (207) 221-1317
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
LANDCSAPE PLAN - 2

CLIENT:
SOUTH STREET VILLAGE, LLC
782 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	BJH
JOB NO:	21-13
SHEET	L-7.2

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GARNET DRIVE

GRIFFINIT E WAY

LOZOLIT E LANE

OPEN SPACE 1

OPEN SPACE 3

OPEN SPACE 4

GRID NORTH

SITE KEY

SCALE: 1"=600'

L-7.1 L-7.2 L-7.3 L-7.4 L-7.5 L-7.6 L-7.7 L-7.8

Graphic Legend

Canopy Tree (Simple and Compound Leaves)

Columnar Tree

Ornamental Tree

Barry J. Hosmer ASLA
Landscape Architecture Land Planning

196 Whitney Avenue
Portland, Maine 04102
207-874-0248

NO.	DATE	REVISION	APP'D BY

DATE: DATE
P.E.: P.E.

REVISIONS

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SUITE 301
NEW GLOUCESTER, ME 04260

565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102

OFFICE: (207) 926-5111 FAX: (207) 221-1317
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
LANDSCAPE PLAN - 3

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	BJH
JOB NO:	21-13
SHEET	L-7.3

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WATERWORKS DRIVE

MAILBOX KIOSK

LOZOLITE LANE

GARNET DRIVE

OPEN SPACE 1

OPEN SPACE 2

GRID NORTH

Graphic Legend

- Canopy Tree (Simple and Compound Leaves)
- Columnar Tree
- Ornamental Tree

SITE KEY

SCALE: 1"=600'

L-7.1 L-7.2 L-7.3 L-7.4 L-7.5 L-7.6 L-7.7 L-7.8

Barry J. Hosmer ASLA
Landscape Architecture Land Planning

196 Whitney Avenue
Portland, Maine 04102
207-874-0248

DATE:	DATE
P.E.:	P.E.

NO.	DATE	REVISION	REVISIONS	APP'D BY

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NEW GLOUCESTER, ME 04260

565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102

OFFICE: (207) 926-5111 FAX: (207) 221-1317
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CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
LANDSCAPE PLAN - 4

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	BJH
JOB NO:	21-13
SHEET	L-7.4

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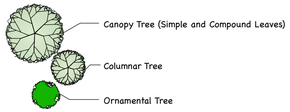
Graphic Legend



SITE KEY

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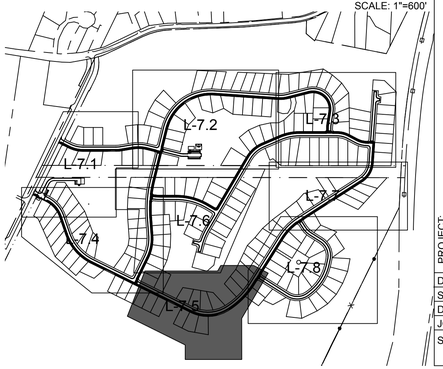

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Landscape Architecture Land Planning
196 Whitney Avenue
Portland, Maine 04102
207-874-0248

DATE:	DATE
P.E.:	P.E.

NO.	DATE	REVISION	REVISIONS	APP'D BY
NO.	DATE			

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CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
LANDSCAPE PLAN - 5

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	BJH
JOB NO:	21-13
SHEET	L-7.5

/Users/barryhosmer/Desktop/ACAD-21-13 LS.dwg

NO.	DATE	REVISION	APP'D BY

DATE: DATE
P.E.: P.E.

REVISIONS

TERRADYN CONSULTANTS, LLC
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NEW GLOUCESTER, ME 04260
565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

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CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
LANDSCAPE PLAN - 6

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	BJH
JOB NO:	21-13
SHEET	L-7.6

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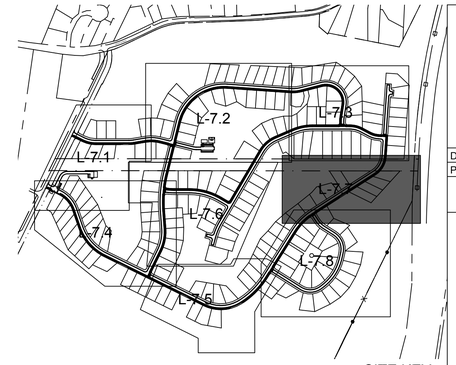
GRID NORTH

Graphic Legend

- Canopy Tree (Simple and Compound Leaves)
- Columnar Tree
- Ornamental Tree



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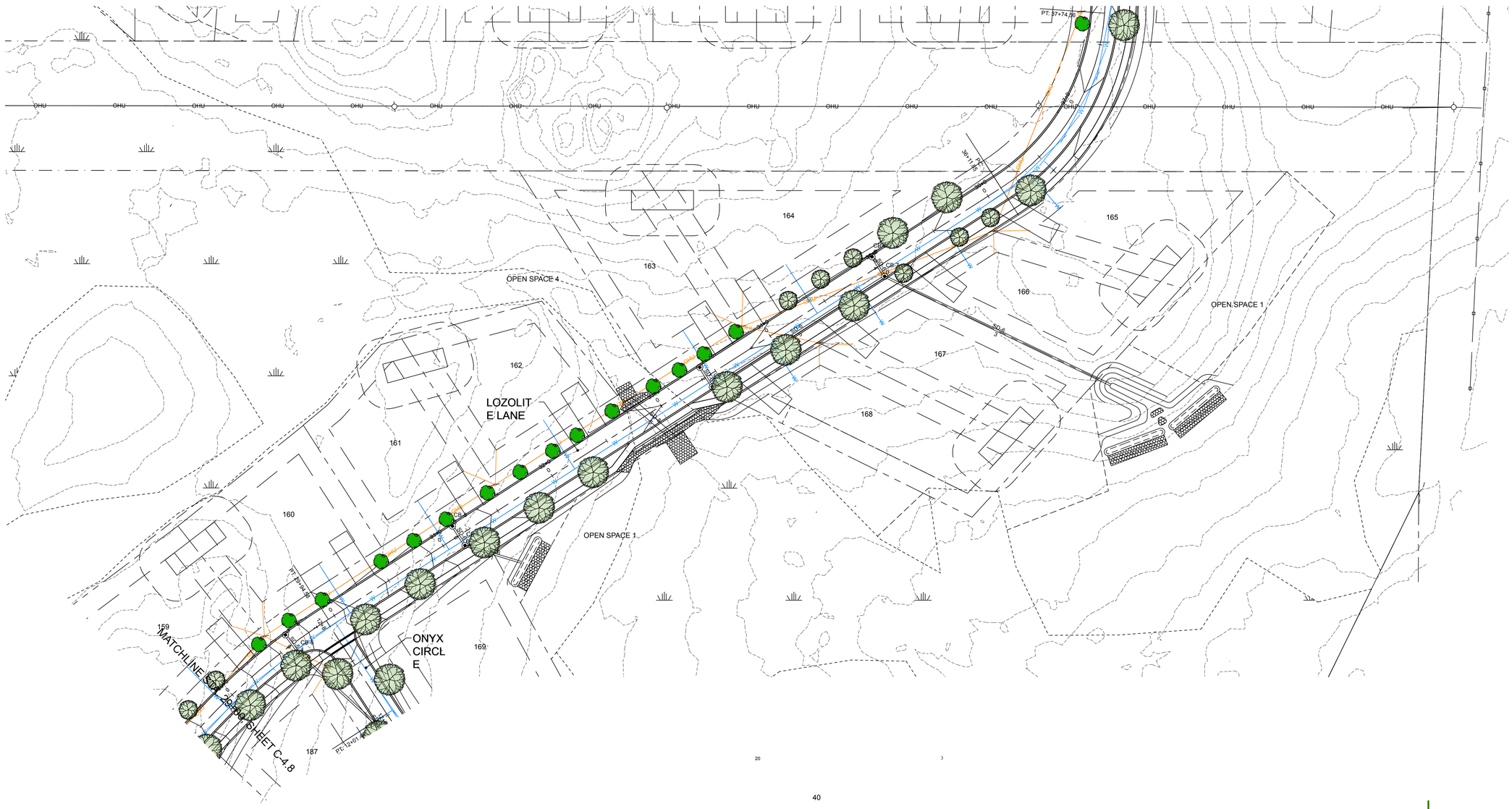

Barry J. Hosmer ASLA
Landscape Architecture Land Planning
196 Whitney Avenue
Portland, Maine 04102
207-874-0248

DATE:	DATE
P.E.:	P.E.

NO.	DATE	REVISION	REVISIONS	APP'D BY

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OFFICE: (207) 926-5111 FAX: (207) 221-1317
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
LANDSCAPE PLAN - 8

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	BJH
JOB NO:	21-13
SHEET	L-7.8

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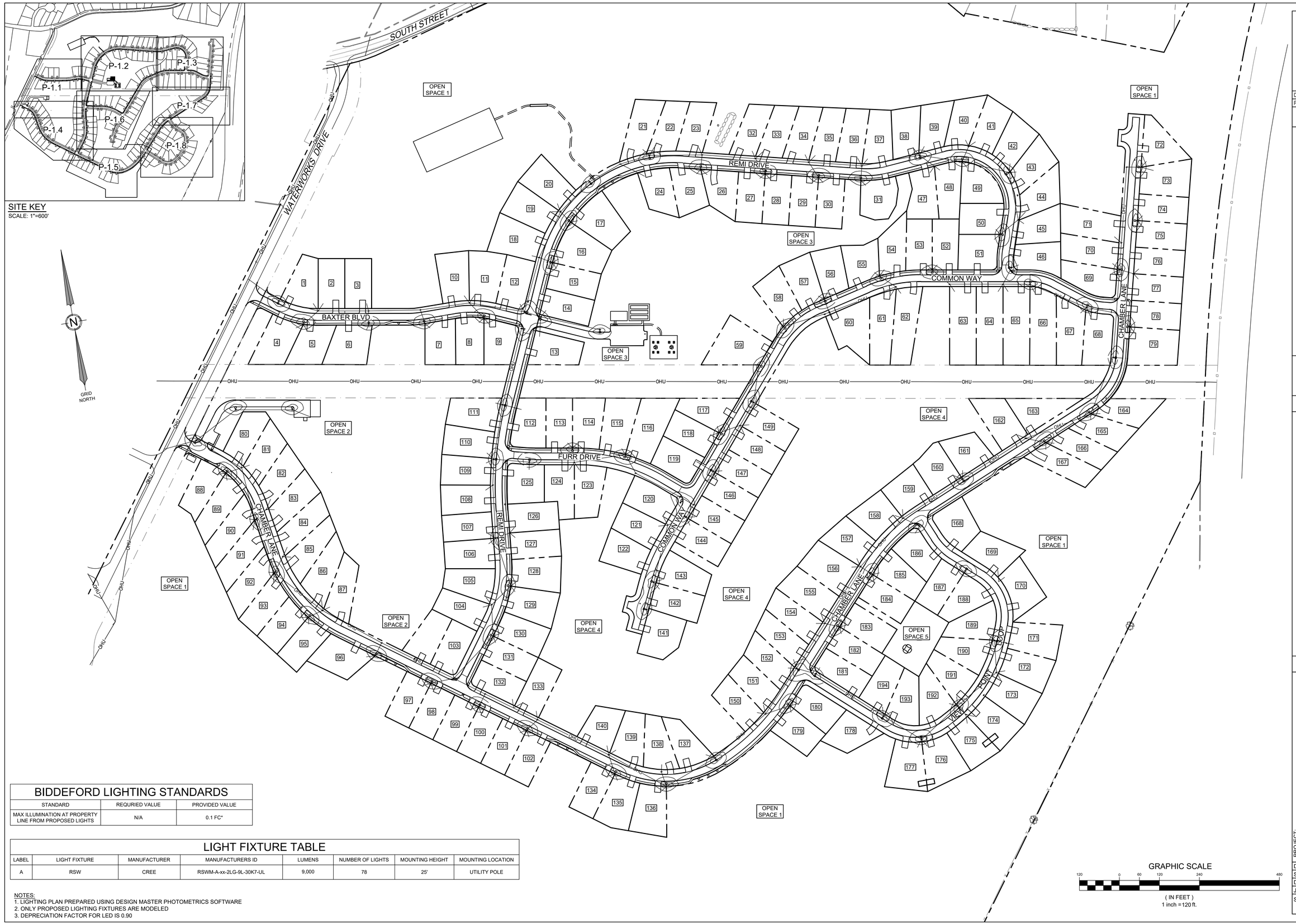
SITE KEY
SCALE: 1"=600'



BIDDEFORD LIGHTING STANDARDS

STANDARD	REQURIED VALUE	PROVIDED VALUE
MAX ILLUMINATION AT PROPERTY LINE FROM PROPOSED LIGHTS	N/A	0.1 FC*

LIGHT FIXTURE TABLE

LABEL	LIGHT FIXTURE	MANUFACTURER	MANUFACTURERS ID	LUMENS	NUMBER OF LIGHTS	MOUNTING HEIGHT	MOUNTING LOCATION
A	RSW	CREE	RSWM-A-xx-2LG-9L-30K7-UL	9,000	78	25'	UTILITY POLE

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

GRAPHIC SCALE
120 0 60 120 240 480
(IN FEET)
1 inch = 120 ft.

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
OVERALL PHOTOMETRIC PLAN

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 120'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	P-1.0

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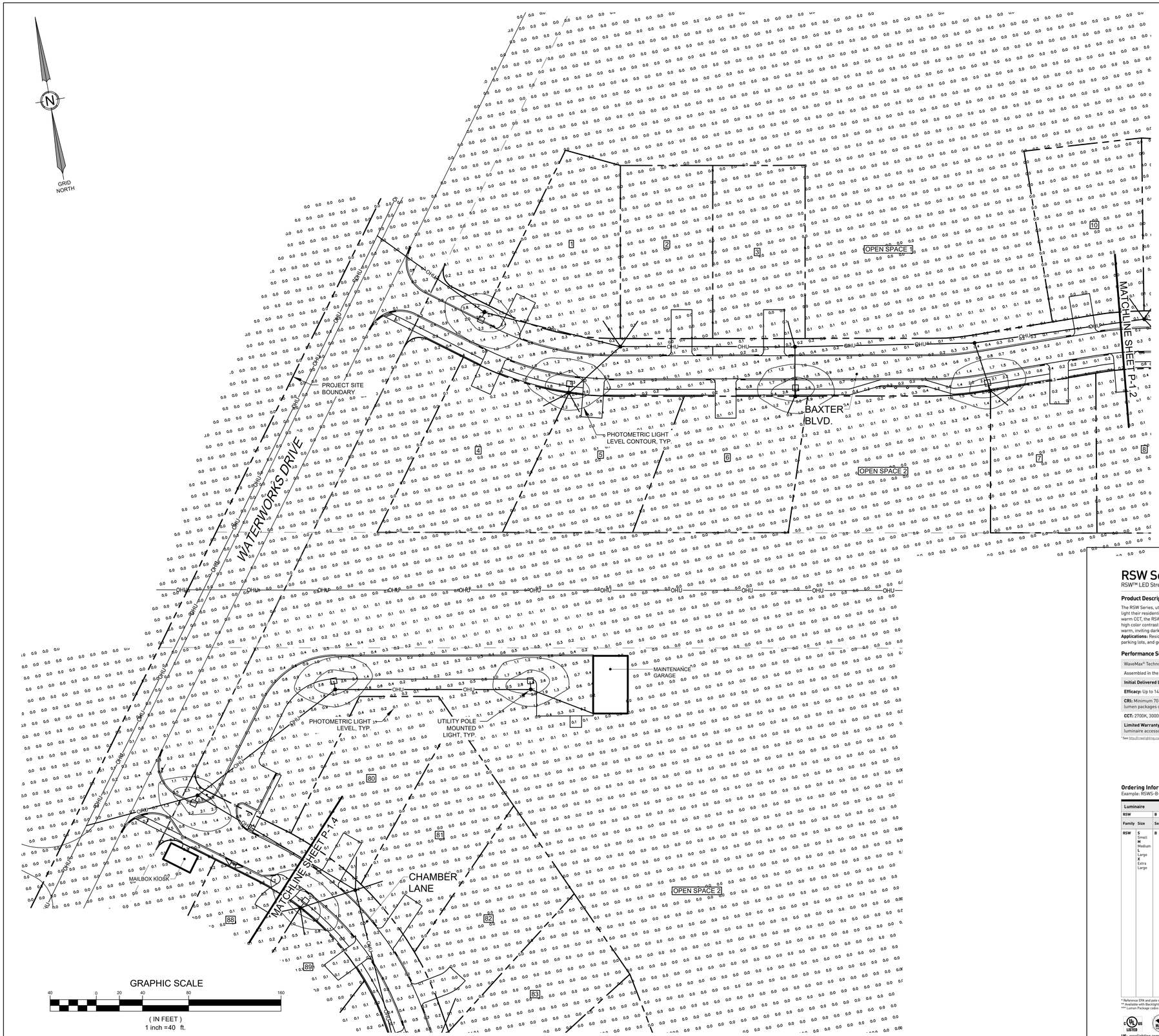
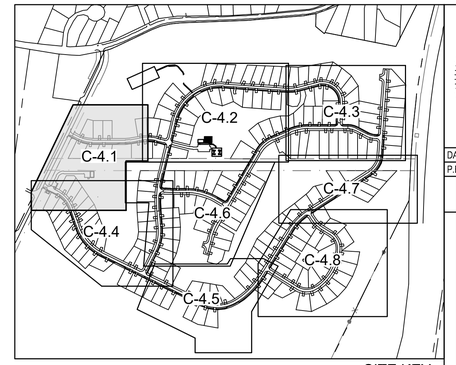




SITE KEY
SCALE: 1"=600'

RSW Series

RSW™ LED Street Luminaire – Small, Medium, Large & Extra Large

Rev. Date: V51/18/2021

Product Description

The RSW Series, utilizing WaveMax® Technology, will transform the way utilities and municipalities light their residential streets, interchanges, and expressways. With the first viable LED streetlight at warm CCT, the RSW Series delivers up to 144 LPW, enhanced visual comfort with reduced glare and high color contrast leading to improved overall illumination using less energy. The RSW Series provides warm, inviting dark sky friendly lighting that makes good economic sense.

Applications: Residential roads, collector roads, multi-lane freeways, express ways, major roads, parking lots, and general area spaces

Performance Summary

WaveMax® Technology

Assembled in the USA by Cree Lighting from US and imported parts

Initial Delivered Lumens: 3,000 - 32,000

Efficacy: Up to 144 LPW

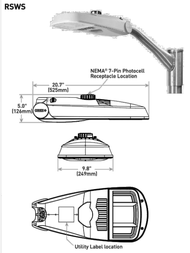
CRI: Minimum 70 CRI (3000K, 4000K & 5000K); 80 CRI (2700K, 3000K, 4000K & 5000K; 3L/5L/9L lumen packages only)

CCT: 2700K, 3000K, 4000K, 5000K

Limited Warranty*: 10 years on luminaire; up to 5 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.

RSW5



Luminaire	Weight*
RSW5	9.4 lbs. (4.3kg)

* RSW-BLS5, RSW-CLS5, or RSW-FLS5 Accessories: add 0.4 lbs. (0.2kg)

RSWM/RSW5/RSWX Luminaire • See page 14 for photos & dimensions

Ordering Information

Example: RSW5-B-HT-2ME-3L-27K8-UL-GY-N

Luminaire

RSW Family	Size	B Series	HT Mounting*	Optic	Lumen Package***	CCT/CRI	Voltage	Color Options	N Utility Label/Receptacle	Options
RSW	**S** Small **M** Medium **L** Large **X** Extra Large	**B**	**HT** Horizontal Tenon	**2LG**** Type II Long **2ME**** Type II Medium **3ME**** Type III Medium	**Small** **3L** 3,000 Lumens **5L** 5,000 Lumens **7L** 7,000 Lumens **Medium** **9L** 9,000 Lumens **Large** **14L** 14,000 Lumens **Extra Large** **24L** 24,000 Lumens **32L** 32,000 Lumens	**27K8** 2700K, 80 CRI - Available only with 3L, 5L, or 9L lumen packages **30K7** 3000K, 70 CRI **30K8** 3000K, 80 CRI - Available only with 3L, 5L, or 9L lumen packages **40K7** 4000K, 70CRI **40K8** 4000K, 80 CRI - Available only with 3L, 5L, or 9L lumen packages **50K7** 5000K, 70CRI **50K8** 5000K, 80CRI - Available only with 3L, 5L, or 9L lumen packages	**UL** Universal 120-277V **UH** Universal 347-480V - Available only with medium, large or extra large lumen packages	**BK** Black **BZ** Bronze **GY** Grey	**NEMA® 7-Pin Photocell Receptacle** - External wattage label per ANSI C136.15 - 7-pin receptacle per ANSI C136.41 - Factory connected 0-10V dim leads - Requires photocell or shorting cap by others	**4BLT Four Bolt Mounting** - Mounts to 1.25" (32mm) IP, 1.66" (42mm) O.D. or 2" (51mm) IP, 2.375" (60mm) O.D. horizontal tenon - Available only with large or extra large lumen packages **20KV 20kV/10kA Surge Suppression** - Replaces standard 10kV surge protection **DLL DALI Compatible** - Available with 3L, 5L, 9L, 14L and 24L lumen packages - Available with 30K7, 40K7 and 50K7 CCT/CRI - Not available with U or X options **PP Pallet Packaging** - Available only with small and medium luminaires - Multiple luminaires (up to 24 maximum per pallet for small; up to 22 maximum per pallet for medium **0V/1V/2V/3V/4V/5V/6V/7V/8V/9V/XV/YV Field Adjustable Lumen Output** - Must select Q4, Q3, Q2, or Q1 for small lumen package - Must select Q8, Q7, Q6, Q5, Q4, Q3, Q2, or Q1 for medium lumen package - Must select QY, Q8, Q7, Q6, Q5, Q4, Q3, Q2, or Q1 for large or extra large lumen packages - Offers full range lumen adjustability - Includes wattage label for setting selected - Refer to pages 7-13 for power and lumen values - Luminaire may also be dimmed through 7-Pin receptacle with use of dimming control by others **SS Stainless Steel Bolts** **XX/YY/XA/XS/XA/X3/X2/X1 Locked Lumen Output** - Must select X3, X2, or X1 for small lumen packages - Must select X7, X6, X5, X4, X3, X2, or X1 for medium lumen package - Must select X8, X7, X6, X5, X4, X3, X2, or X1 for large or extra large lumen packages - Lumen output is permanently locked to the setting selected - Includes wattage label for setting selected - Refer to pages 7-13 for power and lumen values - Dimming is only available through 7-Pin receptacle with use of dimming control by others

* Reference EPA and pole configuration suitability data on page 6
** Available with Backlight Shield when ordered with field-installed accessory (see table on page 2)
*** Lumen Package codes identify approximate light output only. Actual lumen output levels vary depending on CCT and optic selection. Refer to Initial Delivered Lumen tables for specific lumen values

US: creelighting.com (800) 236-6800
Canada: creelighting-canada.com (800) 473-1234

CREE LIGHTING

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

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www.terradynconsultants.com
555 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PHOTOMETRIC PLAN - 1

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	P-1.1

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SITE KEY
SCALE: 1"=600'

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch =40 ft.

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED
PROFESSIONAL ENGINEER

DATE:	11-16-2022
P.E.:	JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
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A	04-13-2022	PRELIMINARY SUBMISSION	JDA

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE
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565 CONGRESS STREET
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PHOTOMETRIC PLAN - 2

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	P-1.2

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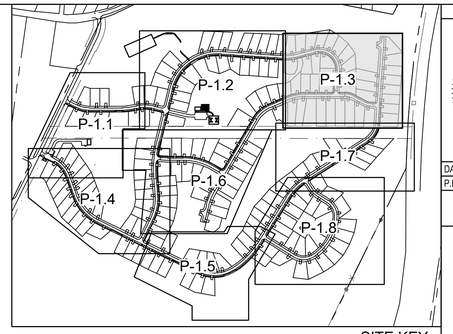

SITE KEY
SCALE: 1"=600'

GRID NORTH

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE:			11-16-2022
P.E.:			JEFFREY D. AMOS, PE 10167
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA
NO.	DATE	REVISIONS	APP'D BY

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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PHOTOMETRIC PLAN - 3

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	P-1.3

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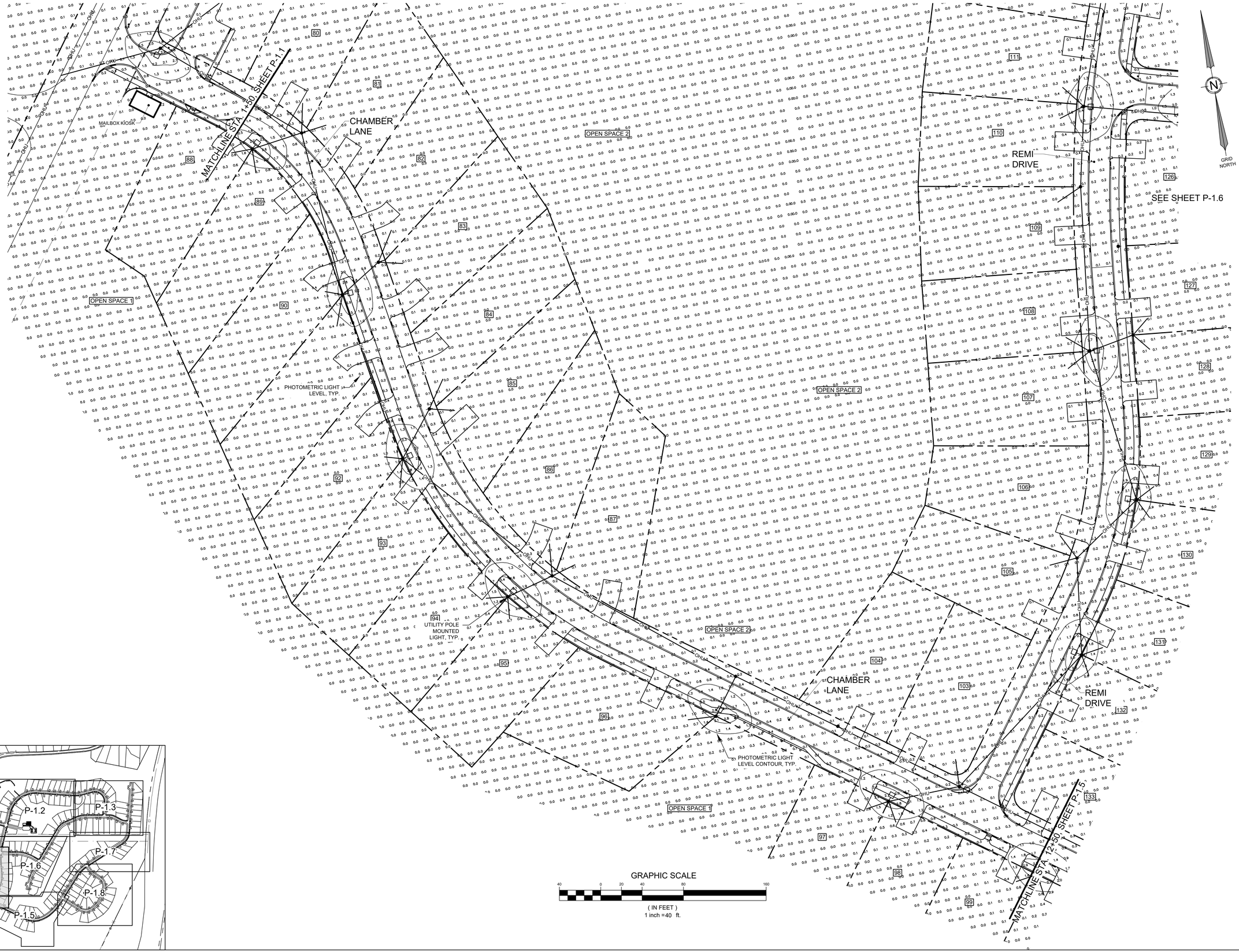

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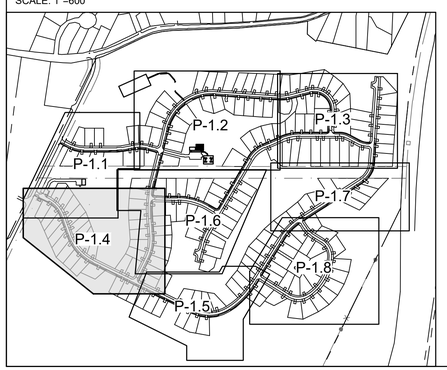

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

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565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PHOTOMETRIC PLAN - 4

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	P-1.4

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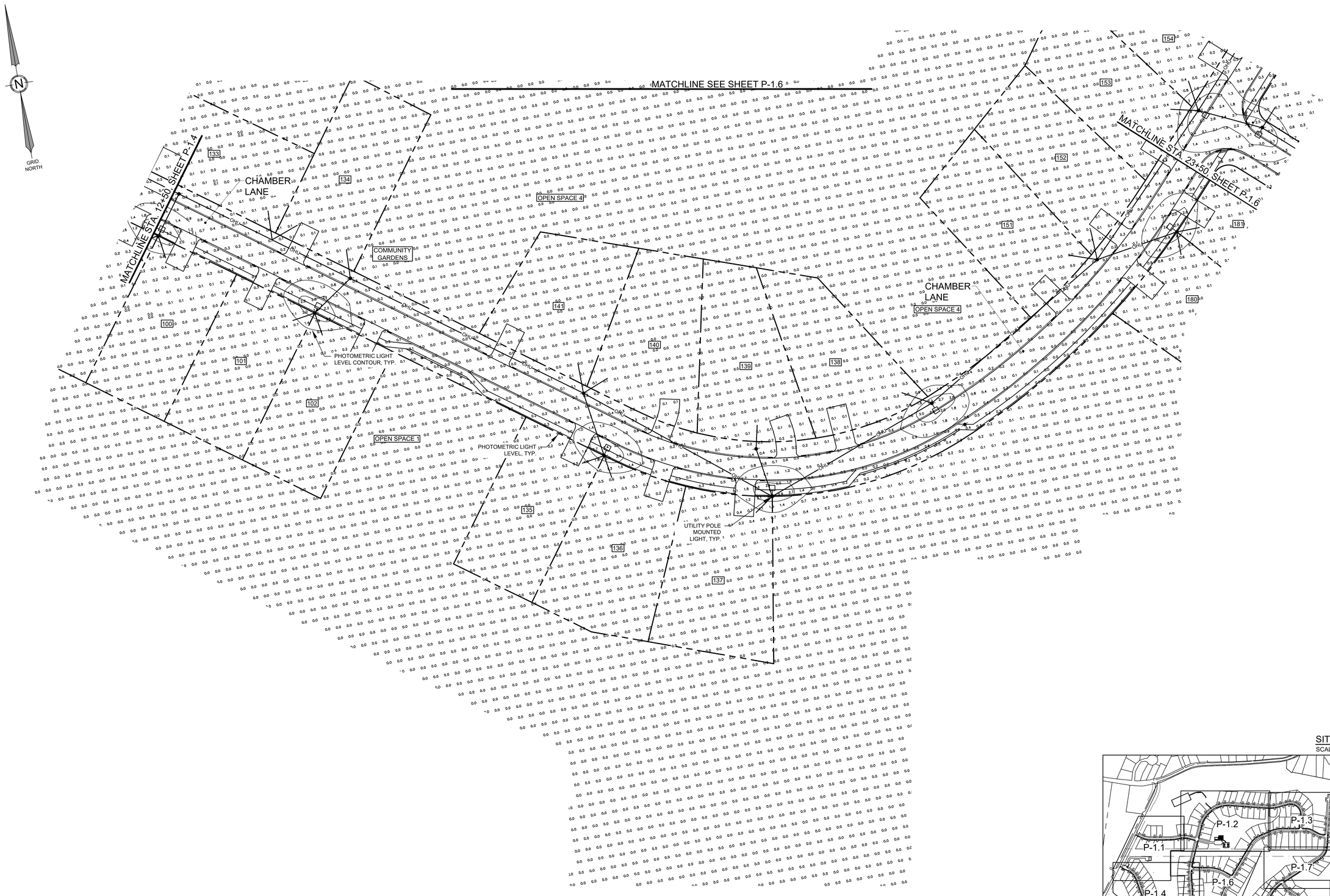

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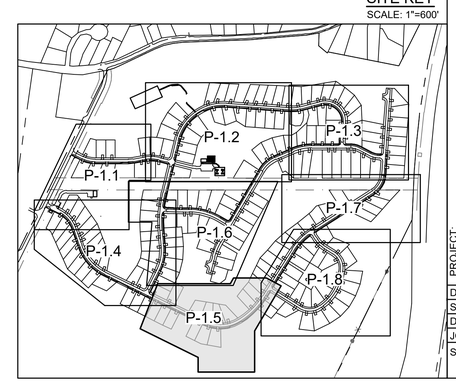

NO.	DATE	REVISIONS	APP'D BY
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PHOTOMETRIC PLAN - 5

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	P-1.5

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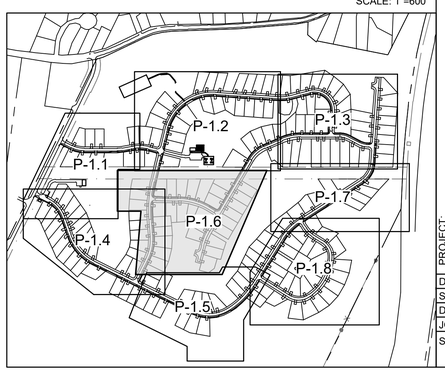
SITE KEY
SCALE: 1"=600'



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STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE SUITE 201 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
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PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PHOTOMETRIC PLAN - 6

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
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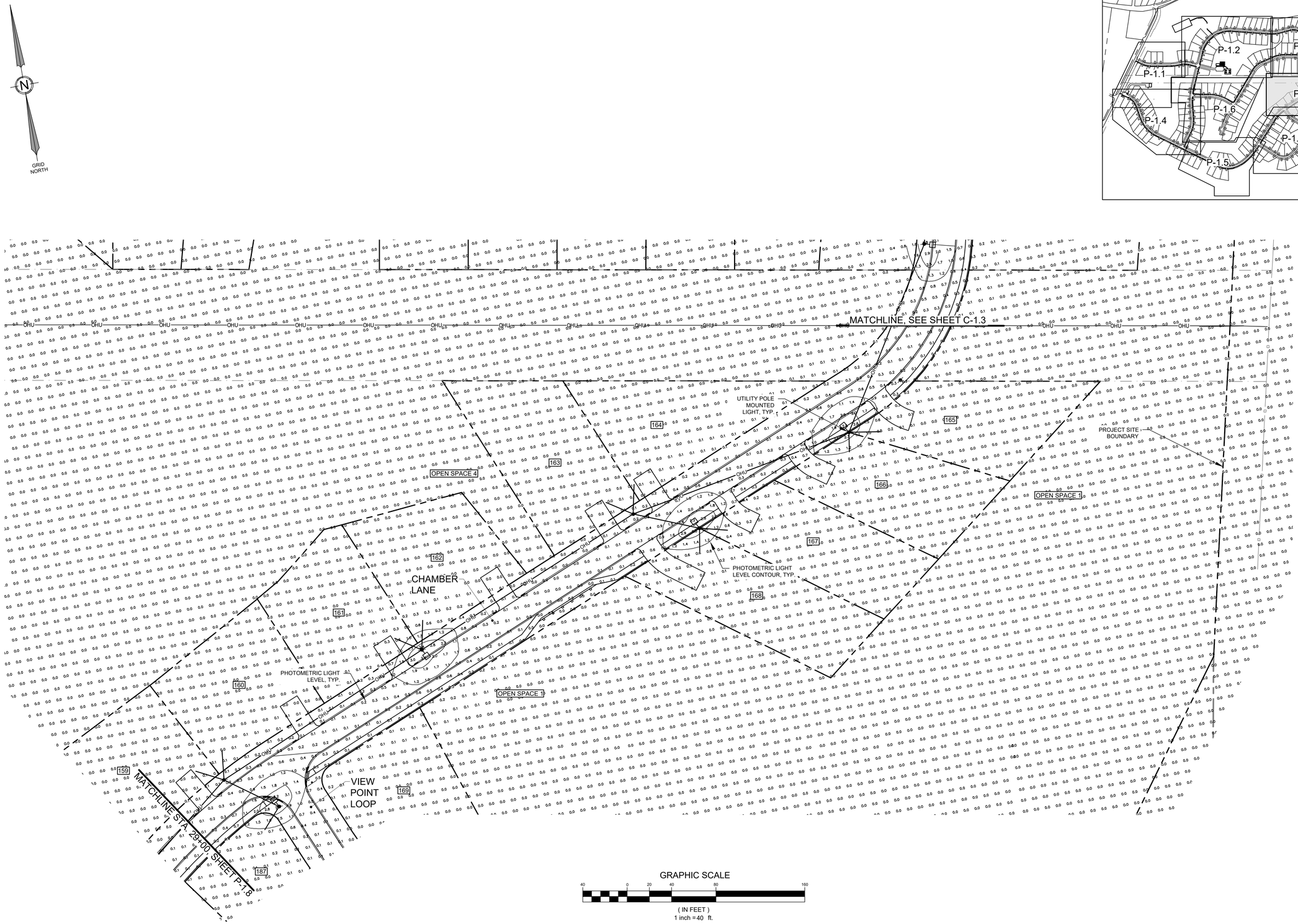

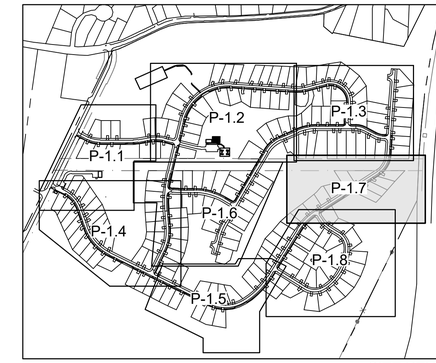

SITE KEY
SCALE: 1"=600'

STATE OF MAINE JEFFREY D. AMOS No. 10167 LICENSED PROFESSIONAL ENGINEER

DATE: 11-16-2022
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565 CONGRESS STREET
SUITE 201
PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
HIDDEN HILLS HOUSING PARK
SOUTH STREET, BIDDEFORD, MAINE

SHEET TITLE:
PHOTOMETRIC PLAN - 7

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	P-1.7

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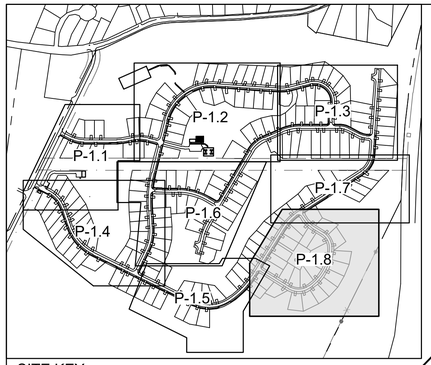
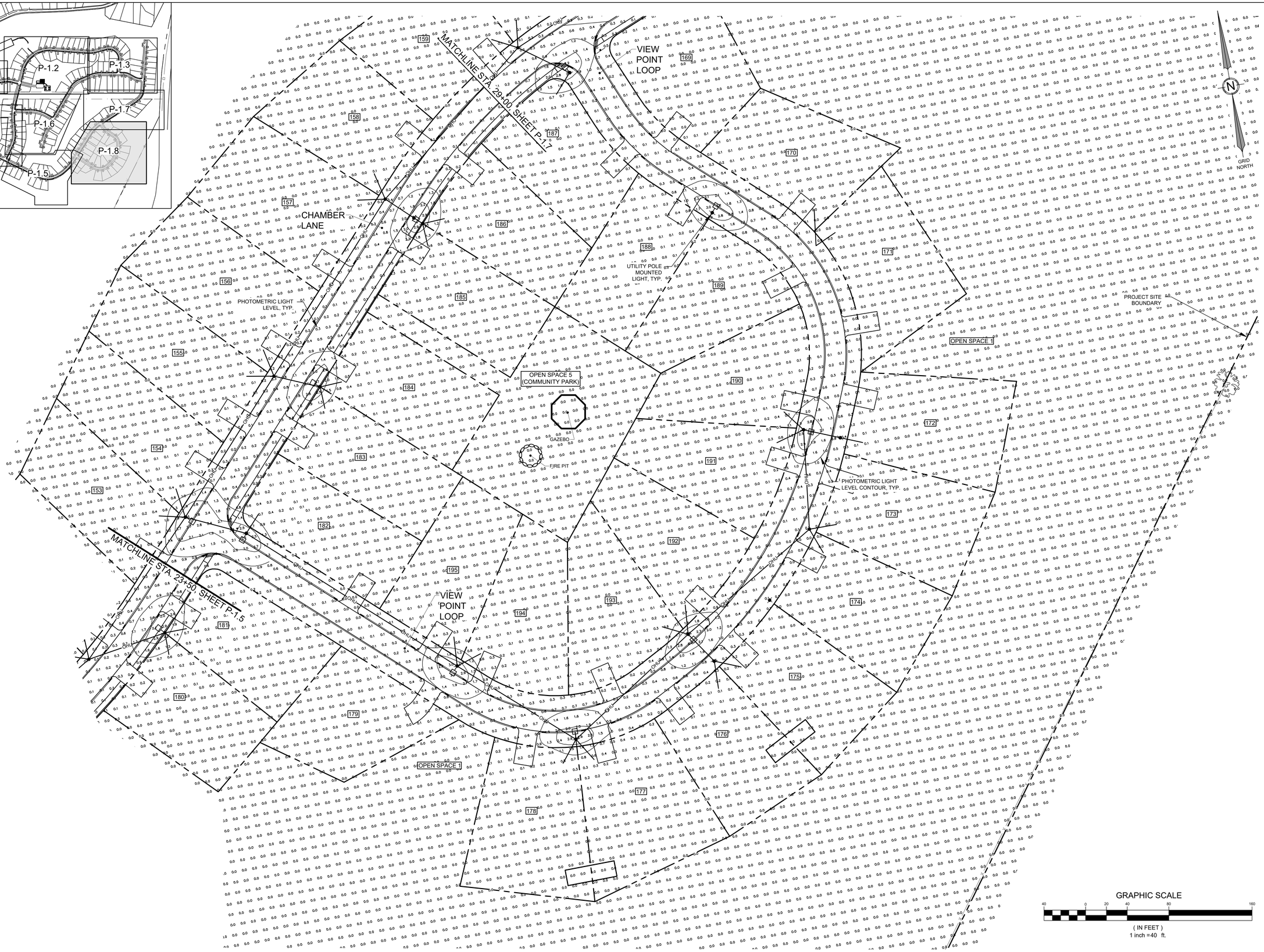


SITE KEY
SCALE: 1"=600'



GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch =40 ft.

NO.	DATE	REVISIONS	APP'D BY
C	11-16-2022	REVISE PER PLANNING BOARD REVIEW COMMENTS	JDA
B	08-17-2022	ADDITIONAL INFORMATION PER PEER REVIEW	JDA
A	04-13-2022	PRELIMINARY SUBMISSION	JDA

DATE: 11-16-2022
P.E.: JEFFREY D. AMOS, PE 10167

STATE OF MAINE JEFFREY D. AMOS 10167 LICENSED PROFESSIONAL ENGINEER

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE SUITE 101 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 201 PORTLAND, ME 04102
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PROJECT:
HIDDEN HILLS HOUSING PARK
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SHEET TITLE:
PHOTOMETRIC PLAN - 8

CLIENT:
SOUTH STREET VILLAGE, LLC
762 MAIN STREET
SOUTH PORTLAND, MAINE 04106

DATE:	02-09-2022
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	21-13
SHEET	P-1.8

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