ITEM 1

Town of Kittery
Planning Board Meeting
May 10, 2018

459 U.S. Route One – Mixed-use development – Site and Subdivision Preliminary Plan Review
Hold a public hearing, approve or deny application. Owner, DSS Land Holdings, LLC, and applicant, Michael Brigham of Landmark Hill, LLC, requests consideration of a mixed-use development consisting of 26 elderly housing units , two buildings with retail/commercial units and 16 apartments and one additional commercial/clubhouse building. All are located at 459 U.S. Route 1 (Tax Map 60 Lot 24) in the Mixed Use (MU), Rural-Residential (R-RL) and Shoreland Overlay Zone. (OZ-SL) Agent is Ken Wood, Attar Engineering.

PROJECT TRACKING

REQ'D	ACTION	COMMENTS	STATUS
YES	Sketch Plan	Scheduled for September 14, 2017, approved on October 12, 2017	APPROVED
NO	Site Visit	Held April 3, 2018 at 11:00 am	HELD
YES	Preliminary Plan Review Completeness/Acceptance	February 8, 2018	APPROVED
YES	Public Hearing	Held on April 12, 2018	HELD
YES	Preliminary Plan Approval	Possible for May 10, 2018	PENDING
YES	Final Plan Review and Decision	TBD	TBD
Applicant: Prior to the signing of the approved Plan any **Conditions of Approval related to the Findings of Fact along with waivers and variances (by the BOA) must be placed on the Final Plan and, when applicable, recorded at the York County Registry of Deeds. PLACE THE MAP AND LOT NUMBER IN 1/4" HIGH LETTERS AT LOWER RIGHT BORDER OF ALL PLAN SHEETS.** As per Section 16.4.4.13 - Grading/Construction Final Plan Required. - Grading or construction of roads, grading of land or lots, or construction of buildings is prohibited until the original copy of the approved final plan endorsed has been duly recorded in the York County registry of deeds when applicable.			

Background

This is a preliminary plan review for a proposed mixed-use development located at 459 State Route 1 in the Mixed Use (MU) Zone, previously approved as the Sowerby mixed use in 2008. Since then the six residential lots have been conveyed and developed with single-family homes. As part of this development, a sewer force main has been installed connecting the lots to public sewer in Route 1 via an easement that burdens this property. There are also wetlands on the property.

The applicant is proposing 26 elderly single-family housing units, two buildings with first-floor office/retail and 16 second-floor apartment residential uses and one building split between commercial use and a club house. Office and/or retail on first floors and residential uses on the upper floors of a mixed-use building, the proposed elderly housing as well as single retail uses of less than 50,000 square feet are all permitted in the Mixed Use (MU) Zone. The elderly housing is a Special Exception Use.

The Board approved the sketch plan on October 12, 2017 and reviewed the preliminary plan for completeness on January 11, 2018. The Board found the application complete on February 8, 2018. On March 22, 2018 the Board set a date for a site walk (an earlier site walk had to be postponed) and the public hearing. A site walk was held on April 3, 2018 and the public hearing was held on April 12th. The Board discussed the application further on April 12th and made a motion to allow the applicant 90 days to address the additional comments and the CMA peer review.

Staff comments on the revised preliminary plan and submission are below.

Staff Review

February 8, 2018 meeting: the Applicant included narrative describing how the elderly single-family housing special exception use meets the requirements of 16.3.2.13.G as requested by the Board. At this meeting the Board discussed moving two of the stormwater ponds out of the 100-foot setback and wanted to see the net residential calculations include travel ways and parking areas. The Board found the application complete at this meeting.

March 22, 2018 meeting: the Applicant's agent briefed the Board on the plan revisions the Board could expect to see on the plans submitted for this meeting. These revisions are primarily the result of the net residential acreage calculations including travel ways and parking areas being applied.

April 12, 2018 meeting: the Applicant's agent walked the Board through the plan revisions. The stormwater ponds near the wetlands of special significance have been removed from the wetland setbacks. The Board discussed a parking waiver request which would allow the Applicant to remove parking spaces from the wetland setback near the building labeled C1 on the plans. The Board pointed out several changes that needed to be made on the plans (incorrect labels, map and lot etc.). The Board moved to allow the Applicant 90 days to complete plan revisions and address CMA's comments.

Special Considerations: The applicant is requesting that the Board consider granting a 50-foot extension of the MU Zone which would allow the entire parcel to be considered under the MU Zone. The applicant addressed the 7 conditions found in 16.7.2.5 that the Board must consider in order to grant this request in the original submission letter. The Board also has the option of requesting additional information or a study from the applicant when considering this request.

Staff recommends that the Board request a no-cut buffer around the wetlands of special significance at the 100-foot wetland setback line. The revised plans have Note 14 that seems to describe this but the buffer should be shown on all applicable plan sheets and it should be made clear in Note 14 that no cutting of trees is permitted beyond the wetland setback line.

CMA Review: CMA's latest review is included in the packet.

Review Considerations

1. The proposed development consists of two primary types of buildings: two mixed-use buildings with first floor commercial space and parking and 16 dwelling unit apartments on the upper floors and the 26 single-family elderly housing units along a new street. Maintenance of the stormwater management systems must be assignable to an entity or an owner. It appears that two associations will be created: a condominium association and a development association.
2. The net residential calculations shown in General Note 6 on Sheet 1 now subtract the amount of travel way and parking proposed and the sewer easement per 16.7.8.2.
    a. Plan Sheet 1.1's final net residential density statement still appears incorrect. Assuming the net residential area is correct after subtracting the wetlands, hydric soils, travel ways, sewer easement and parking, the Net Residential Density statement should read:

        428,974.5 – ((26 x 10,000) – (16 x 10,000) = 420,000) = 8,947.5 left as the 26 elderly single-family homes each require 10,000 sf of land area when parking is encompassed within the building as in this case where each unit has a double car garage (see Note 3 under 16.3.2.13.D). Each of the 16 apartments also require 10,000 sf of land area too unless the apartments have garages in which case it would be 7,500 sf. The submission letter seems to say they do.

3. From previous staff notes*: the preliminary plan design should, as it continues to integrate the elderly housing within the mixed-use development, provide for opportunities for common space to congregate and enjoy some outdoor space adjacent to some staple facilities that may cater to the over 55 community as well as to the other residents on site.*

   In this preliminary plan submission, the applicant has provided a building with a first-floor club house, while the second floor will be commercial. There are trails shown in the open space and a passive recreation area which includes part of the sewer easement. See Plan Sheet 1.2.

   a. One part of the trail is shown moving off the subject property to the north onto another parcel. Is this an existing trail?

   The Applicant submitted a narrative for the February 11, 2018 meeting as requested by the Board to demonstrate how the proposed elderly single-family housing meets 16.3.2.13.G.

4. Wetlands on-site to the north and east are associated with an existing natural pond to the north which qualifies them per Article 16.9.3.1.B as being wetlands of special significance (WoSS). The site is also within the MS-4 area. Kittery's wetland regulations are stricter than the State's. The stormwater ponds associated with the WoSS have been moved outside the 100-foot buffer for the most part (see a. below). The remaining stormwater ponds are located at least 25 feet from the wetlands to the west which are not WoSS. Their locations have been reviewed by DEP although a permit may not have been issued yet. Staff has spoken with the DEP staff person who is doing the permitting for this project and is satisfied with the stormwater ponds' location.

   a. Some grading of stormwater pond #40 and #10 will be within the 100-foot setback for the WoSS. Is the long "tail" of pond #40 only grading? Similarly pond #20 has a long narrow "tail". Update: the "tails" have been removed – they represented grading.

   b. A portion of the parking area for the commercial/clubhouse building labeled C1 is within the 100-foot setback for the WoSS. Can this parking area be redesigned to stay within the setbacks or could one of the other parking areas add one or two spaces so that this parking area could be downsized to stay within the WoSS setbacks? See Note 10 also. Update: parking has been removed from the WoSS setback.

5. As proposed, the elderly single-family units are 3 BR 2,800 sf. The apartments are 2 BR with a single 3 BR unit on the top floor of each building. There is 4,000 sf of commercial space in each of the two buildings labeled A1 and A2. The C1 building has 2,000 sf of commercial space on the second floor with a 2,000 sf clubhouse on the first floor.

6. The example rendering of the proposed mixed-use buildings seem to show residential-only buildings.

7. All buildings will be sprinkled.

8. From previous plan notes*: A minimum of one street tree must be planted for each 25 feet of street frontage and 10 shrubs or flowering perennials per 40 feet of street frontage. Staff estimates the parcel has over 1,500 feet of frontage, therefore 60 street trees and 375 shrubs/flowering perennials are required.*

   A landscaping plan was submitted – the required 30 foot planter strip along Route 1 includes 476 plants: 66 sugar maple, larch and red oak trees and 410 shrubs, the species of which are not named. Note 10 on Plan Sheet 1.1 gives spacing details which meet requirements. There are also red oaks and a few green ash trees scattered throughout the development, including along parking area edges and red cedars along the wetland edges. The planter strip will also serve to screen the parking lot. The large parking area has 6 London plane trees in a landscaped strip that divides the parking lot and three more trees along the western side. The other parking lots have trees

scattered along the edges. Section 16.8.9.4.G requires 1 tree per eight parking spaces – all parking areas meet the requirements. Notes 10-12 on Sheet 6.2 address the requirements.

9. A traffic impact report was submitted for the February 8th meeting. The traffic impact analysis submitted gave additional information including average daily traffic for the various uses. Traffic patterns are indicated on the plans and show two-way traffic through the property. Plan Sheet 1.4 shows that the ingress/egress shared with the medical office next door whose existing driveway will be abandoned will have a left turning lane for exiting onto Route 1. The updated traffic impact analysis also cited the south-bound left turn lane added to Route 1 for turning onto Lewis Road. No north-bound left turn lane was added although it was a part of the former Sowerby project's permitting in 2008 by ME DOT. Route 1 north-bound appears to have space for a left turn lane that is currently yellow striped (probably because the 2008 project was never built). The Sowerby project as approved included a hotel, convenience store, restaurants and commercial space.
    a. Lewis Road is directly opposite the proposed main entrance to the Homestead development. Will this affect traffic flow?
    b. Has the ME DOT entrance permitting process begun? If so, what comments has DOT made so far? What is the process to create that the north-bound left turn lane? Update: the applicant will working with the ME DOT permit previously issued for the Sowerby project and the north-bound left turn lane creation process will be included.
    c. Update: CMA has provided a traffic peer review.
10. As shown on the plans, there are 148 parking spaces with 152 required. Parking requirements are broken down as follows on Plan Sheet 1.1:

    Elderly housing = 2 spaces/unit for 26 units = 52 (garages and driveways provide this)

    Apartments = 2 spaces/unit for 16 units = 32

    Retail (A1/A2) = 8,000 sf divided by 175 sf/parking space = 46

    Retail (C1) = 2,000 sf divided by 175 sf/space = 12

    Office (C1) = 2,000 sf divided by 250 sf/unit = 10 (8 based on sf + 2 required for the office)

    a. The elderly single-family housing as proposed appear to be larger than 2 bedrooms (at 2,800 sf and 3 BR) which would require 2 parking spaces per dwelling unit. Staff (including the CEO) believes that the elderly housing single-family residential units may count a single-car garage and a driveway of sufficient length to accommodate a parked car without blocking sidewalks or extending beyond the curb where no sidewalks exist for the two parking spaces. Update: no parking will be allowed on the street per Note 13 on Sheet 1.1.
    b. The clubhouse is shown with the 8 parking spaces required per *Offices, professional and public buildings*, but two more spaces are also required because 16.8.9.4.D Off-Street Parking Standards states that "*two parking spaces for each office unit plus 1 space for each 250 feet of gross floor area*". Update: the parking area in front of the clubhouse has three spaces and is outside the 100 foot wetland setback.
    c. Removing the 52 spaces being provided by garages and driveways, the total number of required parking spaces in parking areas total 100. The number of proposed parking spaces in the six parking areas is 96 and a parking waiver has been submitted.

11. Snow storage is shown – all four proposed locations are located at an acceptable distance from stormwater ponds and wetlands. One snow dump was relocated from the passive recreation area to the other side of the street.
12. Open space requirements appear to be met per 16.3.2.13.D as is the 10% minimum use requirement per 16.3.2.13.D.4.
13. The plan sheets show the Map and Lot as Map 24, Lot 60 when it is Map 60 Lot 24. Also Sheet 1.1 shows a discrepancy in the scale in the title block and the scale on the plan itself. Update: these have been addressed.
14. On Plan Sheet 2.1 and perhaps others, an arrow labeled "retaining wall" does not seem to point to anything. Is there a wall proposed? Update: arrow and label have been removed.
15. The Applicant states in Note 13 that the road will remain private but the note should be modified to read as follows: – All roads shall be and must remain private roads, with the property owners, HOA or other such entities bearing all responsibility for maintenance including but not limited to, snowplowing, paving and stormwater system operation and repair.
16. Because the roads will remain private, the Applicant requests a waiver from road standards (ROW and shoulders in particular) found in Table 1 in Chapter 16.8.
17. Sidewalks will need to be installed along Route 1 per the Public Works Commissioner. Sidewalks within the development will be 5 feet in width.
18. It came to Staff's attention that a conservation area was created for protection of wetlands and the pond when the original 2008 Sowerby application was approved. This conservation area is noted in deeds for the Lots 2, 3 and 6 (abutting parcels to the northeast which were part of that original approval). Similarly, there should be a conservation area created 100 feet from the pond on the Homestead parcel. The conservation area will need to be shown on the plans, noted in the homeowner's association document and marked appropriately on the ground after final approval. This area is not proposed for development by the Applicant so is mostly a matter of documentation. Update: the conservation area is shown on the plans.
19. 16.8.4.2 Layout states that only one entrance per 1,000 feet of frontage is allowed onto arterial and secondary arterial roadways. CMA's last review mentioned that the Applicant has two entrances less than 1,000 feet from each other. The frontage towards the northeast has wetlands. The Applicant has requested a waiver.
20. The Applicant should be prepared to address the Planning Board question concerning whether or not an easement for the old power lines exists and if so, the process to extinguish it.
21. The Applicant will need to prepare HOA documents to be included with submission of the final plan. The HOA document will be reviewed by the Town's attorney at the Applicant's expense.

Recommendation

The Board held a public hearing on April 12th.and voted to give the Applicant 90 days to address CMA comments, Board comments and parking issues. This step of preliminary plan review provides the Board an opportunity to discuss plan revisions, submission materials, staff comments and CMA's review.

1. Based on Title 16 and as shown in the review notes, the plan as submitted meets the necessary requirements with the inclusion of two waivers as noted below:
    a. Parking requires 100 parking spaces in parking areas where 96 are shown for which a waiver has been requested.

b. Entrances to arterial/secondary arterial roads must be 1,000 feet apart for which a waiver has been requested.

If the Board is generally satisfied with the plans, the Board may vote to approve the preliminary plan, likely with conditions based on CMA's review and staff recommendations. If the Board decides additional time on the preliminary plan is needed, the Board need take no action as the 90 days the Board granted the Applicant on April 12th will not end until July. The motions to approve moving the Mixed-Use zone 50 feet, waive the parking requirements from 152 spaces to 148 spaces, waive the 1,000 foot spacing for the two entrances, waive the road standards and approve the preliminary plan are below.

Staff recommends that Board approve the preliminary plan with the conditions as shown in the motion. If during discussion, additional conditions are needed, they may be added.

Move to approve the 50-foot extension of the MU Zone which would allow the entire parcel located at 459 U.S. Route 1 (Tax Map 60 Lot 24) to be considered under the MU Zone as requested by applicant, Michael Brigham of Landmark Hill, LLC.

Move to approve the parking waiver request by applicant, Michael Brigham of Landmark Hill, LLC to allow 148 parking spaces rather than 152 at 459 U.S. Route 1 (Tax Map 60 Lot 24) for the preliminary site and subdivision plan application dated April 18th 2018.

Move to approve the 1,000 foot entrance location waiver request by applicant, Michael Brigham of Landmark Hill, LLC to allow two entrances closer than 1,000 feet apart at 459 U.S. Route 1 (Tax Map 60 Lot 24) for the preliminary site and subdivision plan application dated April 18th 2018.

Move to approve the street standards waiver request by applicant, Michael Brigham of Landmark Hill, LLC to allow private roads to be 20 and 22-feet wide, no ROW and 3-foot shoulders at 459 U.S. Route 1 (Tax Map 60 Lot 24) for the preliminary site and subdivision plan application dated April 18th 2018.

Move to approve the preliminary site and subdivision plan application dated April 18th 2018 from applicant, Michael Brigham of Landmark Hill, LLC, for 459 U.S. Route 1 (Tax Map 60 Lot 24) in the Mixed Use Zone with these conditions

- ***a. All CMA comments must be addressed prior to submission of the final plan.***
- ***b. The no-cut buffer along the 100-foot setback must be shown on the plans prior to final plan submission.***
- ***c. Plan Note 13 must be revised per Staff Note #15 prior to final plan submission.***
- ***d. Sidewalks along Route 1 must be shown on the plans prior to final plan submission.***
- ***e. [state any additional conditions].***

CMA ENGINEERS, INC.
CIVIL | ENVIRONMENTAL | STRUCTURAL

35 Bow Street
Portsmouth
New Hampshire
03801-3819

P: 603|431|6196
www.cmaengineers.com

May 3, 2018

Kathy Connor, Town Planner
Town of Kittery
P.O. Box 808
Kittery, Maine 03904

RE: Town of Kittery, Planning Board Services
Preliminary Plan Review -The Homestead 459 U.S. Route 1 (Tax Map 60, Lot 24)
CMA #591.115

Dear Ms. Connor:

CMA Engineers received the following information for Assignment #115, review of the site plan application for property at 459 U.S. Route 1:

1) "The Homestead Subdivision, U.S. Route 1 Kittery, Maine", prepared for Landmark Hill, LLC, 79 Congress Street Portsmouth, NH by Attar Engineering, Inc., 1284 State Road, Eliot, Berwick, ME 03903 dated January18, 2018 and revised April 19, 2018.
2) "459 U.S. Route 1-Kittery, Revisions" by Attar Engineering, Inc., 1284 State Road, Eliot, Berwick, ME 03903 dated April 18, 2018.
3) "Addendum to Traffic Assessment Report, The Homestead-459 U.S. Route 1, Kittery, Maine", by Attar Engineering, Inc., 1284 State Road, Eliot, Berwick, ME 03903 dated January 16, 2018.
4) "Landmark Hill – Update of Peak Hour Trip Generation for Sowerby Parcel – Kittery, Maine," Prepared by Eaton Traffic Engineering, dated December 13, 2017.
5) "Addendum to Traffic Assessment Report, The Homestead – 459 U.S. Route 1, Kittery, Maine," Prepared by Attar Engineering, Inc., dated January 16, 2018.

We have reviewed the information submitted for conformance with the Kittery Land Use and Development Code Zoning Ordinance and general engineering practices and offer the comments below that correspond directly to the Town's Ordinances. The project is in the Mixed Use, Residential-Rural and Shoreland Overlay Zone districts.

There are numerous comments from our previous review that have not been addressed. These comments are included with new comments below.

16.8 Design and Performance Standards-Built Environment

Article IV. Streets and Pedestrian Ways/Sidewalks Site Design Standards

16.8.4.3. The streets within the development have been designed mostly to Minor Street standards. Deviations from these standards include shoulder widths, shoulder materials and gravel subbase thickness. We note that the narrowed shoulders are justifiable by the use as a private, residential roadway. The applicant should apply for a waiver from the deviations from the street design standards.

Article VI.: Water Supply

16.8.6.1 The applicant should show the existing water main location in U.S. Route 1 and provide information on existing water main material and size.
Proposed water service locations and curb stops should be shown on the plans.
Show how the existing relocated hydrant will tie in to the existing or proposed water main.

Article VII.: Sewage Disposal

16.8.7.1 Proposed sewer service and cleanout locations should be shown on the plan.
All sewer pipe lengths and slopes should be included on the roadway profile.

Article VIII. Surface Drainage

The stormwater analysis has changed since our previous review. Several post development flows have increased from their existing condition flows. We note that the increases are for the 2-year storm at two analysis points and are small. The Ordinance requires that peak discharge be limited to pre-development flows for 2 and 25-year storms. The applicant should review/modify or apply for a waiver of this standard.

We have the following comment on Sheet 5.3:

- The detail for Underdrained Soil Filter Pond 20P shows an incorrect emergency spillway elevation.

16.8.8.2.D. The O&M manual should conform with the provisions of the post construction stormwater management plan.

Article IX: Parking. Loading and Traffic

16.8.9.4.D.I.1 The applicant should show width of the aisle adjacent to the accessible parking spaces on the plans.

16.8.9.4.G. Note 11 on Sheet 6.2 should be changed to indicate number of trees required in parking.

Article X. Signs

The Applicant should submit details of proposed signs for CEO approval.

Article XXIV. Exterior Lighting

The Applicant should provide lighting details (i.e. indicate which lights are proposed in the Spec/Ordering information).

The uniformity ratio exceeds that allowed by the Ordinance. Applicant should adjust the lighting or apply for a waiver (an adjustment is recommended).

Traffic Assessment Report

The number of estimated vehicle trips generated by the newly proposed land use appears reasonable and is significantly less than the approved Sowerby mixed-use development, approved in 2007. The improvements designed and constructed (turn lanes on Route 1) will be more than adequate to accommodate the proposed number of peak hour trips generated by the new mixed development. When the development is constructed, Route 1 should be restriped to provide these turn lanes.

General Comments

1. The applicant should provide an existing conditions plan that includes existing utilities.
2. Applicant should include notes, a plan and details of the demolition of the existing building, driveway and utilities.
3. Where is the location of the timber guardrail?
4. The two leaders "Residential (2800SF) First Level Garage" and "Elderly Housing Units (TYP) 2800SF" appear to refer to the same houses. If these are different, please clarify. If these are the same thing, remove one leader.
5. The applicant has met the required number of streetside and parking area trees and indicates that planting should be at 25'CL spacing. It is not clear on the landscape plan (Sheet 6.2) that this spacing is feasible. Please clarify.
6. The cover sheet and notes plan attached to the on-site parking waiver is not the correct plan. It has since been updated.

Should you have any questions, please do not hesitate to call.

Very truly yours,

CMA ENGINEERS, INC.

Jodie Bray Strickland, P.E.
Project Engineer

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Kathy Connor
Contract Planner
Town of Kittery
P.O. Box 808
Kittery, Maine 03904

April 18, 2018
Project No.: C052-18

Re: 459 US Route 1 - Kittery
Revisions

Dear Ms. Connor:

On behalf of Michael Brigham, President of Landmark Hill, LLC, I have enclosed a revised Plan set for your review and consideration. The site is located on 459 US Route 1 in the Mixed Use District and is described by the Town of Kittery Assessor's Map 60 as Lot 24. The parcel contains 20 +/- acres and is located in the Mixed-Use (MU) District.

The revisions address comments received during the Board meeting and also from Staff review and CMA Engineers. Please note the following;

Staff and Planning Board meeting (April 12, 2018) comments

1) Net Residential Calculation (Apartments) – The calculation addresses both the apartment units that have interior parking (7,500 SF/unit) and also the apartments that have only exterior parking (10,000 SF/Unit).
2) The trail shown provides for an off-site connection.
3) Stormwater Ponds – discussed at the April 12, 2018 meeting.
4) Parking – A waiver from Kittery's parking standards (attached) has been submitted requesting a deduction of 4 spaces to resolve the Public Building parking spaces which were located within 100' of the Wetland of Special Significance (WOSS).
5) Landscaping – A revised Landscaping Plan is attached addressing plant materials discussed at the April 12 meeting.
6) MDOT Permit – The project currently has a MDOT Entrance Permit for the former Sowerby Mixed-Use Development. Both proposed entrances are in the same location that the Sowerby project had proposed. Traffic counts expected from the Homestead are substantially less than the Sowerby development, as evidenced by the submitted Traffic Report. We will contact MDOT for their review of this project in relation to the Entrance permit.
7) Parking – Parking requirements were discussed at the April 12 meeting.
8) Snow Storage – Snow storage near the recreation area has been relocated.
9) Map/Lot – Map and Lot numbers and other leaders have been revised.
10) Deed Restriction – A deed restriction for the area adjacent to the pond is

attached.

11) Pole Easement – Former deeds note an undescribed pole easement benefiting the Kittery Light Co. and New England Telephone. We will contact the predecessors of bot utilities to determine if the easement should be updated to reflect the UG power location.

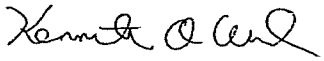
CMA Engineer Comments

1) Net Residential Acreage – See Item 1 above.
2) Street Design – The submitted Traffic Assessment report noted that Elderly – Detached (Class. 251) units generate Average Daily Traffic (ADT) of 3.71 trips. The 26 proposed units, which will utilize the Homestead Lane road yield 96.42 trips. Minor streets (Figure 1, Section 16.32) have an ADT capacity of 35 to 200. This results in a surplus ADT of 103 trips/day which are available to the other uses within the development, although it is doubtful that these will use the road network due to their close proximity to Route 1. Homestead Lane, which provides access to the elderly units has 1 20' pavement width. The plans reflect a wider pavement section of 22' minimum for both entrances and the access road (Market St) serving the two retail and apartment use buildings. All roads specify a 3" total depth of pavement which meets the secondary road standards (ADT 201 – 800).
3) R.O.W. – As discussed in previous meeting a dedicated R.O.W., is not proposed for the development.
4) Water Supply – The water line in Route 1 is shown on the plan; additional hydrants are also shown.
5) Sewer Service – Sewer Line is Route 1 is shown; some sewer manholes are located just off of the paved road surface. The system will remain private and all pipe lengths are less than 300' between manholes. The location of manholes was discussed with the Kittery Sewer Superintendent. The sewer service detail is also provided.
6) Soil Filter Pond – UDSF Pond 40P invert has been revised.
7) Parking Lot Design – Additional dimensions, an accessible route and landscaping trees have been added and/or revised.
8) Signage - Signage has been added.
9) Lighting Details – Are as noted on the Photometrics Plan and the Lighting Schedule.
10) General – The HISS/Existing Conditions Plan provides the existing conditions (Site, topography, soils, etc.) Other details have been clarified. The dumpster is for residents use, only.

Hopefully, this addresses all comments. We look forward to the next Board meeting and approving the Preliminary Plan.

Please contact me for any additional information or clarifications required.

Sincerely,



Kenneth A. Wood, P.E.
President

cc: Landmark Hill, LLC

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Kathy Connor
Contract Planner
Town of Kittery
P.O. Box 808
Kittery, Maine 03904

April 9, 2018
Project No.: C052-18

Re: 459 US Route 1 - Kittery
Revisions

Dear Ms. Connor:

On behalf of Michael Brigham, President of Landmark Hill, LLC, I am submitting a waiver request for on-site parking in accordance with Section 16, Article IV "Waivers" (16.7.4.1).

Requirement: Section 16.8.9.4 specifies off-street parking requirements. Staff review has noted that a portion of the small parking area adjacent to Unit C1 (office/clubhouse) has 2 spaces located within 100' of a Wetland of Special Significance (WOSS). Also, 2 additional spaces are required for the Office/Clubhouse building (2 per unit plus 1/250 SF).

Rationale: A Waiver is requested to reduce the required number of parking spaces by 4; resulting available parking spaces is still sufficient to support the uses shown on the plan. A majority, if not all of the residents, using the Clubhouse will walk from their dwelling units.

If granted the site plan and Note 5 (attached) will be revised accordingly. Thank you for your consideration. Please contact me for any additional information or clarifications required.

Sincerely,

Kenneth A. Wood, P.E.
President

cc: Landmark Hill, LLC

C052-18 Kittery Waiver.doc

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 Landmark Hill, 79 Congress St, Portsmouth, NH 03801; Rockingham County, NH, (herein referred to as the "Declarant", pursuant to development approvals received from the Maine Department of Environmental protection and the Town of Kittery, Maine under the Site Location of Development Act, to preserve a buffer area on a parcel of land near Route 1 (west side near Adams Road in the Town of Kittery, Maine.

WHEREAS, the Declarant holds title to certain real property situated in Kittery, Maine described in a deed from David M. and Suzanne Sowerby to DSS Land Holdings Limited Liability Company, dated March 28, 1996 and recorded in Book 7784, Page 66 at the York County Registry of Deeds and a deed from DSS Land Holdings, LLC to Landmark Hill, LLC recorded in Book XXXX, Page XXXX, 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: shown on a plan titled "Site and Subdivision Plan, The Homestead, 495 US Route 1, Kittery, Maine", prepared by Attar Engineering, Inc., 1284 State Road, Eliot, Maine 03903, dated February 8, 2018.

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)

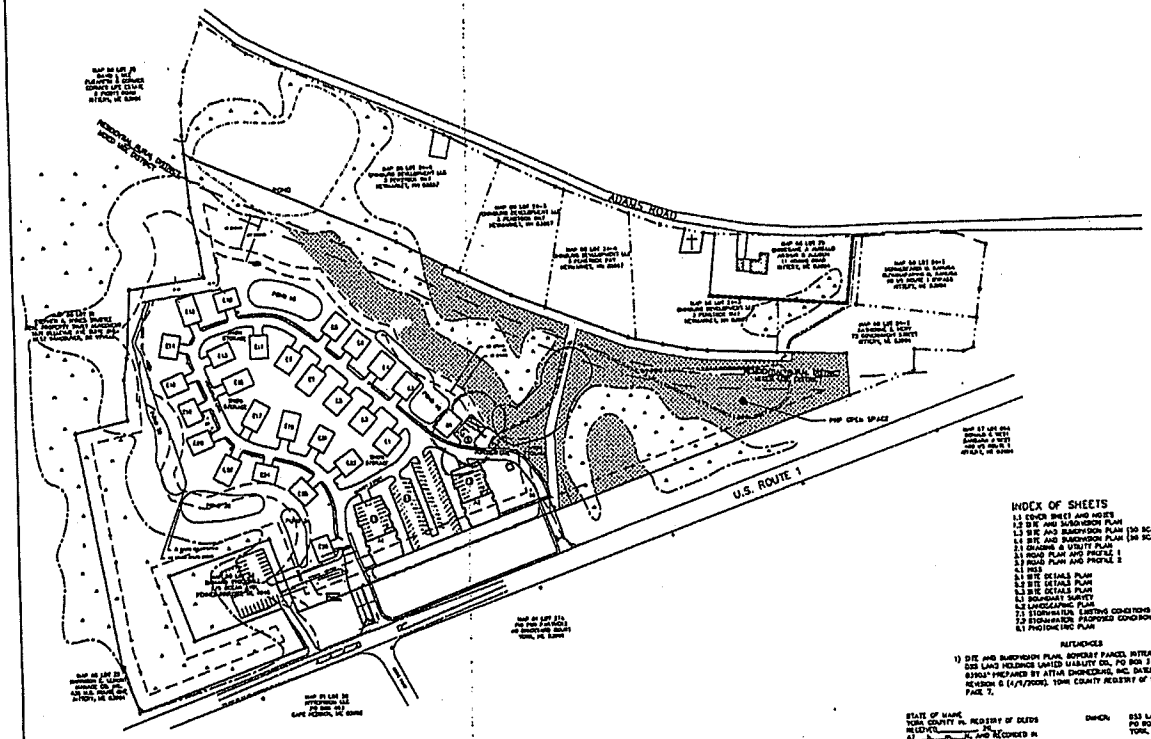
STATE OF MAINE, _____ County, dated _____, 20__.
(County)

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

THE HOMESTEAD SUBDIVISION

U.S. ROUTE 1, KITTERY, MAINE



LOCATION MAP
SCALE 1" = 2,000'

GENERAL NOTES

1) THIS PLAN PROVIDES DETAILS FOR A MIXED USE DEVELOPMENT AT 459 U.S. ROUTE 1 CONSISTING OF 30 SINGLE-FAMILY (ELDERLY) DWELLING UNITS, 2 BUILDINGS CONTAINING 16 APARTMENTS AND TWO COMMERCIAL RETAIL UNITS LOCATED WITHIN THE APARTMENT BUILDINGS AND 1 CLUB HOUSE/OFFICE BUILDING.

2) THIS SITE WAS PREVIOUSLY APPROVED AS THE SOMERSET MIXED-USE PROJECT IN 2008, SEE REF. 1.

3) THE PARCEL, IDENTIFIED AS LOT 34 ON TAX MAP 58, CONTAINS APPROXIMATELY 20.12 ACRES, AND IS LOCATED WITHIN THE MIXED-USE (MU), MEMORIAL BURIAL(B-MB) AND SHORELAND OVERLAY ZONING DISTRICTS. THE PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER SYSTEMS.

4) SPACE AND BULK REQUIREMENTS FOR THE MIXED USE ZONING DISTRICT ARE AS FOLLOWS:

MIXED USE DISTRICT	
MIN. LOT AREA	200,000 SF
MIN. STREET FRONTAGE	250'
MIN. FRONT SETBACK	30'
MIN. SIDE SETBACK	40'
MIN. REAR SETBACK	40'

5) PARKING IS CALCULATED AS FOLLOWS:

UNIT TYPE	NO. OF UNITS /SF	SPACES/UNIT	SF/UNIT	REQUIRED (INCLUDING HC WAYS)
ELDERLY	30 UNITS	1.5	N/A	45
APARTMENTS	16 UNITS	2	N/A	32
RETAIL(1/2)	2,000 SF	N/A	175	11
RETAIL(2)	2,000 SF	N/A	175	12
OFFICE(1)	2,000 SF	N/A	250	8

TOTAL SPACES = 127 MIN 123 PROVIDED (DRIVEWAYS FOR ELDERLY AND LOTS FOR REMAINING)

6) BUILDABLE AREA/MINIMUM LOT SIZE:

TOTAL PARCEL AREA	=	876,613 SF.	= 20.12 AC
LESS SIDE OF WETLANDS SETBACK	=	121,263 SF.	= 2.78 AC
LESS UNSUITABLE SOILS*	=	200,439 SF.	= 4.61 AC
LESS RIGHTS OF WAY/EASEMENTS**	=	107,867 SF.	= 2.51 AC
NET BUILDABLE AREA	=	437,043.7 SF.	= 10.04 AC

*INCLUDES WETLANDS, POORLY DRAINED AND VERY POORLY DRAINED SOILS
**EXCLUDING TRAVELED WAYS AND PARKING.
NET RESIDENTIAL DENSITY = 437,043.7 = (25 X 10,000) + (16 X 7,500) = 87,043.7 => OK

7) COMMERCIAL SPACE REQUIREMENT IS CALCULATED AS FOLLOWS:
2 APARTMENT BLDGS X 8,000 SF X 2 FLOORS = 24,000
2 RETAIL SPACES X 2,750 SF = 5,500
29,500/24,000 = 23.1% WHICH IS GREATER THAN 10%(REQUIRED)

8) PROPERTY LINES, WETLANDS, EXISTING CONDITIONS AND TOPOGRAPHY ARE FROM REFERENCE 1.
WETLANDS WERE IDENTIFIED IN THE FIELD BY KENNETH A. WELLS, CWS IN DECEMBER, 1999 AND MICHAEL D. DUDAS, CWS, CPSS IN MARCH, 2005. WETLANDS WERE LOCATED WITH SURVEY INSTRUMENT BY ATTAR ENGINEERING, INC. FROM DECEMBER, 1999 THROUGH APRIL, 2005. WETLANDS DELINEATION WAS VERIFIED IN 2017 BY KENNETH A. WELLS, CWS. NO CHANGES WERE NOTED FROM THE PREVIOUS DELINEATION.

9) TOTAL OPEN SPACE REQUIRED IS 20.12 X 25% OF OPEN SPACE MUST BE IN FRONT 50% OF THE PARCEL
20.12 AC X 0.25 = 7.03 AC OF WHICH 7.03 AC PROVIDED 7.08 AC X 0.25 = 1.77 AC MIN 3.56 AC PROVIDED IN THE FRONT OF THE PARCEL.

10) LANDSCAPING ALONG THE FRONTAGE OF US ROUTE 1 SHALL CONSIST OF AT LEAST ONE SUGAR MAPLE (ACER SACCHARUM) OR APPROVED EQUAL ON 25' C.L. SPACING AND A MIX OF 16 SHRUBS AND/OR FLOWERING PERENNIAL PLANT SPECIES FOR EVERY 40' OF FRONTAGE

11) ALL BUILDINGS SHALL BE SPRINKLED FOR FIRE PROTECTION.

12) TOTAL AREA TO BE DISTURBED 9.79 ACRES, TOTAL IMPERVIOUS AREA 3.72 ACRES, TOTAL LOT STREET FRONTAGE 1552.7 FT.

INDEX OF SHEETS

REFERENCES

1) SITE AND SUBDIVISION PLAN, SOMERSET PARCEL, KITTERY, MAINE," FOR 233 LLC HOLDINGS LIMITED LIABILITY CO., PO BOX 242, YORK, MAINE 03909," PREPARED BY ATTAR ENGINEERING, INC. DATED 11/8/2005, REVISED 6 (4/5/2006), YORK COUNTY REGISTRY OF DEEDS BOOK 332, PAGE 7.

STATE OF MAINE, YORK, COUNTY SS. RECEIVED ____, 20__, AT ____ H. AND RECORDED IN PLAN BOOK ____ PAGE ____. ATTEST: ____ REGISTER

OWNER: 233 LAND HOLDINGS LLC, PO BOX 242, YORK, ME 03909

APPLICANT: LANDMARK HILL, LLC, 79 CONGRESS ST., PORTSMOUTH, NH 03801

GRAPHIC SCALE
0 50 100 200 400 (FEET)

LEGEND

MIN SETBACK	UNDER GROUND UTILITIES	DRAINAGE STRUCTURE	
DESIGNATED OPEN SPACE	SEWER MANHOLE	WATER VALVE	
PROPERTY LINE	EXISTING WATER LINE	WATER SHUT OFF	
EXISTING CONTOUR	EXISTING SEWER LINE	HYDRANT	
PROPOSED CONTOUR	UTILITY POLE	ACTUARIAL WALL	
PROPOSED WATER LINE	IRON PIN	VERTICAL GRANITE CURB	
PROPOSED SEWER LINE	SIGNS AND LIGHT		

TOWN OF KITTERY
PLANNING BOARD DATE

NO.	REVISIONS	DATE
7	PRELIMINARY PLAN REVISION	03/27/2018
6	DEP POND ADJUSTMENT	02/08/2018
5	DEP POND ADJUSTMENT	02/06/2018
4	PRELIMINARY PLAN REVISION	1/15/2018
NO.	DESCRIPTION	DATE

1.1

OVERALL SITE PLAN
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

FOR: LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL • STRUCTURAL • LAND
1284 STATE ROAD - ELIOT, MAINE 03903
PHONES (207)439-6023 FAX (207)439-2128

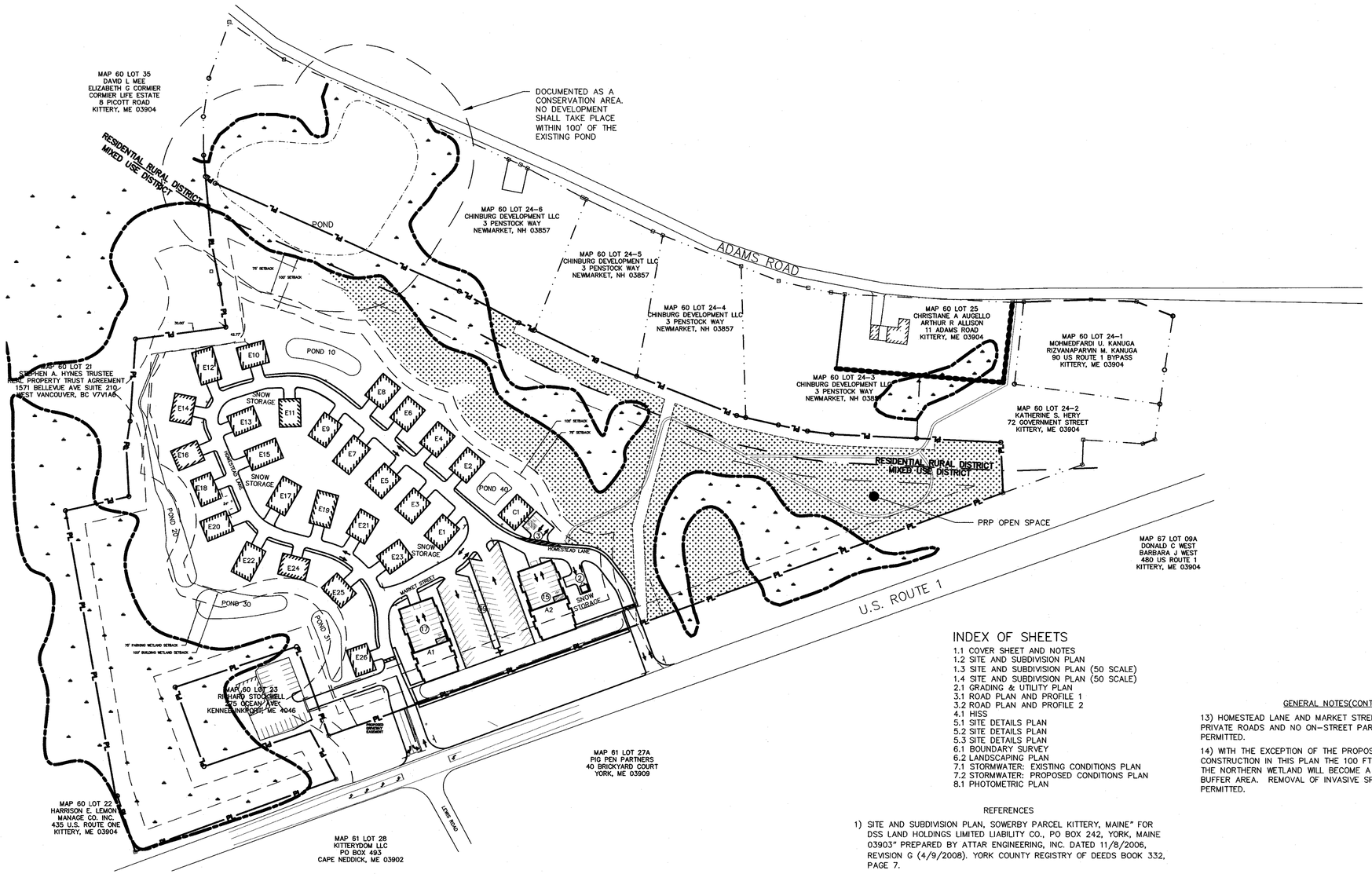
SCALE: 1" = 100'	DRAWN BY: BRH
DATE: 03/08/2018	REVISION DATE: 03/27/2018
JOB NO. 0261-18	CAD FILE: BIRCHRUN LEASE
	SHEET 1.1

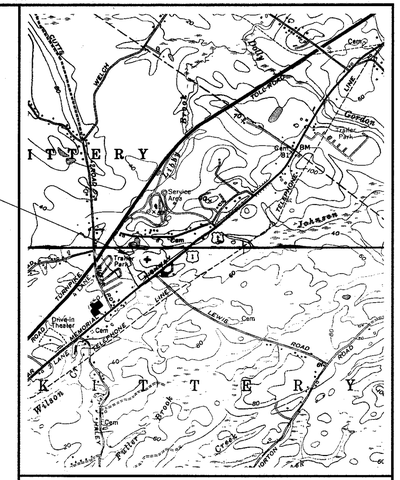
TAX MAP 24, LOT 60

139 BEEP TO WITH
135 PROPOSED

THE HOMESTEAD SUBDIVISION

U.S. ROUTE 1, KITTERY, MAINE





LOCATION MAP
SCALE: 1" = 2,000'

INDEX OF SHEETS

REFERENCES

1) SITE AND SUBDIVISION PLAN, SOWERBY PARCEL KITTERY, MAINE" FOR DSS LAND HOLDINGS LIMITED LIABILITY CO., PO BOX 242, YORK, MAINE 03903" PREPARED BY ATTAR ENGINEERING, INC. DATED 11/8/2006, REVISION G (4/9/2008). YORK COUNTY REGISTRY OF DEEDS BOOK 332, PAGE 7.

GENERAL NOTES

1) THIS PLAN PROVIDES DETAILS FOR A MIXED USE DEVELOPMENT AT 459 U.S. ROUTE 1 CONSISTING OF 26 SINGLE-FAMILY (ELDERLY) DWELLING UNITS, 2 BUILDINGS CONTAINING 16 APARTMENTS WITH TWO COMMERCIAL RETAIL UNITS LOCATED WITHIN THE APARTMENT BUILDINGS AND 1 CLUB HOUSE/OFFICE BUILDING
2) THIS SITE WAS PREVIOUSLY APPROVED AS THE SOWERBY MIXED-USE PROJECT IN 2008. SEE REF. 1.
3) THE PARCEL, IDENTIFIED AS LOT 24 ON TAX MAP 60, CONTAINS APPROXIMATELY 20.12 ACRES; AND IS LOCATED WITHIN THE MIXED-USE (MU), RESIDENTIAL RURAL (R-RL) AND SHORELAND OVERLAY ZONING DISTRICTS. THE PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER SYSTEMS.
4) SPACE AND BULK REQUIREMENTS FOR THE MIXED USE ZONING DISTRICT ARE AS FOLLOWS:

MIXED USE DISTRICT	
MIN. LOT AREA	200,000 SF
MIN. STREET FRONTAGE	250'
MIN. FRONT SETBACK	30'
MIN. SIDE SETBACK	40'
MIN. REAR SETBACK	40'

5) PARKING IS CALCULATED AS FOLLOWS;

UNIT TYPE	NO. OF UNITS./SF	SPACES/UNIT	SF/UNIT	REQUIRED
ELDERLY	26 UNITS	2	N/A	52 (DRIVEWAYS/GARAGES)
APARTMENTS	16 UNITS	2	N/A	32
RETAIL(A1/A2)	8,000 SF	N/A	175	46
RETAIL(C1)	2,000 SF	N/A	175	12
OFFICE(C1)	2,000 SF	2	250	10

TOTAL SPACES = 152 WITH 148 PROVIDED (APPLYING FOR PARKING WAIVER)

6) BUILDABLE AREA/RESIDENTIAL DENSITY

TOTAL PARCEL AREA	=	876,427.2 S.F. =	20.12 AC.
LESS 50% OF WETLANDS SETBACK	=	137,495.6 S.F. =	3.16 AC.
LESS UNSUITABLE SOILS*	=	200,630 S.F. =	4.61 AC.
LESS RIGHTS OF WAY/EASEMENTS**	=	109,327 S.F. =	2.51 AC.
NET RESIDENTIAL AREA	=>	428,974.5 S.F. =	9.85 AC.

*INCLUDES WETLANDS, POORLY DRAINED AND VERY POORLY DRAINED SOILS
**INCLUDING TRAVELED WAYS AND PARKING
NET RESIDENTIAL DENSITY = 428,974.5 - (26 X 10,000) - (16 X 7,500) = 48,974.5 => OK

7) COMMERCIAL SPACE REQUIREMENT IS CALCULATED AS FOLLOWS:
2 APARTMENT BLDGS X 9,000 SF X 2 FLOORS = 36000
2 RETAIL SPACES X 4000 SF = 8000
8000/36000 = 22.2% WHICH IS GREATER THAN 10%(REQUIRED).

8) PROPERTY LINES, WETLANDS, EXISTING CONDITIONS AND TOPOGRAPHY ARE FROM REFERENCE 1. WETLANDS WERE IDENTIFIED IN THE FIELD BY KENNETH A. WOOD, CWS IN DECEMBER, 1999 AND MICHAEL R. CUOMO, CWS, CSS IN MARCH, 2000. WETLANDS WERE LOCATED WITH SURVEY INSTRUMENT BY ATTAR ENGINEERING, INC. FROM DECEMBER, 1999 THROUGH APRIL, 2000. WETLAND DELINEATION WAS VERIFIED IN 2017 BY KENNETH A. WOOD, CWS. NO CHANGES WERE NOTED FROM THE PREVIOUS DELINEATION.
9) TOTAL OPEN SPACE REQUIRED IS 35%; 25% OF OPEN SPACE MUST BE IN FRONT 50% OF THE PARCEL: 20.23 AC X 0.35 = 7.08 AC WITH 7.29 AC PROVIDED: 7.08 AC X 0.25 =1.77 AC WITH 5.58 AC PROVIDED IN THE FRONT OF THE PARCEL.
10) LANDSCAPING ALONG THE FRONTAGE OF US ROUTE 1 SHALL CONSIST OF AT LEAST ONE AMERICAN LARCH (LARIX LARICINA) OR APPROVED EQUAL ON 25' C.L. SPACING AND A MIX OF 10 SHRUBS AND/OR FLOWERING PERENNIAL PLANT SPECIES FOR EVERY 40' OF FRONTAGE
11) ALL BUILDINGS WILL BE SPRINKLED FOR FIRE PROTECTION.
12) TOTAL AREA TO BE DISTURBED: 10.2 ACRES, TOTAL IMPERVIOUS AREA: 3.9 ACRES, TOTAL LOT STREET FRONTAGE 1655.7 FT.

GENERAL NOTES(CONT.)

13) HOMESTEAD LANE AND MARKET STREET TO BE PRIVATE ROADS AND NO ON-STREET PARKING WILL BE PERMITTED.
14) WITH THE EXCEPTION OF THE PROPOSED CONSTRUCTION IN THIS PLAN THE 100 FT SETBACK FROM THE NORTHERN WETLAND WILL BECOME A RESTRICTED BUFFER AREA. REMOVAL OF INVASIVE SPECIES SHALL BE PERMITTED.

STATE OF MAINE
YORK COUNTY ss. REGISTRY OF DEEDS
RECEIVED_____, 20___
AT___h,___m,___M, AND RECORDED IN PLAN BOOK_____, PAGE_____
ATTEST_____REGISTER

OWNER: DSS LAND HOLDINGS LLC
PO BOX 242
YORK, ME 03909

APPLICANT: LANDMARK HILL, LLC
79 CONGRESS ST.
PORTSMOUTH, NH 03801

GRAPHIC SCALE
0 100 200 300 400 (FEET)

LEGEND

NEW SETBACK	UNDER GROUND UTILITIES (PUGU)	DRAINAGE STRUCTURE
DESIGNATED OPEN SPACE	SEWER MANHOLE (S)	WATER VALVE
PROPERTY LINE	EXISTING WATER LINE (EW)	WATER SHUT OFF
EXISTING CONTOUR (XXX)	EXISTING SEWER LINE (ES)	HYDRANT
PROPOSED CONTOUR (XXX)	UTILITY POLE	VERTICAL GRANITE CURB
PROPOSED WATER LINE (PW)	IRON PIN	
PROPOSED SEWER LINE (PS)	STONE MONUMENT	

TOWN OF KITTERY
PLANNING BOARD DATE

NO.	DESCRIPTION	DATE
	REVISIONS	
F	PRELIMINARY PLAN REVISION	4/19/2018
E	SW PLAN REVISION	4/16/2018
D	PRELIMINARY PLAN REVISION	03/27/2018
C	SW POND ADJUSTMENT	02/08/2018
B	SW POND ADJUSTMENT	02/06/2018
A	PRELIMINARY PLAN REVISION	1/18/2018

STATE OF MAINE
KENNETH A. WOOD
No. 0022
LICENSED
SOIL SCIENTIST

1.1

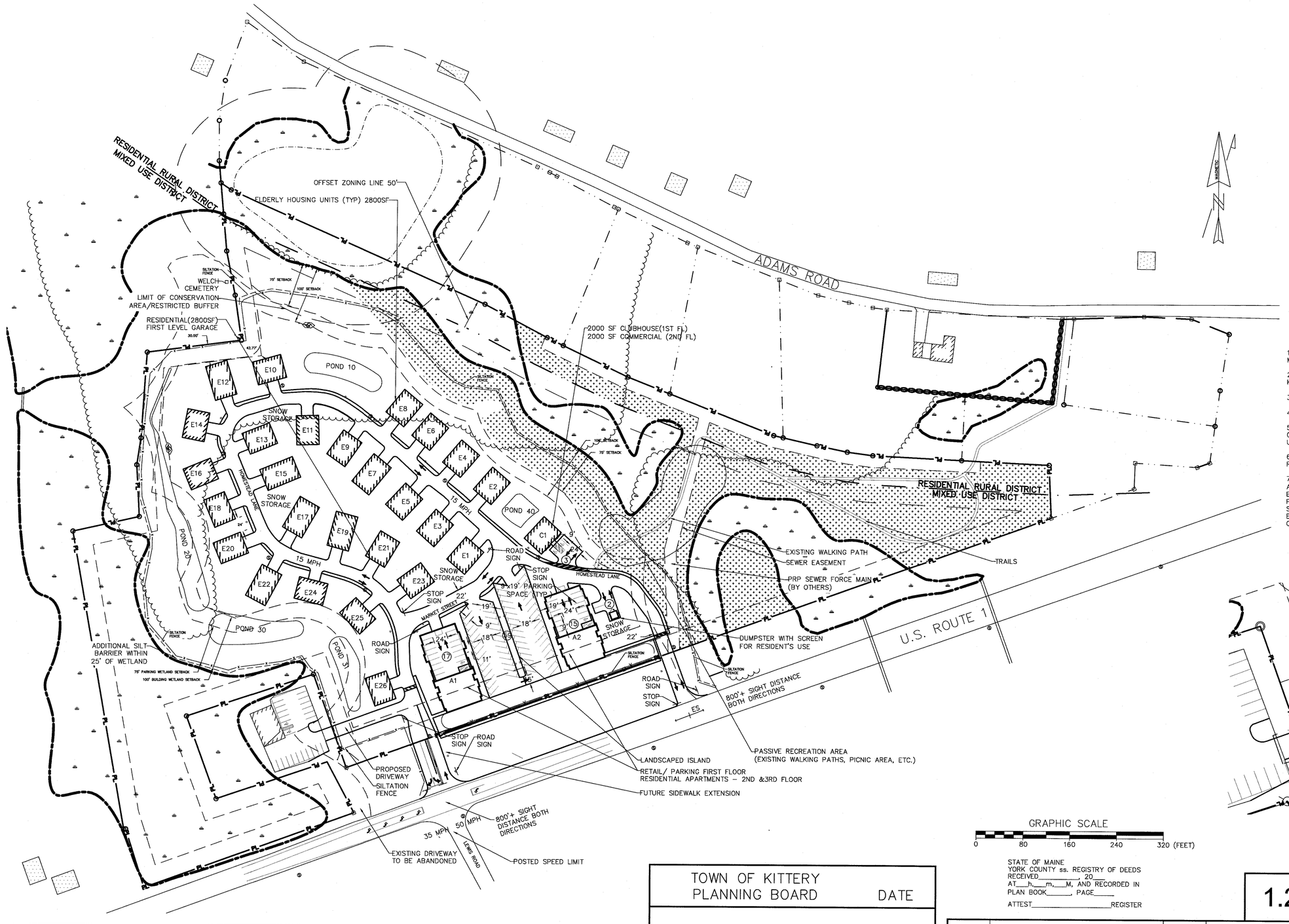
OVERALL SITE PLAN
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

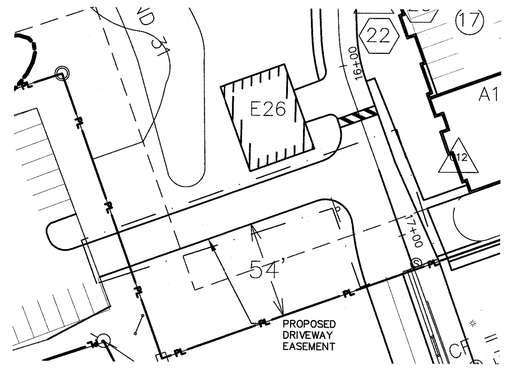
FOR:
LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD - ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE:	APPROVED BY:	DRAWN BY:
1" = 100'		BRN
DATE: 02/08/2018	4/19/2018	REVISION : DATE F: 04/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD BASE	SHEET 1.1

TAX MAP 60, LOT 24





DRIVEWAY EASEMENT
SCALE: 1" = 40'

GENERAL NOTES

1. SEWER MAINS TO BE 8" SDR 35 PVC. ALL OTHER APPURTENANCES SHALL MEET KITTERY SEWER DISTRICT STANDARDS.

2. ALL PIPES, VALVES, FITTINGS, AND CONNECTIONS SHALL MEET CURRENT KITTERY WATER DISTRICT STANDARDS.

3. ALL STORM DRAINS TO BE ADS N-12 (PE) OR APPROVED EQUAL.

4. A MINIMUM OF 5.0' OF COVER SHALL BE MAINTAINED OVER ALL WATER LINES.

5. CENTRAL MAINE POWER COMPANY WILL PREPARE THE ELECTRICAL PLAN FOR CONSTRUCTION. ALL ELECTRICAL, TELEPHONE, AND CABLE SERVICES WILL BE UNDERGROUND.

6. NEW WATER AND SEWER LINES SHALL BE TESTED IN ACCORDANCE WITH RESPECTIVE DISTRICT REQUIREMENTS.

7. EACH E & S CELL REPRESENTS A LIMITED AREA TO BE CONSTRUCTED WITH ALL EROSION & SEDIMENT CONTROL MEASURES IN PLACE. ALL "CELLS" SHALL BE PROTECTED BY EROSION & SEDIMENT CONTROL BEST MANAGEMENT PRACTICES AS REQUIRED BY THE E & S PLAN. EROSION & SEDIMENT CONTROL SHALL BE MAINTAINED FOR EACH CELL THROUGH-OUT THE COMPLETION OF THE ENTIRE PROJECT. THE CELLS SHALL BE ESTABLISHED IN THERE NUMERICAL ORDER.

GRAPHIC SCALE
0 80 160 240 320 (FEET)

LEGEND

NEW SETBACK	UNDER GROUND UTILITIES — PUGU —	DRAINAGE STRUCTURE	
DESIGNATED OPEN SPACE	SEWER MANHOLE	WATER VALVE	
PROPERTY LINE	EXISTING WATER LINE — EW —	WATER SHUT OFF	
EXISTING CONTOUR ---XXX---	EXISTING SEWER LINE — ES —	HYDRANT	
PROPOSED CONTOUR ——XXX——	UTILITY POLE	VERTICAL GRANITE CURB	
PROPOSED WATER LINE — PW —	IRON PIN		
PROPOSED SEWER LINE — PS —	STONE MONUMENT		

TOWN OF KITTERY
PLANNING BOARD DATE

STATE OF MAINE
YORK COUNTY ss. REGISTRY OF DEEDS
RECEIVED_____, 20___
AT___h,___m,___M, AND RECORDED IN
PLAN BOOK_____, PAGE_____
ATTEST_____REGISTER

NO.	DESCRIPTION	DATE
	REVISIONS	
F	PRELIMINARY PLAN REVISION	4/19/2018
E	SW PLAN REVISION	4/16/2018
D	PRELIMINARY PLAN REVISION	03/27/2018
C	SW POND ADJUSTMENT	02/08/2018
B	SW POND ADJUSTMENT	02/06/2018
A	PRELIMINARY PLAN REVISION	1/18/2018

STATE OF MAINE — KENNETH M. ATTAR — 10582 — REGISTERED PROFESSIONAL ENGINEER

1.2

SITE AND SUBDIVISION PLAN
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

FOR:
LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE:	APPROVED BY:	DRAWN BY:
1" = 80'		BRN
DATE: 02/08/2018		REVISION : DATE F: 04/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD BASE	SHEET 1.2

TAX MAP 60, LOT 24

RESIDENTIAL RURAL DISTRICT
MIXED USE DISTRICT

OFFSET ZONING LINE 50'

ELDERLY HOUSING UNITS (TYP) 2800SF

ADAMS ROAD

SILTATION FENCE

WELCH CEMETERY

75' SETBACK

100' SETBACK

LIMIT OF CONSERVATION AREA/RESTRICTED BUFFER

RESIDENTIAL(2800SF) FIRST LEVEL GARAGE

30.00'

42.77'

2000 SF CLUBHOUSE(1ST FL)
2000 SF COMMERCIAL (2ND FL)

POND 10

E10

E12

SNOW STORAGE

E8

E6

E14

E11

E13

E9

E4

E7

E16

E15

E5

E2

HOMESTEAD LANE

SNOW STORAGE

E18

E17

E19

E3

POND 40

C1

9'

24'

E20

E21

E1

ROAD SIGN

15 MPH

POND 20

E22

E24

E23

SNOW STORAGE

STOP SIGN

HOMESTEAD LANE

9'x19' PARKING SPACE (TYP.)

STOP SIGN

22'

MARKET STREET

19'

24'

9'

18'

E25

POND 30

POND 31

ROAD SIGN

24'

11'

A2

SNOW STORAGE

22'

SILTATION FENCE

ADDITIONAL SILT BARRIER WITHIN 25' OF WETLAND

75' PARKING WETLAND SETBACK

SHEET 1.4 BELOW MATCHLINE

108' SETBACK

75' SETBACK

RESIDENTIAL RURAL DISTRICT
MIXED USE DISTRICT

EXISTING WALKING PATH

SEWER EASEMENT

PRP SEWER FORCE MAIN (BY OTHERS)

TRAILS

U.S. ROUTE 1

DUMPSTER WITH SCREEN FOR RESIDENT'S USE

GRAPHIC SCALE
0 50 100 150 200 (FEET)

LEGEND

NEW SETBACK		UNDER GROUND UTILITIES	PUGU
DESIGNATED OPEN SPACE		SEWER MANHOLE	S
PROPERTY LINE		EXISTING WATER LINE	EW
EXISTING CONTOUR	XXX	EXISTING SEWER LINE	ES
PROPOSED CONTOUR	XXX	UTILITY POLE	
PROPOSED WATER LINE	PW	IRON PIN	
PROPOSED SEWER LINE	PS	STONE MONUMENT	
		DRAINAGE STRUCTURE	
		WATER VALVE	
		WATER SHUT OFF	
		HYDRANT	
		VERTICAL GRANITE CURB	

TOWN OF KITTERY
PLANNING BOARD DATE

STATE OF MAINE
YORK COUNTY ss. REGISTRY OF DEEDS
RECEIVED_____, 20__
AT___h,___m,___M, AND RECORDED IN
PLAN BOOK_____, PAGE_____
ATTEST_____REGISTER

NO.	DESCRIPTION	DATE
	REVISIONS	
F	PRELIMINARY PLAN REVISION	4/19/2018
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C	SW POND ADJUSTMENT	02/08/2018
B	SW POND ADJUSTMENT	02/06/2018
A	PRELIMINARY PLAN REVISION	1/18/2018

STATE OF MAINE
KENNETH M. WEBB
3452
REGISTERED PROFESSIONAL ENGINEER

1.3

SITE AND SUBDIVISION PLAN 50 SCALE
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

FOR: LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE: 1" = 50	APPROVED BY:	DRAWN BY: BRN
DATE: 02/08/2018		REVISION : DATE F:04/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD BASE	SHEET 1.3
		TAX MAP 60, LOT 24

SHEET 1.3 ABOVE MATCHLINE

SNOW STORAGE

E14 E13 E11 E9 E6 E4 E2 E7 E5 E3 E1 E16 E15 E18 E17 E19 E21 E20 E22 E24 E23 E25 E26

HOMESTEAD LANE

SNOW STORAGE

15 MPH

POND 20

POND 30

POND 31

POND 40

ADDITIONAL SILT BARRIER WITHIN 25' OF WETLAND

SILTATION FENCE

75' PARKING WETLAND SETBACK

100' BUILDING WETLAND SETBACK

100' SETBACK

75' SETBACK

ROAD SIGN

STOP SIGN

MARKET STREET

22'

19' PARKING SPACE (TYP.)

24'

18'

11'

9'

A1

A2

C1

SNOW STORAGE

SILTATION FENCE

ROAD SIGN

STOP SIGN

PROPOSED DRIVEWAY

SILTATION FENCE

EXISTING DRIVEWAY TO BE ABANDONED

LEWIS ROAD

50 MPH

35 MPH

800'+ SIGHT DISTANCE BOTH DIRECTIONS

POSTED SPEED LIMIT

RESIDENTIAL RURAL DISTRICT
MIXED USE DISTRICT

EXISTING WALKING PATH

SEWER EASEMENT

PRP SEWER FORCE MAIN (BY OTHERS)

TRAILS

U.S. ROUTE 1

DUMPSTER WITH SCREEN FOR RESIDENT'S USE

800'+ SIGHT DISTANCE BOTH DIRECTIONS

PASSIVE RECREATION AREA
(EXISTING WALKING PATHS, PICNIC AREA, ETC.)

LANDSCAPED ISLAND

RETAIL/ PARKING FIRST FLOOR
RESIDENTIAL APARTMENTS – 2ND &3RD FLOOR

FUTURE SIDEWALK EXTENSION

MAGNETIC NORTH

GRAPHIC SCALE

0 50 100 150 200 (FEET)

LEGEND

NEW SETBACK		UNDER GROUND UTILITIES	PUGU	DRAINAGE STRUCTURE	
DESIGNATED OPEN SPACE		SEWER MANHOLE	S	WATER VALVE	
PROPERTY LINE		EXISTING WATER LINE	EW	WATER SHUT OFF	
EXISTING CONTOUR	XXX	EXISTING SEWER LINE	ES	HYDRANT	
PROPOSED CONTOUR	XXX	UTILITY POLE		VERTICAL GRANITE CURB	
PROPOSED WATER LINE	PW	IRON PIN			
PROPOSED SEWER LINE	PS	STONE MONUMENT			

TOWN OF KITTERY
PLANNING BOARD DATE

STATE OF MAINE
YORK COUNTY ss. REGISTRY OF DEEDS
RECEIVED_____, 20__
AT___h___m, ___M, AND RECORDED IN
PLAN BOOK_____, PAGE_____
ATTEST_____REGISTER

NO.	DESCRIPTION	DATE
	REVISIONS	
F	PRELIMINARY PLAN REVISION	4/19/2018
E	SW PLAN REVISION	4/16/2018
D	PRELIMINARY PLAN REVISION	03/27/2018
C	SW POND ADJUSTMENT	02/08/2018
B	SW POND ADJUSTMENT	02/06/2018
A	PRELIMINARY PLAN REVISION	1/18/2018

STATE OF MAINE KENNETH M. WEBB 10862 REGISTERED PROFESSIONAL ENGINEER

1.4

SITE AND SUBDIVISION 50 SCALE
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

FOR: LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE: 1" = 50'	APPROVED BY:	DRAWN BY: BRN
DATE: 02/08/2018	4/19/2018	REVISION : DATE F: 04/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD BASE	SHEET 1.4

TAX MAP 60, LOT 24

GENERAL NOTES

1. SEWER MAINS TO BE 8" SDR 35 PVC. ALL OTHER APPURTENANCES SHALL MEET KITTERY SEWER DISTRICT STANDARDS.

2. ALL PIPES, VALVES, FITTINGS, AND CONNECTIONS SHALL MEET CURRENT KITTERY WATER DISTRICT STANDARDS.

3. ALL WATER SERVICES TO BE EQUIPPED WITH CURB STOPS.

4. ALL STORM DRAINS TO BE ADS N-12 (PE) OR APPROVED EQUAL.

5. A MINIMUM OF 5.0' OF COVER SHALL BE MAINTAINED OVER ALL WATER LINES.

6. CENTRAL MAINE POWER COMPANY WILL PREPARE THE ELECTRICAL PLAN FOR CONSTRUCTION. ALL ELECTRICAL, TELEPHONE, AND CABLE SERVICES WILL BE UNDERGROUND.

7. NEW WATER AND SEWER LINES SHALL BE TESTED IN ACCORDANCE WITH RESPECTIVE DISTRICT REQUIREMENTS.

8. EACH E & S CELL REPRESENTS A LIMITED AREA TO BE CONSTRUCTED WITH ALL EROSION & SEDIMENT CONTROL MEASURES IN PLACE. ALL "CELLS" SHALL BE PROTECTED BY EROSION & SEDIMENT CONTROL BEST MANAGEMENT PRACTICES AS REQUIRED BY THE E & S PLAN. EROSION & SEDIMENT CONTROL SHALL BE MAINTAINED FOR EACH CELL THROUGH-OUT THE COMPLETION OF THE ENTIRE PROJECT. THE CELLS SHALL BE ESTABLISHED IN THERE NUMERICAL ORDER.

DRAINAGE STRUCTURE SCHEDULE

DESC	RIM ELEV	INV IN	INV OUT	PIPE SIZE(IN.)
CB 1	57.8	55.4, 55.4	55.3	15
CB 2	60.8	56.4	56.2	12
CB 3	60.6	–	56.6	12
CB 4	62.7	56.4	56.3	12
CB 5	60.4	57.0	56.9	12
–	–	–	–	12
CB 7	61.3	57.4	57.3	12
CB 8	62.6	58.5	58.4	12
–	–	–	–	12
–	–	–	–	12
CB 11	64.5	–	58.0	12
CB 12	57.9	54.9	54.8	12
CB 13	58.6	–	55.4	12

LEGEND

- NEW SETBACK
- DESIGNATED OPEN SPACE
- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED WATER LINE — PW —
- PROPOSED SEWER LINE — PS —
- UNDER GROUND UTILITIES — PUGU —
- SEWER MANHOLE
- EXISTING WATER LINE — EW —
- EXISTING SEWER LINE — ES —
- UTILITY POLE
- IRON PIN
- STONE MONUMENT
- DRAINAGE STRUCTURE
- WATER VALVE
- WATER SHUT OFF
- HYDRANT
- VERTICAL GRANITE CURB

GRAPHIC SCALE

0 40 80 120 160 (FEET)

REVIEW PRINT-NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE
	REVISIONS	
F	PRELIMINARY PLAN REVISION	4/19/2018
E	SW PLAN REVISION	4/16/2018
D	PRELIMINARY PLAN REVISION	03/27/2018
C	SW POND ADJUSTMENT	02/08/2018
B	SW POND ADJUSTMENT	02/06/2018
A	PRELIMINARY PLAN REVISION	1/18/2018

PROGRESS PRINT

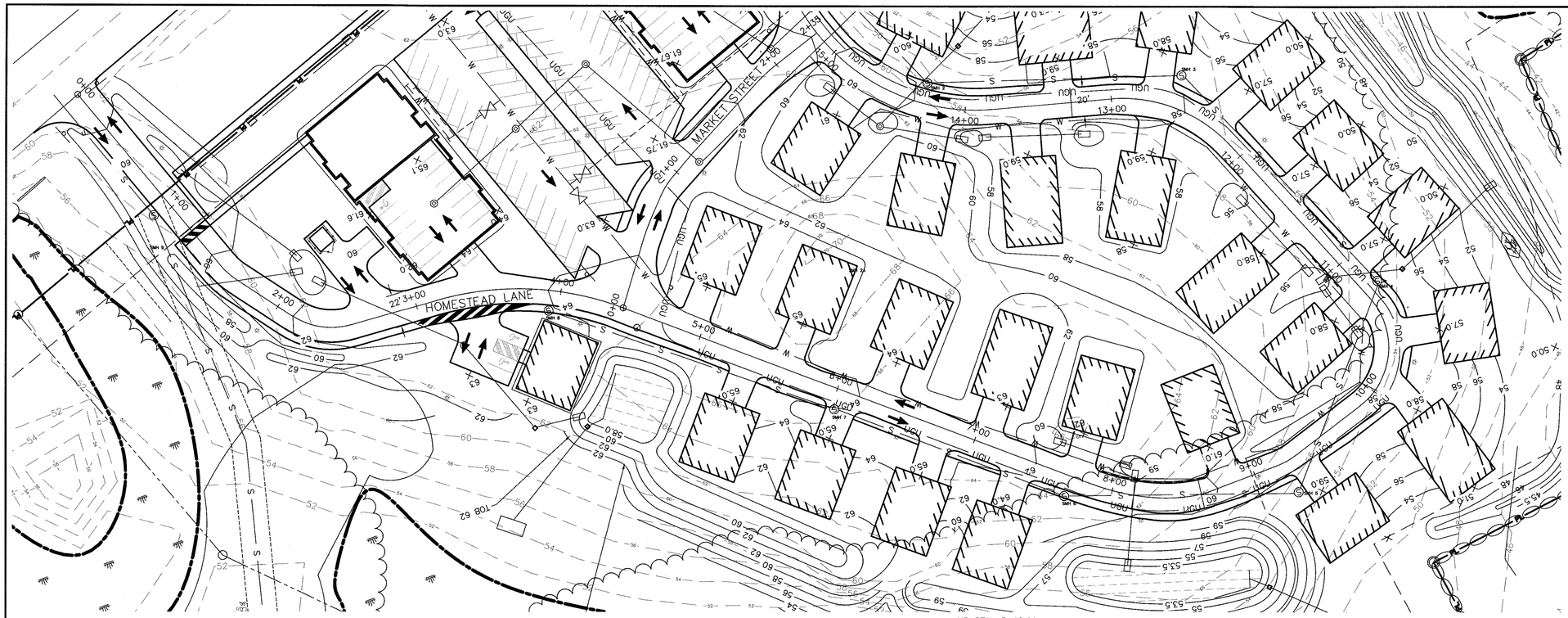
2.1

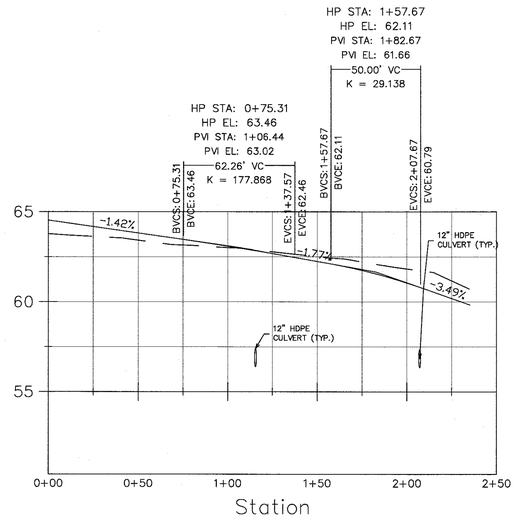
GRADING AND UTILITY PLAN
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

FOR:
LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

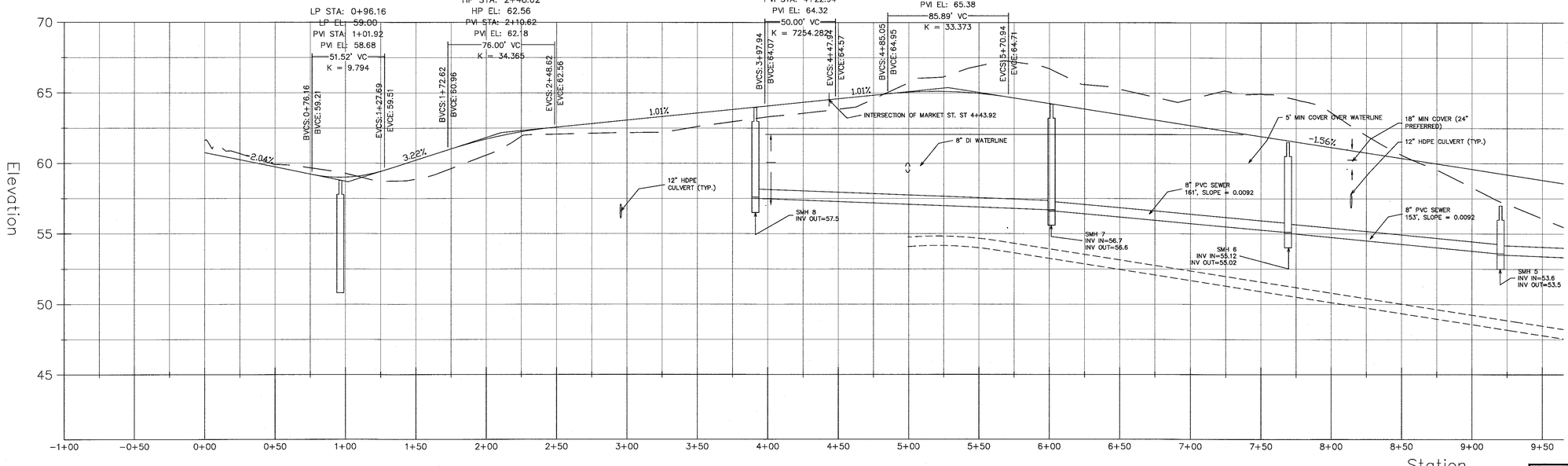
SCALE: 1" = 40'
APPROVED BY:
DRAWN BY: BRN
DATE: 02/08/2018
4/18/2018
REVISION : DATE F: 04/19/2018
JOB NO: C052-18
FILE: THE HOMESTEAD BASE
SHEET 2.1
TAX MAP 60, LOT 24





ROAD PROFILE – MARKET STREET

H. SCALE: 1" = 40'
V. SCALE: 1" = 4'



ROAD PROFILE – HOMESTEAD LANE

H. SCALE: 1" = 40'
V. SCALE: 1" = 4'

GRAPHIC SCALE

0 40 80 120 160 (FEET)

NO.	DESCRIPTION	DATE
	REVISIONS	
F	PRELIMINARY PLAN REVISION	4/19/2018
E	SW PLAN REVISION	4/16/2018
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B	SW POND ADJUSTMENT	02/06/2018
A	PRELIMINARY PLAN REVISION	1/18/2018

STATE OF MAINE
KENNETH M. ATTAR
LICENSED PROFESSIONAL ENGINEER

3.1

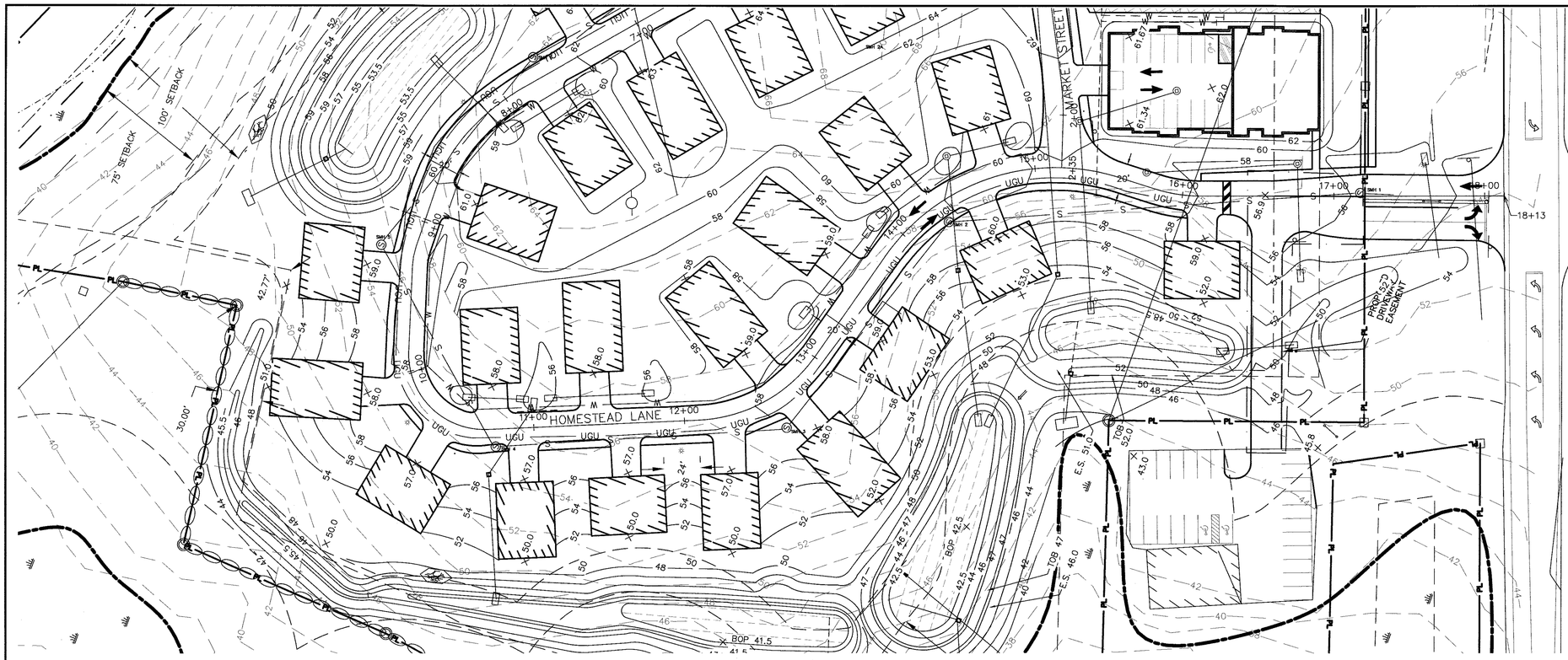
ROAD PLAN AND PROFILE
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

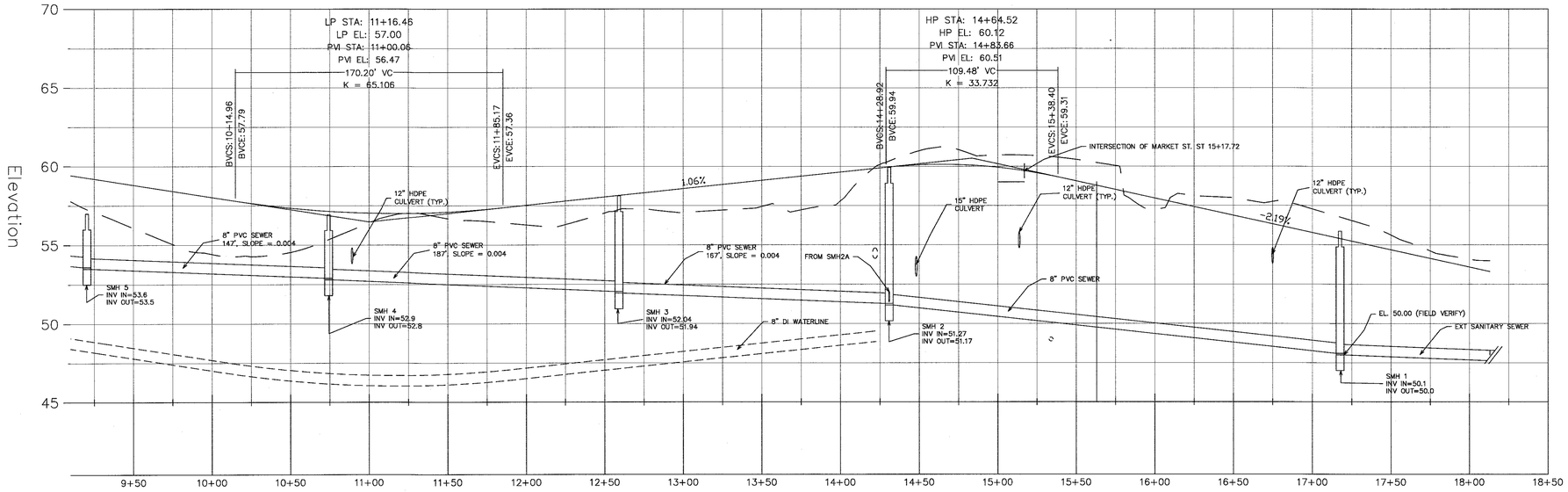
FOR:
LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE: 1" = 40'	APPROVED BY:	DRAWN BY: BRN
DATE: 02/08/2018		REVISION : DATE F: 04/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD BASE	SHEET 3.1

TAX MAP 60, LOT 24





ROAD PROFILE – HOMESTEAD LANE

H. SCALE: 1" = 40'
V. SCALE: 1" = 4'

GRAPHIC SCALE

0 40 80 120 160 (FEET)

NO.	DESCRIPTION	DATE
	REVISIONS	
F	PRELIMINARY PLAN REVISION	4/19/2018
E	SW PLAN REVISION	4/16/2018
D	PRELIMINARY PLAN REVISION	03/27/2018
C	SW POND ADJUSTMENT	02/08/2018
B	SW POND ADJUSTMENT	02/06/2018
A	PRELIMINARY PLAN REVISION	1/18/2018

STATE OF MAINE — KENNETH M. WEBB — No. 9582 — REGISTERED PROFESSIONAL ENGINEER

3.2

ROAD PLAN AND PROFILE
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

FOR:
LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE:	APPROVED:	DRAWN BY:
1" = 40'		BRN
DATE: 02/08/2018	4/19/2018	REVISION : DATE F: 04/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD BASE	SHEET 3.2

TAX MAP 60, LOT 24

SYMBOL	SOIL SERIES
Bm	BIDDEFORD MUCKY PEAT*
BS	BIDDEFORD–SCANTIC COMPLEX, FILLED AND DITCHED*
DANI	DEVELOPED AREA NOT INVESTIGATED
Dx	DIXFIELD FINE SANDY LOAM
Em	ELMWOOD VERY FINE SANDY LOAM
LT	LYMAN–TUNBRIDGE COMPLEX
Sc	SCANTIC SILT LOAM*
Sw	SWANTON VERY FINE SANDY LOAM
Ws	WESTBURY FINE SANDY LOAM
	* WETLAND SOILS

SOIL BOUNDARY

SOIL/WETLAND BOUNDARY

SOIL BORING

TEST PIT

SLOPE LEGEND

(NONE)	0 – 3%
B	3 – 8%
C	8 – 15%
D	15 – 25%

GRAPHIC SCALE
0 100 20 300 400 (FEET)

GENERAL NOTES

1. PROPERTY LINES, WETLANDS, EXISTING CONDITIONS AND TOPOGRAPHY ARE FROM REFERENCE 1. WETLANDS WERE IDENTIFIED IN THE FIELD BY KENNETH A. WOOD, CWS IN DECEMBER, 1999 AND MICHAEL R. CUOMO, CWS, CSS IN MARCH, 2000. WETLANDS WERE LOCATED WITH SURVEY INSTRUMENT BY ATTAR ENGINEERING, INC. FROM DECEMBER, 1999 THROUGH APRIL, 2000. WETLAND DELINEATION WAS VERIFIED IN 2017 BY KENNETH A. WOOD, CWS. NO CHANGES WERE NOTED FROM THE PREVIOUS DELINEATION.

2. SOIL TYPES SHOWN ON THIS PLAN WERE IDENTIFIED BY MICHAEL CUOMO (MAINE CERTIFIED SOIL SCIENTIST #211) IN APRIL, 2000.

10 JAN 2018

MICHAEL CUOMO, MAINE CERTIFIED SOIL SCIENTIST #211

STATE OF MAINE · MICHAEL CUOMO #211 · CERTIFIED SOIL SCIENTIST

THIS MAP COMPLIES WITH THE STANDARDS FOR
CLASS "B" HIGH INTENSITY SOIL SURVEY.
SEE REPORT DATED 14 APRIL 2000 FOR DESCRIPTION METHODS OF SOIL.

NO.	DESCRIPTION	DATE
	REVISIONS	

4.1

HIGH INTENSITY SOIL SURVEY
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

FOR: LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439–6023 FAX: (207)439–2128

SCALE: 1" = 100'	APPROVED BY:	DRAWN BY: BRN
DATE: 12/20/2017	1/10/2018	REVISION : DATE --:--
JOB NO: C052–17	CAD FILE: MBRIGHAM LBASE	SHEET 4.1

TAX MAP 24, LOT 60

EROSION & SEDIMENTATION CONTROL NOTES

1. SILTATION FENCE OR HAY BALE BARRIERS WILL BE INSTALLED DOWNSLOPE OF ALL STRIPPING OR CONSTRUCTION OPERATIONS. A DOUBLE SILT FENCE BARRIER SHALL BE INSTALLED DOWNSLOPE OF ANY SOIL MATERIAL STOCKPILES. SILT FENCES SHALL BE INSPECTED AFTER EACH RAIN EVENT AND DAILY DURING PROLONGED RAIN. SILT AND SOIL PARTICLES ACCUMULATING BEHIND THE FENCE SHALL BE REMOVED AFTER EACH SIGNIFICANT RAIN EVENT AND IN NO INSTANCE SHOULD ACCUMULATION EXCEED 1/2 THE HEIGHT OF THE FENCE. TORN OR DAMAGED AREAS SHALL BE REPAIRED.

2. TEMPORARY AND PERMANENT VEGETATION AND MULCHING IS AN INTEGRAL COMPONENT OF THE EROSION AND SEDIMENTATION CONTROL PLAN. ALL AREAS SHALL BE INSPECTED AND MAINTAINED UNTIL THE DESIRED VEGETATIVE COVER IS ESTABLISHED. THESE CONTROL MEASURES ARE ESSENTIAL TO EROSION PREVENTION AND ALSO REDUCE COSTLY REWORK OF GRADED AND SHAPED AREAS.

3. SEEDING, FERTILIZER AND LIME RATES AND TIME OF APPLICATION WILL BE DEPENDENT ON SOIL REQUIREMENTS. TEMPORARY VEGETATION SHALL BE MAINTAINED IN THESE AREAS UNTIL PERMANENT SEEDING IS APPLIED. ADDITIONALLY, EROSION AND SEDIMENTATION MEASURES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED.

4. ALL LAWN AREA, OUTER POND SIDE SLOPES AND SWALES SHALL BE PERMANENTLY SEEDED WITH THE FOLLOWING MIXTURE: 20 LB/ACRE CREEPING RED FESCUE, 2 LB/ACRE REDTOP AND 20 LB/ACRE TALL FESCUE FOR A TOTAL OF 42 LB/ACRE. FERTILIZER AND LIME RATES SHALL BE DEPENDENT ON SOIL TESTING. IN THE ABSENCE OF SOIL TESTS, FERTILIZE WITH 10-20-20 (N-P205-K201) AT 800 LB/ACRE AND LIME AT 3 TONS/ACRE. MULCH WITH HAY AT 70-90 LB/1000 S.F. 4" OF LOAM SHALL BE APPLIED PRIOR TO SEEDING.

5. POND BOTTOMS AND INNER POND SIDESLOPES SHALL BE PERMANENTLY SEEDED WITH THE FOLLOWING MIXTURE: 20 LB/ACRE CREEPING RED FESCUE, 8 LB/ACRE BIRDSFOOT TREFOIL AND 20 LB/ACRE TALL FESCUE FOR A TOTAL OF 48 LB/ACRE. SEE THE ABOVE NOTE FOR FERTILIZER, LIME AND MULCHING RATES.

6. TEMPORARY VEGETATION OF ALL DISTURBED AREAS, MATERIAL STOCKPILES AND OTHER SUCH AREAS SHALL BE ESTABLISHED BY SEEDING WITH EITHER WINTER RYE AT A RATE OF 112 LB/ACRE OR ANNUAL RYEGRASS AT A RATE OF 40 LB/ACRE. WINTER RYE SHALL BE USED FOR FALL SEEDING AND ANNUAL RYEGRASS FOR SHORT DURATION SEEDING. SEEDING SHALL BE ACCOMPLISHED BEFORE OCTOBER 1.

7. TEMPORARY SEEDING OF DISTURBED AREAS SHALL BE ACCOMPLISHED BEFORE OCTOBER 1. PERMANENT SEEDING SHALL BE ACCOMPLISHED BEFORE SEPTEMBER 15.

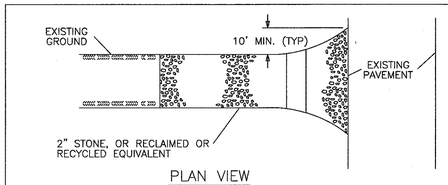
8. ALL SEEDED AREAS SHALL BE MULCHED WITH HAY AT A RATE OF 2 BALES (70-90 LB) PER 1000 S.F. OF SEEDED AREA.

9. SLOPES 2:1 OR STEEPER SHALL BE TREATED WITH POLYJUTE OPEN WEAVE GEOTEXTILE (OR EQUIVALENT) AFTER SEEDING. JUTE MATS SHALL BE ANCHORED PER MANUFACTURER'S SPECIFICATIONS.

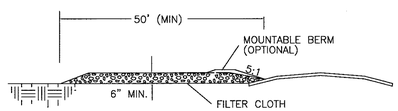
10. EXCESSIVE DUST CAUSED BY CONSTRUCTION OPERATIONS SHALL BE CONTROLLED BY APPLICATION OF WATER OR CALCIUM CHLORIDE.

11. THE CONTRACTOR MAY OPT TO USE EROSION CONTROL MIX BERM AS A SEDIMENT BARRIER IN LIEU OF SILTATION FENCE OR HAY BALE BARRIERS WITH APPROVAL FROM THE INSPECTING ENGINEER.

12. MINIMIZE DISTURBED AREAS AND PROTECT NATURAL DOWNGRADIENT BUFFER AREAS TO THE EXTENT PRACTICABLE. CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION. MINIMIZE THE DISTURBANCE OF STEEP SLOPES. CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND VOLUME, TO MINIMIZE EROSION AT OUTLETS. THE DISCHARGE MAY NOT RESULT IN EROSION OF ANY OPEN DRAINAGE CHANNELS, SWALES, STREAM CHANNELS OR STREAM BANKS, UPLAND, OR COASTAL OR FRESHWATER WETLANDS OFF THE PROJECT SITE.



PLAN VIEW



PROFILE

NOTES:

1. GEOTEXTILE: PLACE FILTER CLOTH OVER ENTIRE AREA TO BE COVERED WITH AGGREGATE. FILTER CLOTH WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENTIAL LOT.

2. PIPING OF SURFACE WATER UNDER ENTRANCE SHALL BE PROVIDED AS REQUIRED. IF PIPING IS IMPOSSIBLE, A MOUNTABLE BERM WITH A 5:1 SLOPE WILL BE PERMITTED.

STABILIZED CONSTRUCTION ENTRANCE

EROSION & SED. CONTROL NOTES (CONT.)

13. WHENEVER PRACTICABLE, NO DISTURBANCE ACTIVITIES SHOULD TAKE PLACE WITHIN 50 FEET OF ANY PROTECTED NATURAL RESOURCE. IF DISTURBANCE ACTIVITIES TAKE PLACE BETWEEN 30 FEET AND 50 FEET OF ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED. IF DISTURBANCE ACTIVITIES TAKE PLACE LESS THAN 30 FEET FROM ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED AND DISTURBED AREAS MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 7 DAYS.

14. PRIOR TO CONSTRUCTION, PROPERLY INSTALL SEDIMENT BARRIERS AT THE DOWNGRADIENT EDGE OF ANY AREA TO BE DISTURBED AND ADJACENT TO ANY DRAINAGE CHANNELS WITHIN THE DISTURBED AREA. SEDIMENT BARRIERS SHOULD BE INSTALLED DOWNGRADIENT OF SOIL OR SEDIMENT STOCKPILES AND STORMWATER PREVENTED FROM RUNNING ONTO THE STOCKPILE. MAINTAIN THE SEDIMENT BARRIERS BY REMOVING ACCUMULATED SEDIMENT, OR REMOVING AND REPLACING THE BARRIER, UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. WHERE A DISCHARGE TO A STORM DRAIN INLET OCCURS, IF THE STORM DRAIN CARRIES WATER DIRECTLY TO A SURFACE WATER AND YOU HAVE AUTHORITY TO ACCESS THE STORM DRAIN INLET, YOU MUST INSTALL AND MAINTAIN PROTECTION MEASURES THAT REMOVE SEDIMENT FROM THE DISCHARGE.

15. PRIOR TO CONSTRUCTION, PROPERLY INSTALL A STABILIZED CONSTRUCTION ENTRANCE (SCE) AT ALL POINTS OF EGRESS FROM THE SITE. THE SCE IS A STABILIZED PAD OF AGGREGATE, UNDERLAIN BY A GEOTEXTILE FILTER FABRIC, USED TO PREVENT TRAFFIC FROM TRACKING MATERIAL AWAY FROM THE SITE ONTO PUBLIC ROW'S. MAINTAIN THE SCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.

16. WITHIN 7 DAYS OF THE CESSATION OF CONSTRUCTION ACTIVITIES IN AN AREA THAT WILL NOT BE WORKED FOR MORE THAN 7 DAYS, STABILIZE ANY EXPOSED SOIL WITH MULCH, OR OTHER NON-ERODIBLE COVER. STABILIZE AREAS WITHIN 75 FEET OF A WETLAND OR WATERBODY WITHIN 48 HOURS OF THE INITIAL DISTURBANCE OF THE SOIL OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.

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

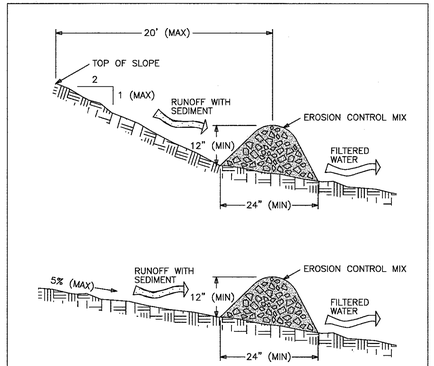
18. IF THE AREA WILL NOT BE WORKED FOR MORE THAN ONE YEAR OR HAS BEEN BROUGHT TO FINAL GRADE, THEN PERMANENTLY STABILIZE THE AREA WITHIN 7 DAYS BY PLANTING VEGETATION, SEEDING, SOD, OR THROUGH THE USE OF PERMANENT MULCH, OR RIPRAP, OR ROAD SUB-BASE. IF USING VEGETATION FOR STABILIZATION, SELECT THE PROPER VEGETATION FOR THE LIGHT, MOISTURE, AND SOIL CONDITIONS; AMEND AREAS OF DISTURBED SUBSOILS WITH TOPSOIL, COMPOST, OR FERTILIZERS; PROTECT SEEDED AREAS WITH MULCH OR, IF NECESSARY, EROSION CONTROL BLANKETS; AND SCHEDULE SODDING, PLANTING, AND SEEDING SO TO AVOID DIE-OFF FROM SUMMER DROUGHT AND FALL FROSTS. NEWLY SEEDED OR SODDED AREAS MUST BE PROTECTED FROM VEHICLE TRAFFIC, EXCESSIVE PEDESTRIAN TRAFFIC, AND CONCENTRATED RUNOFF UNTIL THE VEGETATION IS WELL-ESTABLISHED WITH 90% COVER BY HEALTHY VEGETATION. IF NECESSARY, AREAS MUST BE REWORKED AND RESTABILIZED IF GERMINATION IS SPARSE, PLANT COVERAGE IS SPOTTY, OR TOPSOIL EROSION IS EVIDENT. ONE OR MORE OF THE FOLLOWING MAY APPLY TO A PARTICULAR SITE.

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

20. 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.

21. 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.

22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE HOUSEKEEPING PRACTICES DURING THE CONSTRUCTION OF THE PROJECT. THESE STANDARDS CAN BE FOUND IN THE FOLLOWING DOCUMENT: MDEP CHAPTER 500 (STORMWATER MANAGEMENT), APPENDIX C. HOUSEKEEPING. HOUSEKEEPING PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, SPILL PREVENTION, GROUNDWATER PROTECTION, FUGITIVE SEDIMENT AND DUST, DEBRIS AND OTHER MATERIALS, EXCAVATION DEWATERING, AUTHORIZED NON-STORMWATER DISCHARGES AND UNAUTHORIZED NON-STORMWATER DISCHARGES.



EROSION CONTROL MIX COMPOSITION STANDARDS:

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

EROSION CONTROL MIX BERM
(NTS)

WINTER CONSTRUCTION NOTES

NOVEMBER 1 – APRIL 15

1. AN AREA SHALL BE CONSIDERED STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH HAY AT A RATE OF 100 LB/1000 S.F. OR DORMANT SEEDED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SO THAT THE SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH.

2. FROM OCTOBER 15 TO APRIL 1, LOAM AND SEED WILL NOT BE REQUIRED. DURING PERIODS OF TEMPERATURES ABOVE FREEZING, DISTURBED AREAS SHALL BE FINE GRADED AND PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL PERMANENT SEEDING CAN BE APPLIED. AFTER NOVEMBER 1, DISTURBED AREAS MAY BE LOAMED, FINE GRADED AND DORMANT SEEDED AT A RATE 200-300% HIGHER THAN THE SPECIFIED PERMANENT SEEDING RATE. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, DISTURBED AREAS SHALL BE GRADED BEFORE FREEZING AND TEMPORARILY STABILIZED WITH MULCH. DISTURBED AREAS SHALL NOT BE LEFT OVER THE WINTER OR FOR ANY OTHER EXTENDED PERIOD OF TIME UNLESS STABILIZED WITH MULCH.

3. FROM NOVEMBER 1 TO APRIL 15 ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION CHEMICAL, TRACK OR WOOD CELLULOSE FIBER. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH SLOPES GREATER THAN 3%, SLOPES EXPOSED TO DIRECT WINDS AND FOR SLOPES GREATER THAN 8%. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1, THE SAME APPLIES TO ALL SLOPES GREATER THAN 8%.

4. SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.

5. FOR WINTER STABILIZATION, HAY MULCH SHALL BE APPLIED AT TWICE THE STANDARD TEMPORARY STABILIZATION RATE. AT THE END OF EACH CONSTRUCTION DAY, AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE SHALL BE STABILIZED. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW.

6. ALL AREAS WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE SHALL BE PROTECTED WITH A DOUBLE ROW OF SEDIMENT BARRIERS.

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

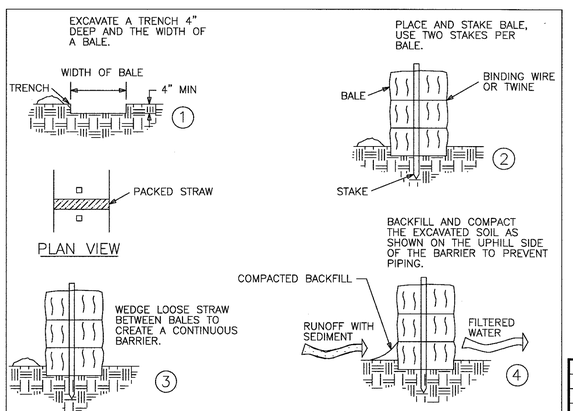
8. MULCH NETTING SHALL BE USED TO ANCHOR MULCH ON ALL SLOPES GREATER THAN 8% UNLESS EROSION CONTROL BLANKETS OR EROSION CONTROL MIX IS BEING USED ON SUCH SLOPES.

E&S INSPECTION/MAINTENANCE DURING CONSTRUCTION

A. INSPECTION AND CORRECTIVE ACTION. INSPECT DISTURBED AND IMPERVIOUS AREAS, EROSION CONTROL MEASURES, MATERIALS STORAGE AREAS THAT ARE EXPOSED TO PRECIPITATION, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE. INSPECT THESE AREAS AT LEAST ONCE A WEEK AS WELL AS BEFORE AND WITHIN 24 HOURS AFTER A STORM EVENT (RAINFALL), AND PRIOR TO COMPLETING PERMANENT STABILIZATION MEASURES. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT THE INSPECTIONS.

B. MAINTENANCE. IF BEST MANAGEMENT PRACTICES (BMPS) NEED TO BE REPAIRED, THE REPAIR WORK SHOULD BE INITIATED UPON DISCOVERY OF THE PROBLEM BUT NO LATER THAN THE END OF THE NEXT WORKDAY. IF ADDITIONAL BMPS OR SIGNIFICANT REPAIR OF BMPS ARE NECESSARY, IMPLEMENTATION MUST BE COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (RAINFALL). ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED.

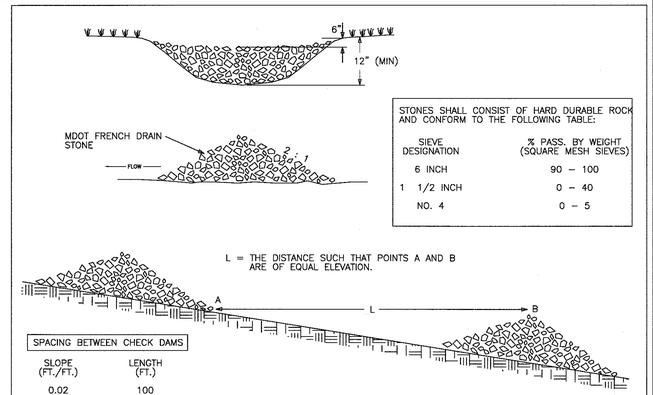
C. DOCUMENTATION. KEEP A LOG (REPORT) SUMMARIZING THE INSPECTIONS AND ANY CORRECTIVE ACTION TAKEN. THE LOG MUST INCLUDE THE NAME(S) AND QUALIFICATIONS OF THE PERSON MAKING THE INSPECTIONS, THE DATE(S) OF THE INSPECTIONS, AND MAJOR OBSERVATIONS ABOUT THE OPERATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS, MATERIALS STORAGE AREAS, AND VEHICLES ACCESS POINTS TO THE PARCEL. MAJOR OBSERVATIONS MUST INCLUDE BMPS THAT NEED MAINTENANCE, BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATION(S) 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 DEPARTMENT STAFF AND A COPY MUST BE PROVIDED UPON REQUEST. THE PERMITTEE SHALL RETAIN A COPY OF THE LOG FOR A PERIOD OF AT LEAST THREE YEARS FROM THE COMPLETION OF PERMANENT STABILIZATION.



NOTES:

1. PLACE BALES IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR.
2. PLACE BALES 10' AWAY FROM THE TOE OF SLOPE.
3. IN SLOPING AREAS WHERE SURFACE FLOW FOLLOWS THE BALE LINE, INSTALL PERPENDICULAR BALE CHECKS AT APPROPRIATE INTERVALS (100' MAX.)

HAY BALE BARRIER
(NTS)



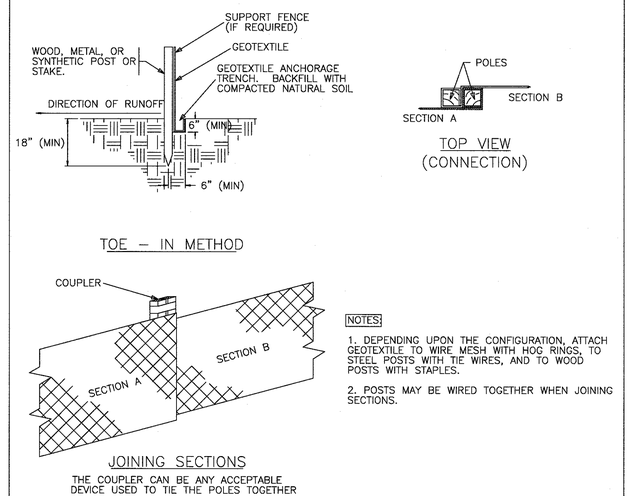
STONES SHALL CONSIST OF HARD DURABLE ROCK AND CONFORM TO THE FOLLOWING TABLE:

SIEVE DESIGNATION	% PASS. BY WEIGHT (SQUARE MESH SIEVES)
6 INCH	90 – 100
1 1/2 INCH	0 – 40
NO. 4	0 – 5

SPACING BETWEEN CHECK DAMS

SLOPE (FT./FT.)	LENGTH (FT.)
0.02	100
0.03	66
0.04	50
0.05	40
0.08	25
0.10	20
0.12	17
0.15	13

STONE CHECK DAM
(NTS)



NOTES:

1. DEPENDING UPON THE CONFIGURATION, ATTACH GEOTEXTILE TO WIRE MESH WITH HOG RINGS, TO STEEL POSTS WITH TIE WIRES, AND TO WOOD POSTS WITH STAPLES.

2. POSTS MAY BE WIRED TOGETHER WHEN JOINING SECTIONS.

TEMPORARY SILT FENCE – NTS

NO.	DESCRIPTION	DATE
	REVISIONS	

5.1

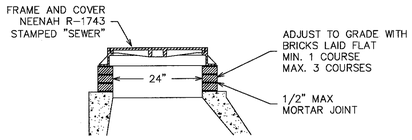
SITE DETAILS
THE HOMESTEAD
459 U.S. ROUTE 1, KITTERY, MAINE

FOR: LANDMARK HILL, LLC.
79 CONGRESS STREET
PORTSMOUTH, NH 03801

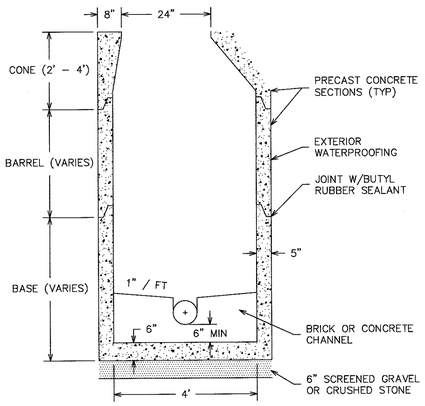
ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE:	APPROVED BY:	DRAWN BY:
AS SHOWN	4/18/2018	MJS
DATE: 1/18/2018		REVISION DATE: – : –
JOB NO: C052-18	FILE: THE HOMESTEAD DET.DWG	SHEET: 5.1

MAP 60 / LOT 24

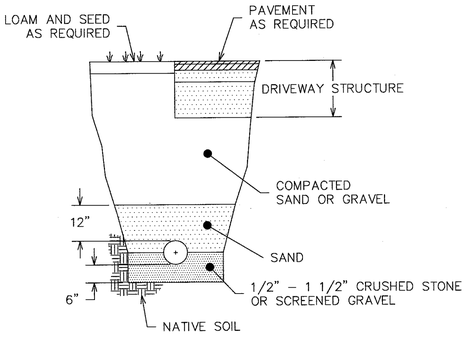


STANDARD COVER AND FRAME
SCALE: NTS

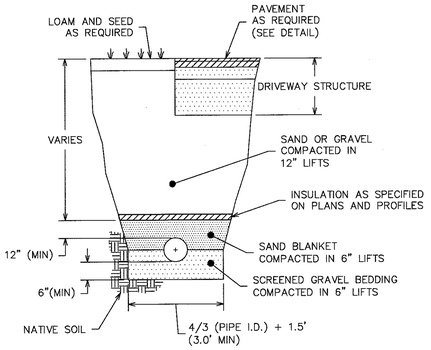


TYPICAL SANITARY MANHOLE
SCALE: NTS

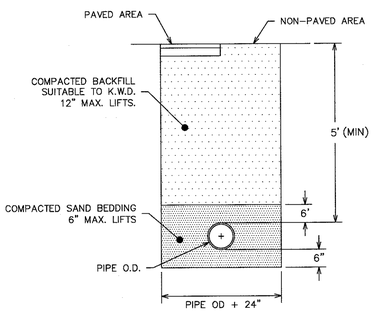
TYPICAL BOOT GASKET
SCALE: NTS



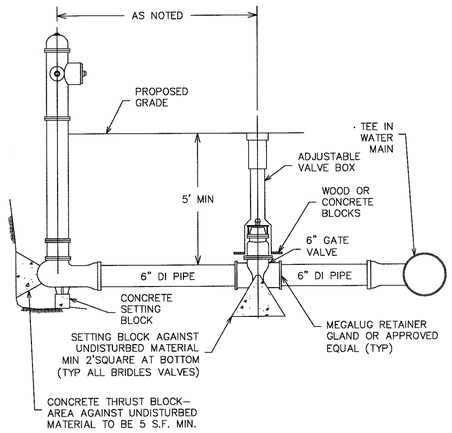
DRAINAGE PIPE TRENCH DETAIL
SCALE: NTS
TRENCH TO BE SUPPORTED BY SLOPING
BACK AT 2:1 OR OTHER ACCEPTABLE
METHOD.



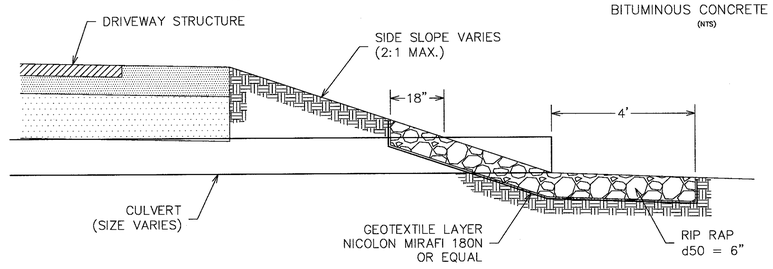
SEWER PIPE TRENCH DETAIL
SCALE: NTS
TRENCH TO BE SUPPORTED BY SLOPING BACK AT
2:1 OR OTHER ACCEPTABLE METHOD.



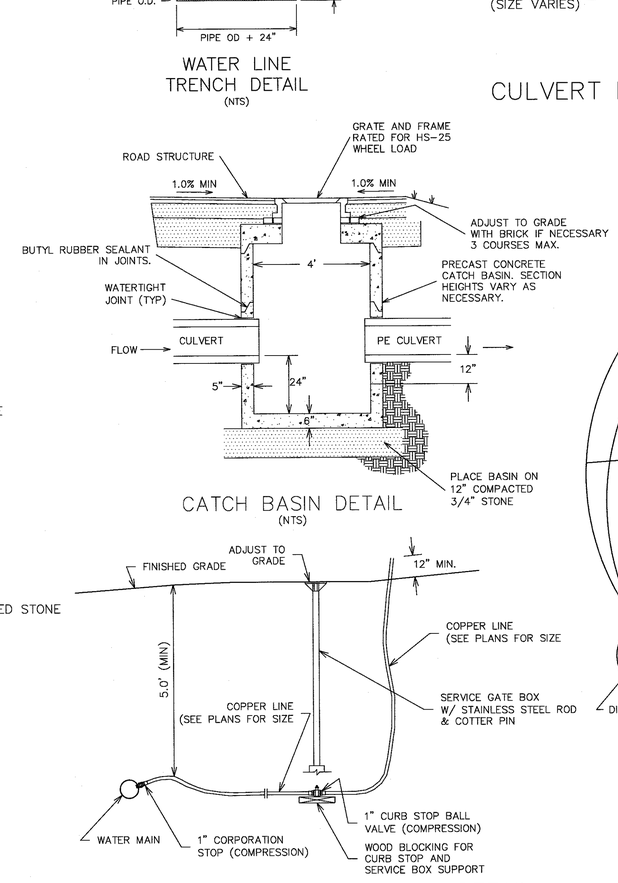
WATER LINE TRENCH DETAIL
(NTS)



HYDRANT & VALVE DETAIL
NTS

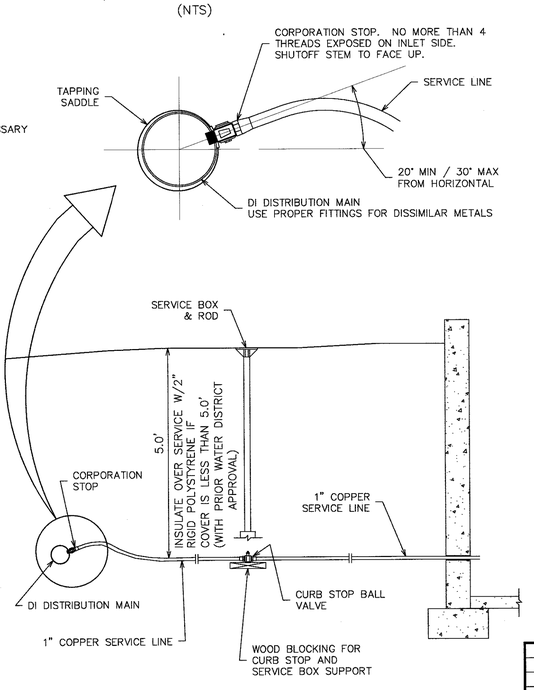


CULVERT INLET/OUTLET PROTECTION DETAIL
(NTS)

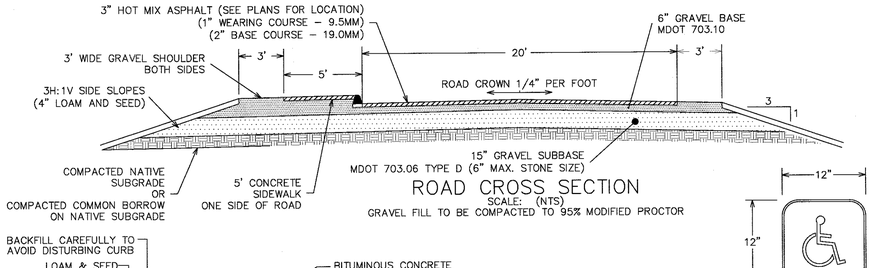


CATCH BASIN DETAIL
(NTS)

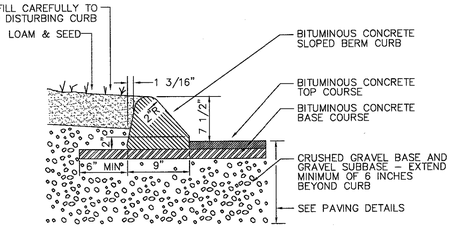
WATER BLOWOFF ASSEMBLY DETAIL
(NTS)



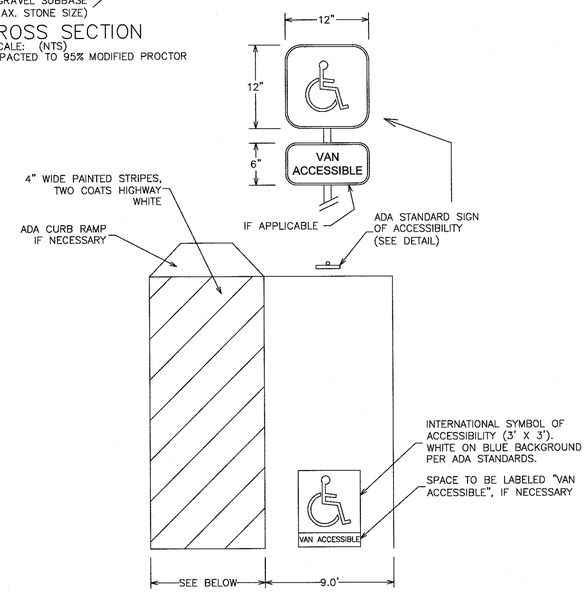
WATER SERVICE DETAIL
(NTS)



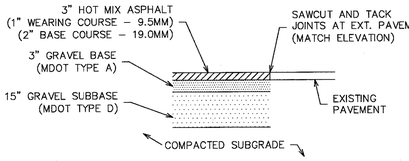
ROAD CROSS SECTION
SCALE: (NTS)
GRAVEL FILL TO BE COMPACTED TO 95% MODIFIED PROCTOR



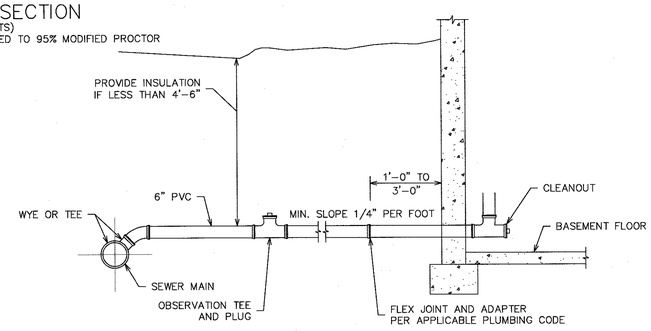
BITUMINOUS CONCRETE CURB
(NTS)



ACCESSIBLE PARKING SPACE DETAIL
AISLE SHALL BE 5' WIDE FOR
AUTOMOBILES OR 8' WIDE FOR VANS
(NTS)



ASPHALT PARKING CROSS SECTION
(NTS)
GRAVEL FILL TO BE COMPACTED TO 95% MODIFIED PROCTOR



TYPICAL SERVICE CONNECTION AND HOUSE LATERAL DETAIL
SCALE: NTS
NOTE: HOUSE SEWER MAY BE LOCATED BENEATH BASEMENT FLOOR

NO.	DESCRIPTION	DATE
F	PRELIMINARY PLAN REVISION	4/19/2018
	REVISIONS	

5.2

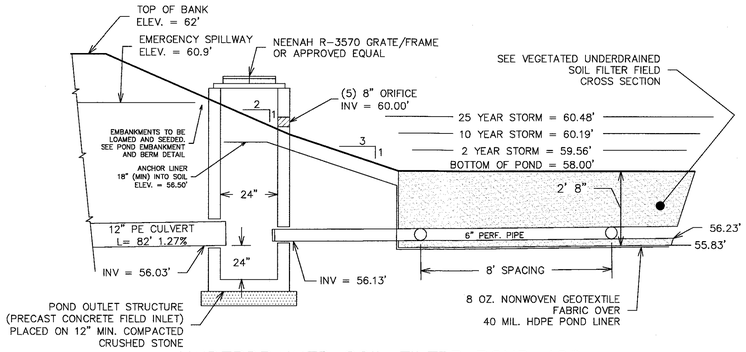
SITE DETAILS
THE HOMESTEAD
459 U.S. ROUTE 1, KITTERY, MAINE

FOR: LANDMARK HILL, LLC.
79 CONGRESS STREET
PORTSMOUTH, NH 03801

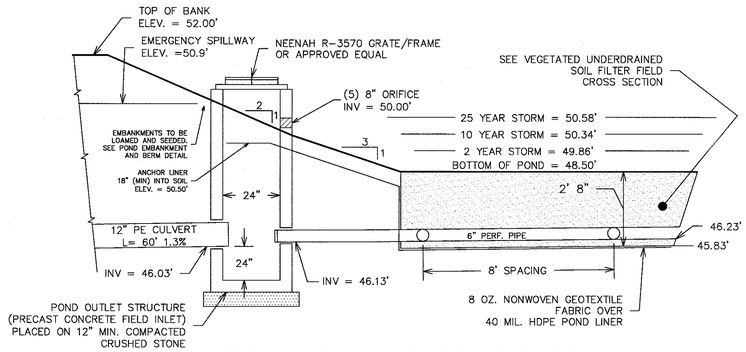
ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD - ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE:	APPROVED BY:	DRAWN BY:
AS SHOWN		MJS
DATE:		REVISION DATE:
1/18/2018	4/19/2018	F : 4/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD DET.DWG	SHEET: 5.2

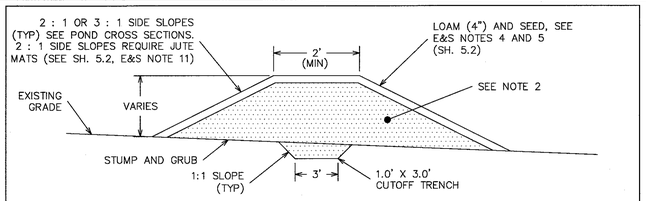
MAP 60 / LOT 24



UNDERDRAINED SOIL FILTER POND 40P



UNDERDRAINED SOIL FILTER POND 31P



POND EMBANKMENT AND BERM DETAIL

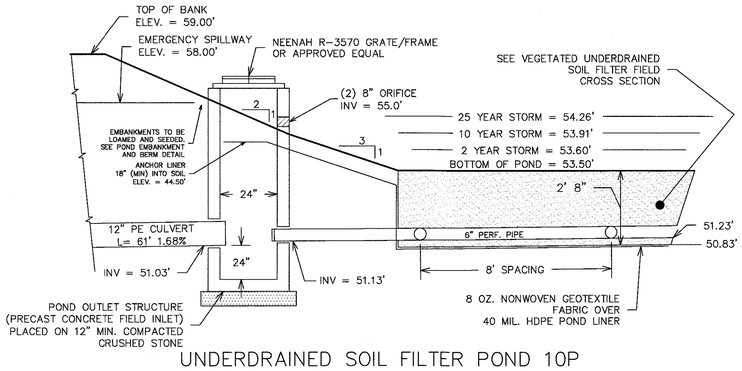
SCALE: 1" = 5'

EMBANKMENT CONSTRUCTION NOTES

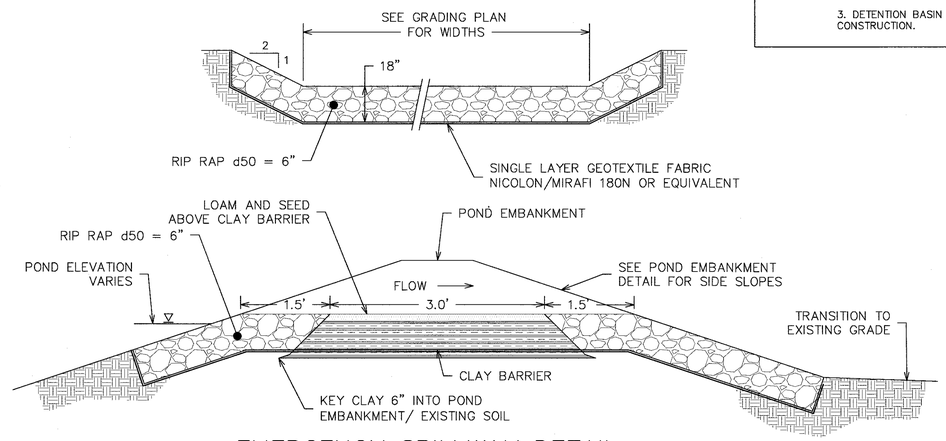
1. ALL ORGANIC MATERIAL, STUMPS, ROCKS AND BOULDERS SHALL BE REMOVED TO A MINIMUM DEPTH OF 24" BELOW SUBGRADE OF THE BASIN EMBANKMENT. ALL EXCAVATIONS BELOW THE BASIN EMBANKMENT SHALL HAVE A MINIMUM SLOPE OF 1H : 1V.

2. ALL BASIN EMBANKMENT FILL MATERIAL SHALL BE WELL GRADED BORROW WITH A MINIMUM OF 20% FINES CONTENT. EMBANKMENT FILL SHALL BE PLACED IN 12" (MAX.) LIFTS AND BE COMPACTED TO 95% MODIFIED PROCTOR. A CUTOFF TRENCH SHALL BE EXCAVATED AS SHOWN PRIOR TO CONSTRUCTION OF EMBANKMENT.

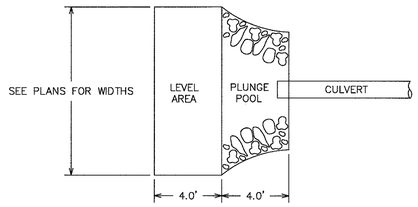
3. DETENTION BASIN AND ALL EXCAVATIONS SHALL BE KEPT FREE OF WATER DURING CONSTRUCTION.

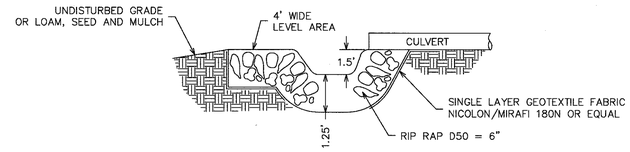


UNDERDRAINED SOIL FILTER POND 10P



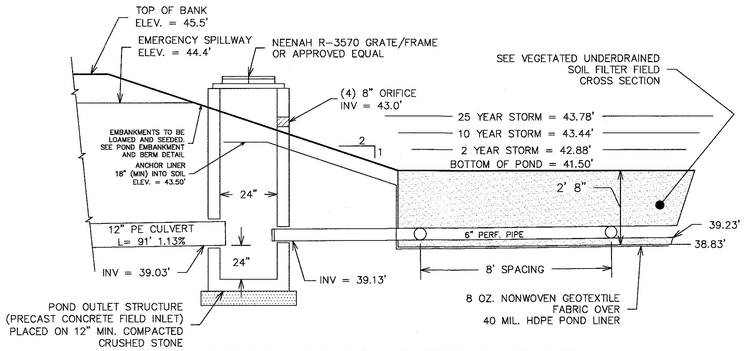
EMERGENCY SPILLWAY DETAIL



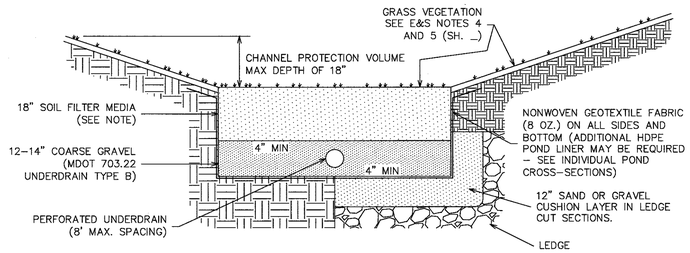


LEVEL SPREADER

(NTS)



UNDERDRAINED SOIL FILTER POND 20P



VEGETATED UNDERDRAINED SOIL FILTER FIELD CROSS SECTION

(APPLIES TO ALL USF PONDS)

(NTS)

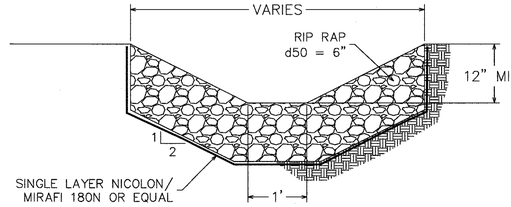
SOIL FILTER MEDIA NOTE:

THE SOIL FILTER MEDIA SHALL CONSIST OF A SILTY SAND OR SOIL MIXTURE COMBINED WITH 20% – 25% FINE SHREDDED BARK OR WOOD FIBER MULCH. THE MIXTURE MUST HAVE NO LESS THAN 8% PASSING THE 200 SIEVE, AND A CLAY CONTENT OF LESS THAN 2%. PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST CHECK WITH THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION FOR UPDATED SOIL FILTER MEDIA SPECIFICATIONS.

CONSTRUCTION OVERSIGHT REQUIRED:

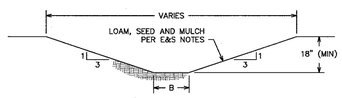
INSPECTION OF THE FILTER BASIN SHALL BE PROVIDED FOR EACH PHASE OF CONSTRUCTION BY THE DESIGN ENGINEER WITH REQUIRED REPORTING TO THE DEP. AT A MINIMUM, INSPECTIONS WILL OCCUR:

- AFTER PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED;
- AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA;
- AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDED;
- AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS; AND
- ALL MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN WILL BE APPROVED BY THE DESIGN ENGINEER AFTER TESTS BY A CERTIFIED LABORATORY SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.
- CONTRACTOR SHALL COORDINATE INSPECTION SCHEDULE WITH INSPECTING ENGINEER PRIOR TO CONSTRUCTION.



RIP RAP SWALE DETAIL

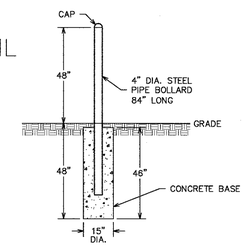
NTS



VEGETATED SWALE DETAIL

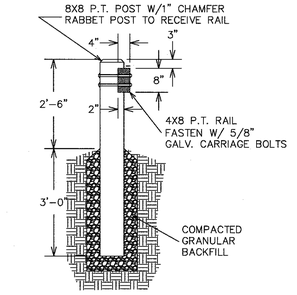
NTS

B (BOTTOM WIDTH) SHALL BE 2' FOR TYPE 1 SWALES AND 5' FOR TYPE 2 SWALES.



PROTECTIVE BOLLARD DETAIL

(NTS)



TIMBER GUARDRAIL DETAIL

(NTS)

NO.	DESCRIPTION	DATE
	REVISIONS	
F	PRELIMINARY PLAN REVISION	4/19/2018
E	SW PLAN REVISION	4/16/2018
D	PRELIMINARY PLAN REVISION	3/27/2018
A	PRELIMINARY PLAN REVISION	1/18/2018

STATE OF MAINE
KENNETH W. ATTAR
LICENSED
PROFESSIONAL ENGINEER

5.3

SITE DETAILS
THE HOMESTEAD
459 U.S. ROUTE 1, KITTERY, MAINE

FOR: LANDMARK HILL, LLC.
79 CONGRESS STREET
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE:	APPROVED BY:	DRAWN BY:
AS SHOWN		BRN
DATE:	4/19/2018	REVISION DATE:
1/18/2018		F : 4/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD DET.DWG	SHEET: 5.3

MAP 60 / LOT 24

M.S.H.C. R.O.W. MAP
S.H.C. FILE 16-B
Y.C.R.D. PLAN BK. 63, PG. 45

N/F SGT. TRAINING & DEVELOPMENT SPECIALISTS LLC
14154/783
60-34

N/F DAVID L. MEE
ELIZABETH G. CORMIER
LIFE ESTATE
13519/320
60-35

N/F ETHEL HOLT
1322/499
60-33

N/F STEPHEN G. TETREAULT
13942/35
60-32A

N/F WALLACE & GLADYS LAMONT
1928/126
60-32

N/F DEREK H. DEHAAN
STEPHANIE V. JONES
14540/746
60-30

N/F SUE A. COBLER
14858/833
60-31

N/F ANN BOWDEN
10243/136
60-28

N/F ROBERT & NANCY HUNDLEY
1431/32
60-26

N/F ERNEST & SHARON WISWELL
11638/253
66-10

N/F ERNEST WISWELL, TR.
9762/181
66-10A

N/F JEREMY B. SHEPARD
14573/176
66-11

N/F CLARA HORNING, TR.
HEATHER M. DITZEL
14938/329
66-12

TAX MAP & LOT NO. (TYP.)

N/F KITTERY COMMONS LLC
14672/843
60-25

N/F ARTHUR W. FRANCIS
14095/433
66-13

N/F STEPHEN A. HYNES, TR.
REAL PROPERTY TRUST AGREEMENT
7378/52
60-21

N/F RICHARD E. & IRENE M. VINTINNER
1991/113
60-22

N/F YORK COUNTY COUNSELING SERVICES, INC.
60-23

N/F HAROLD L. DURGIN, TR. ET AL.
7358/132, 135 9378/42
10050/259
61-27

N/F BJP CORP.
12221/13
61-28

N/F MARION D. LUCAS
67-9

N/F THOMAS R. WEST
1271/448

N/F DONALD C. & BARBARA J. WEST
1922/564
67-9A

POND PER REF. PLAN 2

ADAMS ROAD (PUBLIC)

ADAMS CEMETERY

LOT 1
AREA =
1.056 ACRES

LOT 2
AREA =
1.150 ACRES

LOT 3
AREA =
1.338 ACRES

LOT 4
AREA =
1.028 ACRES

LOT 5
AREA =
1.004 ACRES

LOT 6
AREA =
3.978 ACRES

LOT 7
AREA =
20.127 ACRES

PROPOSED DRAINAGE EASEMENT

LIMITS OF PROPOSED PRIVATE SEWER EASEMENT

DRIVEWAY EASEMENT TO LOT 2

ACCESS RESTRICTED TO DRIVEWAY EASEMENT – LOT 1

RURAL RESIDENTIAL ZONE

MIXED USE ZONE

GRAVEL

EXISTING BUILDING

PAVED PARKING AREA

PAVED DRIVEWAY

EDGE OF PAVEMENT

U.S. ROUTE ONE

LEWIS ROAD

DRILL HOLE FND.

G.B. FND.

3/4" I.P. FND.

1/2" I.P. FND.

1" I.P. FND.

1" I. ROD. FND.

3/4" IRON PIPE FND.

D.H. FND.

I.P. FND.

I.R. FND.

ALUM. PIPE FND.

NOTES:

1. The boundaries as delineated are the opinion of this surveyor and are based on record information and physical evidence. This plan does not purport title or ownership.

2. Field measurements for this survey were made using a Leica total station with electronic data collection. The relative precision of the unadjusted control traverse is better than 1 in 15,000.

3. The existence or non-existence, depth, size and location of underground utility lines, tanks, and structures was not verified by this survey. Any locations and sizes shown are approximate. Exact location should be further investigated before any excavation takes place on this lot.

4. Property is subject to pole easements; Y.C.R.D. Book 1424, pg. 267.

REFERENCE PLANS:

1. Plot Plan of Land of Kittery Convalescent Center; by Moulton Engineering Co.; dated March 17, 1976. Recorded at the Y.C.R.D. in Plan Book 80, page 1.

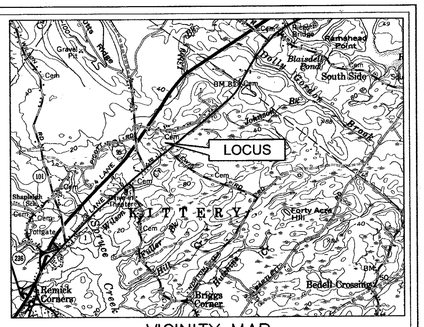
2. Site Plan, Sentry Commons Health Care Facility; by ATTAR Engineering, Inc.; dated April 20, 2000, revised September 28, 2000.

3. Standard Boundary Survey of Yankee Green Mobile Home Park; by Anderson-Livingston Engineers, Inc.; dated February 1995.

4. MDOT Right of Way Plan, State Highway "A", Project No. FI-01-1(5); dated December 1951. Recorded at the Y.C.R.D. in Plan Book 23, page 36.

5. ALTA/ACSM Land Title Survey for Sentry Commons, LLC; by Anderson-Livingston Engineers, Inc.; dated March 2001.

6. Division of Land for David M. Sowerby;; by Anderson-Livingston Engineers, Inc.; dated August 1997.



VICINITY MAP

BEARING TABLE		
LINE	BEARING	DIST
L1	S 01°57'16" E	44.39
L2	S 28°20'00" E	19.58
L3	S 28°07'30" E	77.88
L4	S 81°12'20" W	3.43
L5	N 08°34'48" E	46.62
L6	N 05°11'57" W	63.24
L7	N 00°21'24" W	68.54
L8	N 08°05'53" E	68.69
L9	S 77°06'20" E	54.19
L10	S 13°46'22" W	50.12
L11	S 88°11'01" E	44.40
L12	N 11°00'33" E	42.51
L13	S 82°23'52" E	24.39
L14	N 82°23'52" W	43.83
L15	N 78°21'23" W	52.97
L16	N 77°06'20" W	59.39
L17	N 77°06'20" W	16.40
L18	N 55°38'01" W	21.06
L19	S 12°14'31" W	45.25
L20	N 79°30'24" W	36.02
L21	N 12°14'31" E	54.72

REFERENCE DEEDS:

1. David M. Sowerby and Suzanne Sowerby to DSS Land Holdings, LLC; dated March 28, 1996. Recorded at the Y.C.R.D. in Book 7784, page 66.

2. Arnold F. & Jean S. Dickinson to Sentry Commons, LLC; dated July 28, 2000. Recorded at the Y.C.R.D. in Book 10147, page 184.

3. Marion D. Lucas to the State of Maine; dated April 24, 1952. Recorded at the Y.C.R.D. in Book 1205, page 527.

4. Rose E. Adams to the State of Maine; dated March 13, 1952. Recorded at the Y.C.R.D. in Book 1204, page 324.

LEGEND

- UTILITY POLE
- STONE WALL
- N/F "NOW OR FORMERLY"
- HYDRANT
- WATER SHUT OFF
- WATER GATE
- MONUMENT TO BE SET
- GRANITE BOUND FOUND

GRAPHIC SCALE
80 0 40 80 160 320
(IN FEET)
1 inch = 80 ft.

Approved by the Planning Board of
KITTERY, MAINE

CHAIR _____ DATE _____

_____ _____

_____ _____

_____ _____

_____ _____

CERTIFICATION:

This survey conforms to the Maine Board of Licensure for Professional Land Surveyors Chapter 90 Standards of Practice, effective April 1, 2001 except as noted on this plan.

STATE OF MAINE
WILLIAM HENRY ANDERSON, JR.
1197
PROFESSIONAL LAND SURVEYOR

SUBDIVISION PLAN
FOR
DSS LAND HOLDINGS, LLC
U.S. ROUTE ONE & ADAMS ROAD
KITTERY, MAINE

ANDERSON LIVINGSTON ENGINEERS, INC.
Suite 401 Cottage Place
433 II U.S. Route One
York, Maine 03909

Scale: 1 in = 80 ft.
Date: September 14, 2007
REVISIONS:

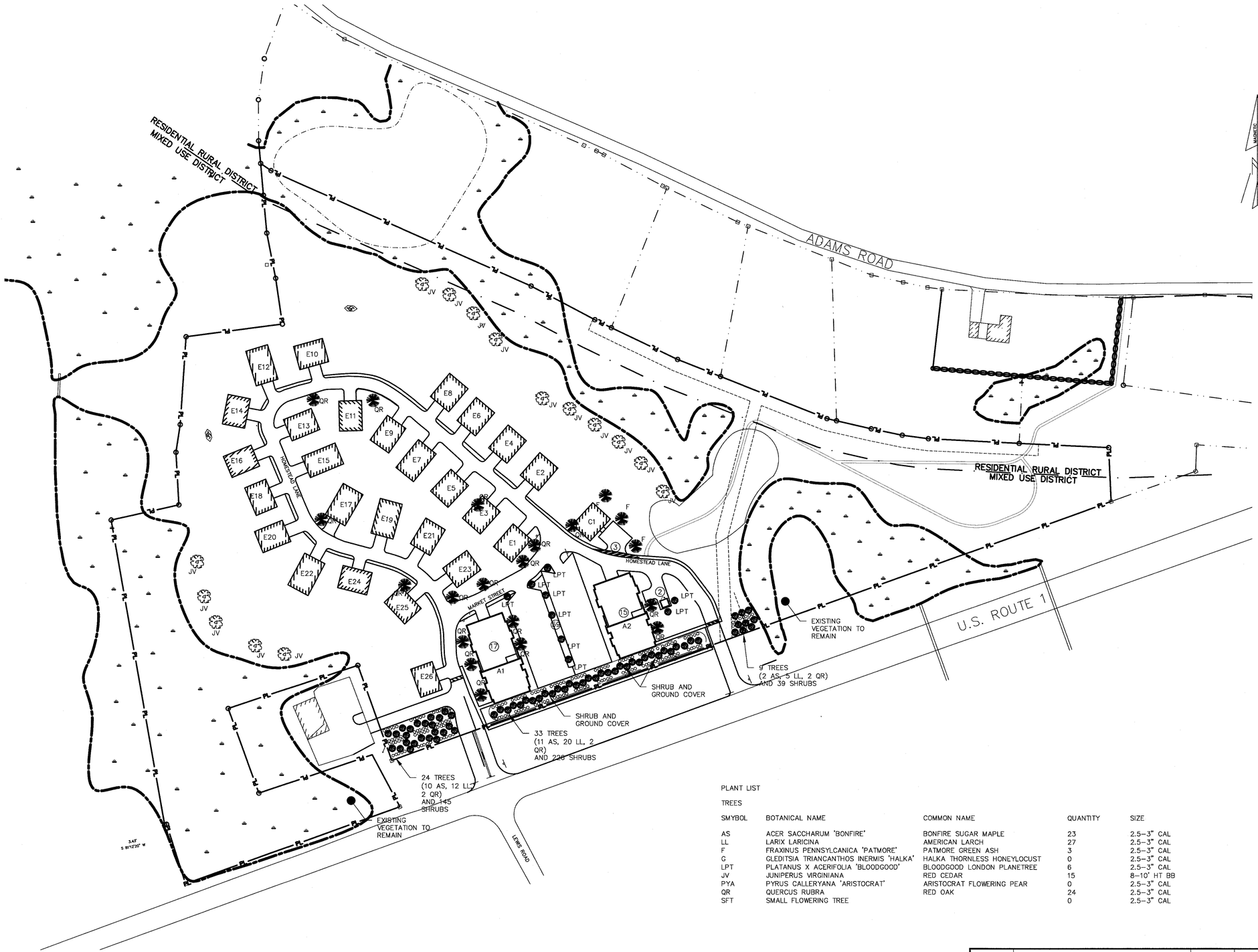
OWNER:
DSS Land Holdings, LLC
P.O. Box 242
York, ME 03909

Sheet 1 of 1 G.1

FILE NO: 4872.004
PLAN NO: 1516.070901

MAP 60 LOT 24

\\Scott\projects\proj4000\4872h\dwg\ATTAR bndry.dwg



LANDSCAPING NOTES

1) THE CONTRACTOR SHAL FOLLOW BEST MANAGEMENT PRACTICES DURING CONSTRUCTION AND SHALL TAKE ALL MEANS NECESSARY TO STABILIZE AND PROTECT THE SITE FROM EROSION.
2) EROSION CONTROL SHALL BE IN PLACE PRIOR TO CONSTRUCTION.
3) EROSION CONTROL TO CONSIST OF HAY BALES AND EROSION CONTROL FABRIC SHALL BE STAKED IN PLACE BETWEEN THE WORK AND WATER BODIES, WETLANDS AND/OR DRAINAGE WAYS PRIOR TO ANY CONSTRUCTION.
4) THE CONTRACTOR SHALL VERIFY LAYOUT AND GRADES AND INFORM THE LANDSCAPE ARCHITECT OR CLIENT'S REPRESENTATIVE OF ANY DISCREPANCIES OR CHANGES IN LAYOUT AND/OR GRADE RELATIONSHIPS PRIOR TO CONSTRUCTION.
5) THE CONTRACTOR SHALL VERIFY EXACT LOCATION AND ELEVATION OF ALL UTILITIES WITH RESPECTIVE UTILITY OWNERS PRIOR TO CONSTRUCTION. CALL DIGSAFE AT 1-888-344-7233.
6) THE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR NOT LESS THAN TWO YEARS FROM THE TIME OF ACCEPTANCE.
7) ALL LANDSCAPING SHALL BE PROVIDED WITH EITHER OF THE FOLLOWING:
   7)1) AN UNDERGROUND SPRINKLER SYSTEM
   7)2) AN OUTSIDE HOSE ATTACHMENT WITHIN 150 FEET
8) TREES, GROUND COVER, AND SHRUB BEDS SHALL BE MULCHED TO A DEPTH OF 2" WITH ONE-YEAR-OLD, WELL-COMPOSTED, SHREDDED NATIVE BARK NOT LONGER THAN 4" IN LENGTH AND 1/2" IN WIDTH, FREE OF WOODCHIPS AND SAW DUST. MULCH FOR FERNS AND HERBACEOUS PERENNIALS SHALL BE NO LONGER THAN 1" IN LENGTH. TREES IN LAWN AREAS SHALL BE MULCHED IN A 5' DIAMETER MIN. SAUCER.
9) ALL DISTURBED AREAS WILL BE DRESSED WITH 4" OF TOPSOIL AND PLANTED AS NOTED ON THE PLANS OR SEEDED EXCEPT PLANT BEDS. PLANT BEDS SHALL BE PREPARED TO A DEPTH OF 12" WITH 75% LOAM AND 25% COMPOST.
10) NUMBER OF TREES AND PLANTS REQUIRED AT FRONTAGE:

	TREES	PLANTS
REQUIRED	60	375
PROPOSED	66	410

11) NUMBER OF TREES AND PLANTS REQUIRED AT FRONTAGE:

	TREES
REQUIRED	1 PER 8 SPACES (13)
PROPOSED	38

12) LANDSCAPED BUFFER TREES TO BE PLANTED AT 25' CL SPACING.

PLANT LIST

TREES

SMYBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SIZE
AS	ACER SACCHARUM 'BONFIRE'	BONFIRE SUGAR MAPLE	23	2.5-3" CAL
LL	LARIX LARICINA	AMERICAN LARCH	27	2.5-3" CAL
F	FRAXINUS PENNSYLCANICA 'PATMORE'	PATMORE GREEN ASH	3	2.5-3" CAL
G	GLEDITSIA TRIANCANTHOS INERMIS 'HALKA'	HALKA THORNLESS HONEYLOCUST	0	2.5-3" CAL
LPT	PLATANUS X ACERIFOLIA 'BLOODGOOD'	BLOODGOOD LONDON PLANETREE	6	2.5-3" CAL
JV	JUNIPERUS VIRGINIANA	RED CEDAR	15	8-10' HT BB
PYA	PYRUS CALLERYANA 'ARISTOCRAT'	ARISTOCRAT FLOWERING PEAR	0	2.5-3" CAL
QR	QUERCUS RUBRA	RED OAK	24	2.5-3" CAL
SFT	SMALL FLOWERING TREE		0	2.5-3" CAL

LEGEND

NEW SETBACK		UNDER GROUND UTILITIES	PUGU
DESIGNATED OPEN SPACE		SEWER MANHOLE	S
PROPERTY LINE		EXISTING WATER LINE	EW
EXISTING CONTOUR	XXX	EXISTING SEWER LINE	ES
PROPOSED CONTOUR	XXX	UTILITY POLE	
PROPOSED WATER LINE	PW	IRON PIN	
PROPOSED SEWER LINE	PS	STONE MONUMENT	
		DRAINAGE STRUCTURE	
		WATER VALVE	
		WATER SHUT OFF	
		HYDRANT	
		VERTICAL GRANITE CURB	

GRAPHIC SCALE
0 80 160 240 320 (FEET)

NO.	DESCRIPTION	DATE
	REVISIONS	
F	PRELIMINARY PLAN REVISION	4/19/2018
D	PRELIMINARY PLAN REVISION	03/27/2018
C	SW POND ADJUSTMENT	02/08/2018
B	SW POND ADJUSTMENT	02/06/2018
A	PRELIMINARY PLAN REVISION	1/18/2018

STATE OF MAINE — KENNETH M. WEBB — 10841 — REGISTERED LANDSCAPE ARCHITECT

6.2

LANDSCAPING PLAN
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

FOR:
LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE:	APPROVED:	DRAWN BY:
1" = 80'		BRN
DATE: 02/08/2018	4/19/2018	REVISION : DATE F: 04/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD BASE	SHEET 6.2

TAX MAP 60, LOT 24

LEGEND

WETLAND/SOIL BNDY.	UPLAND / WETLAND
EXT. CONTOUR	XXX
PRP. CONTOUR	XXX
SUBCATCHMENT BNDY.	
SOIL TYPE BOUNDARY	
Tc PATH	FLOW TYPE/LENGTH →

SOILS LEGEND

- Ad – HSG A
- Cn – HSG C
- Cr – HSG A
- Hm – HSG A
- Du – HSG B
- Fn – HSG C
- Sr – HSG D
- Ur – HSG D
- DANI – DEVELOPED AREA NOT INVESTIGATED

FLOW TYPES

- SF – SHEET FLOW
- SCF – SHALLOW CONCENTRATED FLOW
- CF – CHANNEL FLOW

NOTE: ON-SITE SOILS INFORMATION IS TAKEN FROM CLASS A HIGH INTENSITY SOIL SURVEY PREPARED BY MICHAEL CUOMO, ME CSS #211 (SOIL REPORT DATED OCTOBER 2016). ELSEWHERE, SOILS INFORMATION IS TAKEN FROM THE YORK COUNTY SOIL SURVEY.

- 1 – SUBCATCHMENT
- 1R – REACH
- 1 – POND
- 1 – ANALYSIS POINT

GRAPHIC SCALE
0 80 160 240 320 (FEET)

NO.	DESCRIPTION	DATE
	REVISIONS	
F	PRELIMINARY PLAN REVISION	4/19/2018
E	SW PLAN REVISION	4/16/2018
D	PRELIMINARY PLAN REVISION	03/27/2018
C	SW POND ADJUSTMENT	02/08/2018
B	SW POND ADJUSTMENT	02/06/2018
A	PRELIMINARY PLAN REVISION	1/18/2018

STATE OF MAINE
KENNETH A. WOOD
No. 5992
LICENSED PROFESSIONAL ENGINEER

7.1

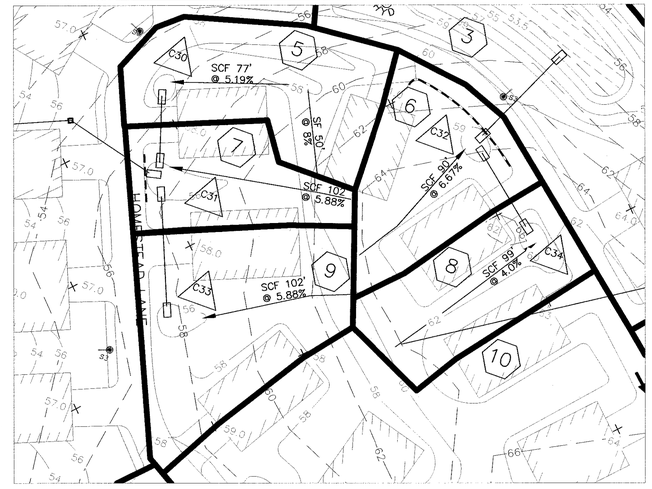
STORMWATER: EXISTING CONDITIONS
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

FOR: LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE: 1" = 80'	APPROVED:	DRAWN BY: BRN
DATE: 02/08/2018		REVISION : DATE F: 04/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD BASE	SHEET 7.1

TAX MAP 60, LOT 24



STORMWATER SUBCATCHMENTS 5 TO 9 DETAIL
40 SCALE

STORMWATER SUBCATCHMENTS 13 TO 17 DETAIL
40 SCALE

GRAPHIC SCALE
0 80 160 240 320 (FEET)

POND SIZING CALCULATIONS

AREA	IMP. (ft²)	LA. (ft²)	RA. (ft²)	BMP	CPV (ft³)	P. POOL (ft²)	CHECK
Pond 10				**Soil Filter**			
3S	8,115	20,370			1,355	N/A	
6S	3,505	4,568			444		
8S	2,585	4,752			374		
Total	14,205	29,690			2,173	N/A	
				5% Impervious + 2% Landscaped Area =	1,304		
				5% Impervious + 2% Remaining Area =	1,304		
				Provided CPV =	5,758		OK
				Provided Area =	3157		OK
Pond 20				**Soil Filter**			
2S	17,695	47,342			3,053	N/A	
5S	4,712	4,609			546		
7S	2,252	3,781			314		
9S	4,541	6,894			608		
Total	29,200	82,628	0		4,521	N/A	0.00
				5% Impervious + 2% Landscaped Area =	2,713		
				5% Impervious + 2% Remaining Area =			
				Provided CPV =	6,314		OK
				Provided Area =	3,014		OK
Pond 30				**Soil Filter**			
10S	26,500	33,945			3,340		
12S	7,281	22,056			1,342		
14S	10,694	1,615			952		
15S	12,234	2,224			1,094		
16S	10,965	4,395			1,060		
23S	407	0			34		
Total	68,081	64,435			7,821	N/A	
				5% Impervious + 2% Landscaped Area =	4,693		
				5% Impervious + 2% Remaining Area =			
				Provided CPV =	8,286		OK
				Provided Area =	4,718		OK
Pond 31				**Soil Filter**			
13S	15,916	25,002			2,160		
20S	626	577			71		
21S	11,144	3,431			1,043		
22S	1,062	2,639			176		
Total	28,748	31,649			3,451	N/A	0.00
				5% Impervious + 2% Landscaped Area =	2,070		
				5% Impervious + 2% Remaining Area =	2,070		
				Provided CPV =	4,800		OK
				Provided Area =	2,434		OK
Pond 40				**Soil Filter**			
11S	10,943	17,738			1,503	N/A	
17S	6,721	10,109			897		
18S	3,382	0			282		
25S	1903	2626			246		
Total	22,949	30,473	0		2,928	N/A	0.00
				5% Impervious + 2% Landscaped Area =	1,757		
				5% Impervious + 2% Remaining Area =	1,757		
				Provided CPV =	3,676		OK
				Provided Area =	2,028		OK

TABLE 1 - QUANTITY CALCULATIONS

		STORM EVENT 2	10	25
EXISTING	AP 1	11.72	24.79	36.34
	AP 2	3.43	9.01	14.32
	AP 3	4.33	10.13	15.51
DEVELOPED	AP 1	8.14	17.22	25.14
	AP 2	3.48	9.50	14.21
	AP 3	4.44	9.84	14.68
CHANGE	AP 1	-3.58	-7.57	-11.20
	AP 2	0.05	0.49	-0.11
	AP 3	0.11	-0.29	-0.83
	TOTAL	-3.42	-7.37	-12.14

NEW

AREA	IMP. (ft²)	DEV (ft²)
Total Area	163183	382056
Total Acres	3.75	8.77
% Treated=	95.5%	86.0%

TREATMENT CALCULATIONS

New Impervious Area to be Treated @95% 170,853 sf 3.92 Acres
New Developed Area to be Treated @80% 444,383 sf 10.20 Acres

AMENDED DEVELOPED CONDITIONS:

AREA	IMP. (ft²) Ext.	Created Require to Treat	Total (Hydro CAD)	Treated	Not Treated	LA. (ft²) Ext. (HCAD)	Created Require to Treat	Total (Hydro CAD)	Treated	Not Treated	DEV. (ft²) Ext.	Created Require to Treat	Total (Hydro CAD)	Treated	Not Treated
1S	37241	1,055		0	1,055		21,035		0	21,035	1,055	22,090	0	0	22,090
2S		17,695		17,695	0		47,342		47,342	0	17,695	65,037	0	65,037	0
3S		8,115		8,115	0		20,370		20,370	0	8,115	28,485	0	28,485	0
4S		2,560		0	2,560		17,594		0	17,594		20,154	0	0	20,154
5S		4,712		4,712	0		4,609		4,609	0		9,321	0	9,321	0
6S		3,505		3,505	0		4,568		4,568	0		8,073	0	8,073	0
7S		2,252		2,252	0		3,781		3,781	0		6,033	0	6,033	0
8S		2,585		2,585	0		4,752		4,752	0		7,337	0	7,337	0
9S		4,541		4,541	0		6,894		6,894	0		11,435		11,435	0
10S		26500		26500	0		33945		33945	0		60445		60445	0
11S		10943		10943	0		17738		17738	0		28681		28681	0
12S		7281		7281	0		22056		22056	0		29337		29337	0
13S		15916		15916	0		25002		25002	0		40918		40918	0
14S		10694		10694	0		1815		1815	0		12509		12509	0
15S		12234		12234	0		2224		2224	0		14458		14458	0
16S		10965		10965	0		4395		4395	0		15360		15360	0
17S		6721		6721	0		10109		10109	0		16830		16830	0
18S		3382		3382	0		0		0	0		3382		3382	0
19S	13416	1275		0	1275	50736	5391		0	5391		6666		0	6666
20S		626		626	0		577		577	0		1203		1203	0
21S		11144		11144	0		3431		3431	0		14575		14575	0
22S		1062		1062	0		2639		2639	0		3701		3701	0
23S		407		407	0		0		0	0		407		407	0
24S		2760		0	2760		10637		0	10637		13417		0	13417
25S		1903		1903	0		2626		2626	0		4529		4529	0
TOTAL	50,657	170,853	0	163,183	7,670	50,736	273,530	0	218,873	54,857	101,393	444,383	0	**382,056**	62,327

LEGEND

- WETLAND/SOIL BNDY. — UPLAND / WETLAND
- EXT. CONTOUR — XXX
- PRP. CONTOUR — XXX
- SUBCATCHMENT BNDY.
- SOIL TYPE BOUNDARY
- Tc PATH — FLOW TYPE/LENGTH →

SOILS LEGEND

- Ad – HSG A
- Cn – HSG C
- Cr – HSG A
- Hm – HSG A
- Du – HSG B
- Fn – HSG C
- Sr – HSG D
- Ur – HSG D
- DANI – DEVELOPED AREA NOT INVESTIGATED

FLOW TYPES

- SF – SHEET FLOW
- SCF – SHALLOW CONCENTRATED FLOW
- CF – CHANNEL FLOW

NOTE: ON-SITE SOILS INFORMATION IS TAKEN FROM CLASS A HIGH INTENSITY SOIL SURVEY PREPARED BY MICHAEL CUOMO, ME CSS #211 (SOIL REPORT DATED OCTOBER 2016). ELSEWHERE, SOILS INFORMATION IS TAKEN FROM THE YORK COUNTY SOIL SURVEY.

- 1 — SUBCATCHMENT
- 1R — REACH
- 1 — POND
- 1 — ANALYSIS POINT

NO.	DESCRIPTION	DATE
F	PRELIMINARY PLAN REVISION	4/19/2018
E	SW PLAN REVISION	4/16/2018
D	PRELIMINARY PLAN REVISION	03/27/2018
C	SW POND ADJUSTMENT	02/08/2018
B	SW POND ADJUSTMENT	02/06/2018
A	PRELIMINARY PLAN REVISION	1/18/2018
	REVISIONS	

STATE OF MAINE — KENNETH W. WOOD — 10472 — REGISTERED PROFESSIONAL ENGINEER

7.2

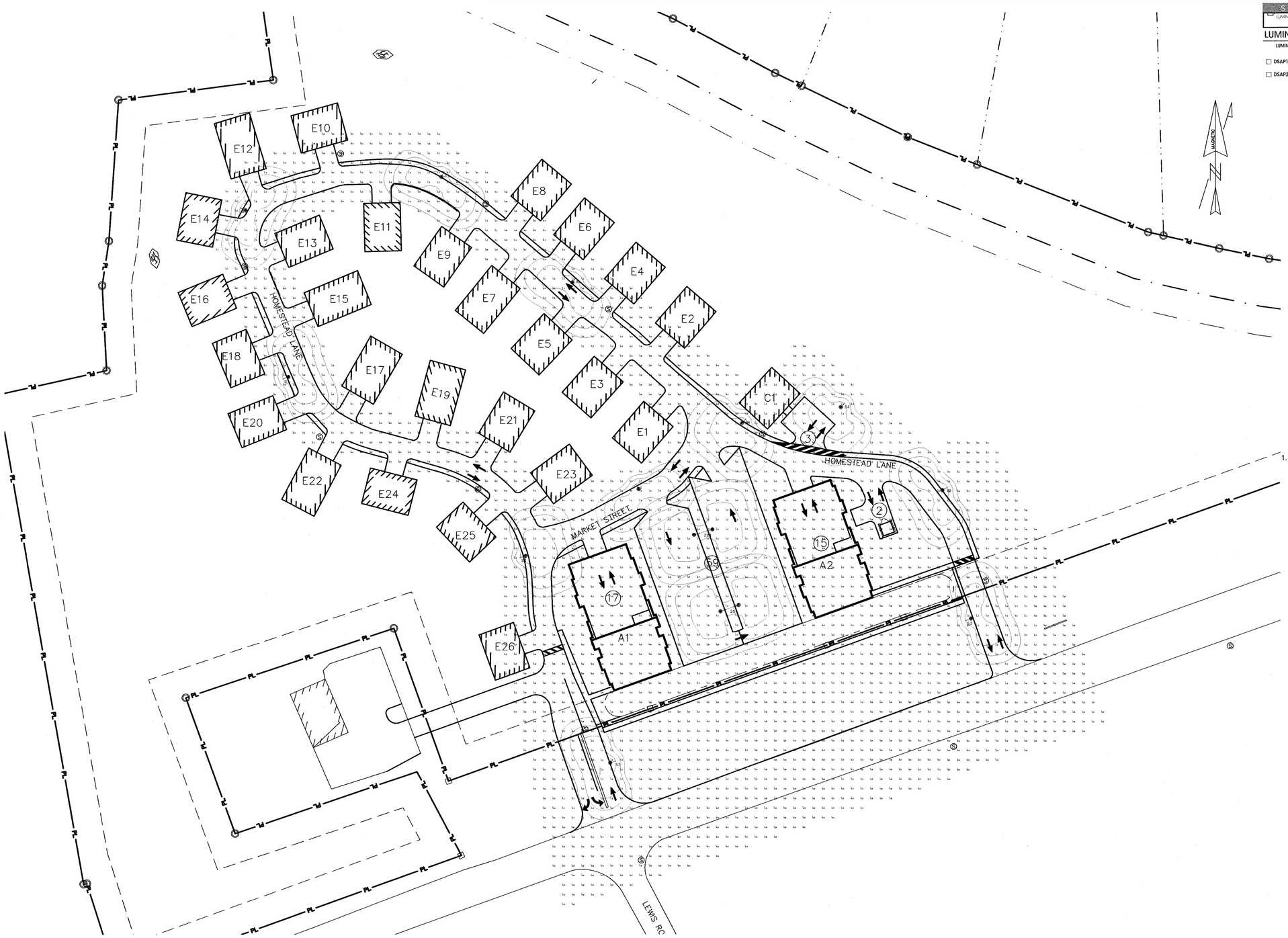
STORMWATER: PROPOSED CONDITIONS
THE HOMESTEAD
459 US ROUTE 1 KITTERY, MAINE

FOR: LANDMARK HILL, LLC
79 CONGRESS ST
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-8023 FAX: (207)439-2128

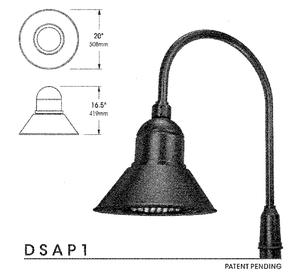
SCALE:	APPROVED:	DRAWN BY:
1" = 80'		BRN
DATE: 02/08/2018	4/19/2018	REVISION : DATE F: 04/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD BASE	SHEET 7.2

TAX MAP 60, LOT 24



SPEC/ORDERING INFORMATION

LUMINAIRE	OPTICS	LED	MOUNTING	FINISH	OPTIONS
☐ DSAP1 ☐ DSAP25	✓LED' IES DISTRIBUTION TYPE ☐ VLED - II (Type II) ☐ VLED - III (Type III) ☐ VLED - IV (Type IV) ☐ VLED - VSQ (Type VSQ)	# of LED's / DRIVE CURRENT DSAP1 ☐ 80LED' ☐ 700mA ☐ 64LED' ☐ 525mA ☐ 48LED ☐ 350mA DSAP25 ☐ 120LED' ☐ 100LED' ☐ 80LED ☐ 64LED NOTE: 1=TEST AVAILABLE IN 700mA COLOR ☐ NW (4000K) *STANDARD ☐ CW (5000K) ☐ WW (3000K) OTHER LED COLORS AVAILABLE CONSULT FACTORY VOLTAGE ☐ 120 ☐ 208 ☐ 240 ☐ 277 ☐ 347 ☐ 480	ARM MOUNT ☐ XPD ☐ XPK ☐ 1 ..... WALLMOUNT ☐ WM ..... SEE USALIG.COM FOR ADDITIONAL ARM STYLES	STANDARD TEXTURED FINISH ☐ BLACK RAL-9005-T ☐ WHITE RAL-9003-T ☐ GREY RAL-7004-T ☐ DARK BRONZE RAL-8019-T ☐ GREEN RAL-6005-T FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9005-S) SEE USALIG.COM FOR ADDITIONAL COLORS	☐ HOUSE SIDE SHIELDED REFLECTOR PREMS. ..HS-VLED ☐ PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) ..... PC+V ☐ TWIST LOCK PHOTO CELL+VOLTAGE (EXAMPLE TPC120V) ..TPC+V ☐ TWIST LOCK RECEPTACLE ONLY ..TPR ☐ SINGLE FUSE (120V., 277V) ..... SF ☐ DOUBLE FUSE (208V., 240V) ..... DF



DSAP1

PATENT PENDING

GENERAL NOTES

1. PHOTOMETRIC PLAN AND LIGHTING FIXTURES/SPECIFICATIONS PREPARED BY:

   CHARRON, INC.
   P.O. BOX 4550
   MANCHESTER, NH 03108

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description
	8	S3	SINGLE	DSAP1-III-48VLED-NW-525mA-HS / XPD1 / RNTS204-11-PT27 @ 20' AFG
	3	S4	SINGLE	DSAP1-IV-48VLED-NW-525mA-HS / XPD1 / RNTS204-11-PT27 @ 20' AFG
	2	2S4	BACK-BACK	2 @ 180 DEG - 2DSAP1-IV-48VLED-NW-525mA-HS / XPD2 / RNTS204-11-PT27 @ 20' AFG

Commercial Drive and Parking

Illuminance (Fc)
Average = 0.89
Maximum = 1.9
Minimum = 0.2
Avg/Min Ratio = 4.45
Max/Min Ratio = 9.50

GRAPHIC SCALE
0 50 100 150 200 (FEET)

NO.	DESCRIPTION	DATE
	REVISIONS	
F	PRELIMINARY PLAN REVISION	4/19/2018
A	PRELIMINARY PLAN REVISION	3/27/2018

8.1

PHOTOMETRIC PLAN
THE HOMESTEAD
459 U.S. ROUTE 1, KITTERY, MAINE

FOR: LANDMARK HILL, LLC.
79 CONGRESS STREET
PORTSMOUTH, NH 03801

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439-6023 FAX: (207)439-2128

SCALE:	APPROVED BY:	DRAWN BY:
1" = 50'		BRN
DATE:		REVISION DATE:
4/11/2018		F: 4/19/2018
JOB NO: C052-18	FILE: THE HOMESTEAD BASE.DWG	SHEET: 8.1

MAP 60 / LOT 24

ELDERLY - SINGLE FAMILY

459 US Rt. 1 3-story mixed use apartment/commercial building concept look

ATTAR
ENGINEERING, INC
CIVIL • STRUCTURAL • MARINE

Kathy Connor
Contract Planner
Town of Kittery
P.O. Box 808
Kittery, Maine 03904

May 3, 2018
Project No.: C052-18

Re: 459 US Route 1 - Kittery
Revisions

Dear Ms. Connor:

On behalf of Michael Brigham, President of Landmark Hill, LLC, I am submitting a waiver request for entrance separation distance in accordance with Section 16, Article IV "Waivers" (16.7.4.1).

Requirement: Section 16.32 specifies street design standards; this section also specifies road geometry and design criteria for Minor Streets and Secondary Collectors.

Rationale: A Waiver is requested to allow for the streets to be constructed as shown on the Site/Subdivision and Grading Plans – widths vary from 22' to 20' with 5' sidewalks and 3' shoulders. Because the road network is part of the development no ROW is proposed. All roads will remain private in perpetuity.

Thank you for your consideration. Please contact me for any additional information or clarifications required.

Sincerely,

Kenneth A. Wood, P.E.
President

cc: Landmark Hill, LLC

C052-18 Kittery Waiver3.doc

ATTAR
ENGINEERING, INC
CIVIL • STRUCTURAL • MARINE

Kathy Connor
Contract Planner
Town of Kittery
P.O. Box 808
Kittery, Maine 03904

April 9, 2018
Project No.: C052-18

Re: 459 US Route 1 - Kittery
Revisions

Dear Ms. Connor:

On behalf of Michael Brigham, President of Landmark Hill, LLC, I am submitting a waiver request for on-site parking in accordance with Section 16, Article IV "Waivers" (16.7.4.1).

Requirement: Section 16.8.9.4 specifies off-street parking requirements. Staff review has noted that a portion of the small parking area adjacent to Unit C1 (office/clubhouse) has 2 spaces located within 100' of a Wetland of Special Significance (WOSS). Also, 2 additional spaces are required for the Office/Clubhouse building (2 per unit plus 1/250 SF).

Rationale: A Waiver is requested to reduce the required number of parking spaces by 4; resulting available parking spaces is still sufficient to support the uses shown on the plan. A majority, if not all of the residents, using the Clubhouse will walk from their dwelling units.

If granted the site plan and Note 5 (attached) will be revised accordingly. Thank you for your consideration. Please contact me for any additional information or clarifications required.

Sincerely,

Kenneth A. Wood, P.E.
President

cc: Landmark Hill, LLC

C052-18 Kittery Waiver.doc

ATTAR
ENGINEERING, INC
CIVIL • STRUCTURAL • MARINE

Kathy Connor
Contract Planner
Town of Kittery
P.O. Box 808
Kittery, Maine 03904

May 1, 2018
Project No.: C052-18

Re: 459 US Route 1 - Kittery
Revisions

Dear Ms. Connor:

On behalf of Michael Brigham, President of Landmark Hill, LLC, I am submitting a waiver request for entrance separation distance in accordance with Section 16, Article IV "Waivers" (16.7.4.1).

Requirement: Section 16.8.4.2 specifies street layout requirements. Section 16.8.4.2.F states "Entrances onto existing or proposed arterial highways/secondary highways may not exceed a frequency of one per thousand (1,000) feet of street frontage." Section 16.8.4.2.C requires "Any development expected to generate average daily traffic of two hundred one (201) or more trips per day is to have at least two street connections with existing public streets."

Rationale: A Waiver is requested to reduce the separation distance from 1,000' to 440' as shown on the submitted site and subdivision plan. The development is required to have two street connections. Although adequate frontage exists on the site to achieve the 1,000', meeting this requirement would result in the second entrance being located an additional 560' easterly, on the opposite side of two large wetland complexes. This location is not preferred due to the extremely long distance the development's residents would need to travel to access Route 1. Additionally, in the event that this entrance is used by emergency response vehicles, the additional distance and travel time would be detrimental to life safety. This entrance would also result in a substantial increase in impervious area. It is also important to note that the current location of both entrances was approved by the Town for the former Sowerby Mixed-Use development, which had a much higher traffic generation and there is a current Maine DOT Entrance Permit approved for the current proposed locations of the entrances.

Thank you for your consideration. Please contact me for any additional information or clarifications required.

Sincerely,

Kenneth A. Wood, P.E.
President

cc: Landmark Hill, LLC

1284 State Road, Eliot, ME 03903 ◆ tel (207) 439-6023 ◆ fax (207) 439-2128

ATTAR
ENGINEERING, INC
CIVIL ◆ STRUCTURAL ◆ MARINE

Jennifer Harris
Maine Department of Environmental Protection
312 Canco Road
Portland, Maine 04103

April 23, 2018
Project No.: C052-18

RE: The Homestead
Kittery, Maine
Project Amendment

Dear Ms. Harris:

I have enclosed a revised set of revised plans for the referenced project; these revisions address Planning Board review comments.

Also, I have reviewed comments from Ben Viola, P.E. – plan revisions address the horizontal orifice/grate and Pond 10 outlet control elevations. I have also attached the HISS with boring logs. All ponds (Pond No's 10, 20, 30, 31 & 40) are specified with HDPE liners as required by Volume III, Section 7.1 of the Stormwater Technical Design Manual when there is less than 18" of separation distance from the bottom of the underdrain to the estimated seasonal high water table or bedrock. The following corresponds to the HISS Report and Grading and Details sheets of the plan-set.

Pond No.	TP/Bor	Exist EL	Bot. Pond EL	Bot. U/D EL	ESHWT/BRock
10	16	58	53.5	50.8	56.7
20P	20	47	41.5	38.8	45.3
30P	19/B1	46	42.5	39.8	44.7
31P	20*	48	48.5	45.8	46.3
40P	14/B5	64	58	55.8	62.3

I believe this responds to all comments received to date.

Thank you for your consideration. Please contact me for any additional information.

Sincerely;

Kenneth A. Wood, P.E.
President

cc: Michael Brigham, Landmark Hill LLC

Ken Wood

From: Viola, Ben <Ben.Viola@maine.gov>
Sent: Wednesday, April 18, 2018 1:34 PM
To: Harris, Jennifer H
Cc: Ken Wood
Subject: The Homestead

Jen,

The following are my comments regarding the Homestead site location of development law application currently being reviewed by the Department.

- HydroCAD Model
  - The model pages in my application were mixed up, however I was able to review the model.
  - The underdrained soil filters have outlet control structures with "Horiz. Orifice/Grate"s. The elevation of the "Horiz. Orifice/Grate"s should be called out on detail sheet 5.3 so they can be checked against the model inputs.
  - The outlet control structure invert for pond 10 on sheet 2.1 (42.03) does not match invert in model (40.03). There is a problem with pond 40 also.

- Plans - PE stamp needs to be signed and dated on all plans.

- The soils section was missing from my application booklet. Please provide the soil section of the application along with test pit information from each of the underdrained soil filters.

I will continue my review when I receive a response to the above issues. Please have the applicant explain how each issue is addressed in the cover letter accompanying the response.

If you, or Ken have any questions about my comments please contact me.

Ben Viola, PE

Environmental Engineer in the Bureau of Land Resources

Phone: 207-822-6365 *(desk)*

207-822-6300 *(receptionist)* 207-822-6303 *(fax)*

www.maine.gov/dep

SECTION 7.1 S.W. BMP VOL III

Impermeable Liner: An impermeable liner may be required if the basin is located over highly permeable soils or with less than 18 inches of separation between the bottom of the underdrain and the top of bedrock or the high seasonal water table, if the basin drains an impervious area that is greater than one acre or greater than 2 acres of developed area, and the impervious area is considered a hot spot (public road, fuel handling facility, high use parking and drive-through lanes, industrial facility, vehicle maintenance facility, etc.). The liner must seamlessly extend up the sides of the basin and be anchored into the subgrade.

Construction: Erosion and sedimentation from unstable construction areas is the most common reason for filter failure. The soil filter media should not be installed until the area that drains to it has been permanently stabilized or unless the runoff is diverted around the filter

- *Construction Components:* Underdrained filters consist of (from bottom up):
  - A geotextile fabric to separate the filter basin from the natural soils. An impermeable membrane may be required if groundwater impact or contamination is a concern, or if it may influence the effectiveness of the basin.
  - A 12-inch base of coarse clean stone or coarse gravel in which a 4-inch to 6- inch perforated underdrain pipe system is bedded.
  - A gravel transition layer, if necessary.
  - An 18-inch layer of uncompacted soil filter media.
  - A surface cover of grass and mulch.
- *Basin Excavation:* The basin area may be excavated for underdrain installation and can be used as a sediment trap during construction. After excavation of the basin, the outlet structure and piping system may be installed if protected with a sediment barrier.
- *Sacrificial Mulch cover:* If the basin will be used as a sediment trap, the sides of the embankments must be stabilized and maintained to prevent erosion. The basin will need to be restored for its planned purpose after construction. Before final stabilization of the drainage area to the basin, a 2-inch to 3-inch layer of sandy loam (with less than 2% clay content) may be spread on the surface of the soil filter media as a sacrificial protection layer. The sacrificial layer will need to be removed at the end of construction, and the soil filter media will need to be seeded and mulched.
- *Compaction of Soil Filter:* Filter soil media and underdrain bedding material should be applied to reach a bulk density of between 90% and 92% standard proctor. The soil filter media should be installed in at least two lifts of 9 inches to prevent pockets of loose media.
- *Remedial Loam Cover:* If vegetation is not established within the first year, the basin may be rototilled, reseeded and protected with a well-anchored erosion control blanket. Or, a 2-inch to 3-inch layer of fine sandy loam may be applied before seeding and mulching.
- *Construction Oversight:* Inspection of the filter basin must be provided for each phase of construction by the design engineer with required reporting to the DEP. All material intended for the filter basin must be approved by the design engineer after tests by a certified laboratory show that the material conforms to all DEP specifications. At a minimum, inspections will occur:
  - After the preliminary construction of the filter grades and once the underdrain pipes are installed (not backfilled);
  - After the drainage layer is constructed and prior to the installation of the soil filter media;
  - After the soil filter media has been installed, seeded and mulched; and
  - After one year, to inspect vegetation and make corrections.

Testing and Submittals: The source of each component of the soil filter media needs to be identified prior to construction. All results of field and laboratory testing must be submitted to the DEP for approval.

- *Media Source:* Samples of each type of material should be blended for the mixed filter media and underdrain bedding material. Samples must be a composite of three different locations (grabs) from the stockpile or pit face. Sample size requirements will be determined by the testing laboratory.
- *Sieve Analysis:* A sieve analysis conforming to ASTM C136 should be performed on each type of the sample material.
- *Permeability Testing:* Testing the permeability of the soil filter media mixture is recommended with the mixture at a measured bulk dry density of 90-92% based on ASTM D698.

Michael Cuomo
Soil Scientist
5 Mountain Road, Cape Neddick, Maine 03902 (207) 351-1943

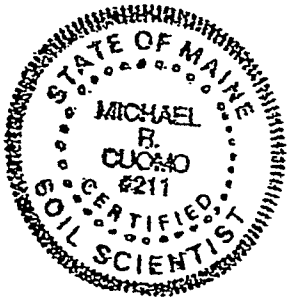
Class "B"
High Intensity Soil Survey

Kittery Retail Ventures, LLC
US Route One, Adams Road, & Cutts Road
Kittery, Maine

prepared for:

Attar Engineering, Inc.

prepared by:



Michael Cuomo

14 April 2000

Michael Cuomo
Soil Scientist
5 Mountain Road, Cape Neddick, Maine 03902 (207) 351-1943

This report is in reference to the 53.4 acre Kittery Retail Ventures LLC property, located between US Route One, Adams Road, and Cutts Road in Kittery, Maine. In April of this year I conducted a Class "B" High Intensity Soil Survey on this property. This report will discuss the methods and results of the soil survey. I previously marked the edge of the jurisdictional wetlands on most of this parcel with blue flagging. The remainder of the project site wetlands were delineated by Attar Engineering, Inc.

The soil survey is based on twenty backhoe test pits and additional soil information gathered from borings made with a hand auger. The frequency and location of soil observations were selected based on visual clues of a change in soils such as a change in the landform, surface appearance, or vegetation. Boundary delineations between different soils are also based on these visual clues and by interpolating between contrasting soil observations.

The soil series chosen were those which best fit the soils found on this site and which are commonly mapped in Maine. (A *soil series* is a detailed level of differentiation between contrasting soils.) Descriptions of the soil series and the range in characteristics are established by the USDA Natural Resource Conservation Service. Drainage class was assigned using the guidelines established by the Maine Association of Professional Soil Scientists. This work meets the standards for Class "B" Soil Surveys, as established by the Maine Association of Professional Soil Scientists, except for the developed areas which were not investigated (noted on the map as 'DANI') as discussed below.

The soil survey information is presented using the 1 inch = 100 feet topographic and boundary survey prepared by Attar

Engineering, Inc. as a base map. Map units are named for the dominant soil series, but each map unit has "inclusions" of other soil series within it. Due to the natural complexity of soils, the small differences between some soil series, the frequency of soil observations, and the scale at which the map was prepared, it is not possible to detect or represent every subtle change in soil series. Soil survey standards allow for inclusions of up to 25% of other soil series or slopes within a soil map unit, as long as no dissimilar soil series which is limiting for the proposed land use exceeds one acre in size. This work by far exceeds this requirement.

Boundaries between map units are represented as a line on the soil map, but in some cases one soil series grades into the next in a diffuse transition zone.

Because of the regulatory importance of the wetlands, their boundary lines have been flagged in the field, survey located, and plotted on the topographic plan by Attar Engineering, Inc. with great accuracy. Wetland soil map units as small as 1/8th of an acre are shown, as is required by the Class "A" High Intensity Soil Survey Standards.

A commercial retail development served by municipal water and sewer services is proposed. The proposed use will necessitate considerable leveling and filling of the natural soils. Map unit design of this soil survey and soil interpretations in this report are in part influenced by the intended use of the site. Therefore, the information provided in this report may not be adequate or complete for other uses.

Six soil series and two soil complexes (made up of two soil series each) are mapped on the subject parcel. The descriptions and range

of characteristics given below are specific to this site. Also, four areas marked on the map as DANI were not investigated, and are therefore not soil map units, but are described briefly below.

Biddeford (Bm)

The Biddeford muck series forms in very poorly drained deposits of highly decomposed organic material over marine origin deposits. The thickness of the muck surface is less than 16 inches. Below the muck surface is silt loam textured soil. The substrate is typically silty clay loam, but on this site the substrate texture was highly variable. This series is typically deep to bedrock, and during this investigation no bedrock was found in these soils within five feet of the surface.

The Biddeford soil series forms in depressions which collect and trap surface and subsurface runoff. The four Biddeford soil map units on this parcel are level.

Inclusions noted in the Biddeford map units were small areas of the Ossipee soil series. The very poorly drained Ossipee series has a mucky layer at the surface more than 16 inches thick over fine textured mineral soils.

The Biddeford soil series is in hydrologic group "D." (The hydrologic group is an engineering interpretation used for estimating rainfall runoff and designing erosion control measures.) Biddeford is a wetland soil. There are considerable regulatory restrictions on activities within wetlands. The most important physical limitations to development of the Biddeford soil series are the prolonged presence of water at or above the soil surface and low bearing strength. The soil material responds poorly to manipulation by heavy equipment and becomes an unsuitable medium for plant growth.

Michael Cuomo
Soil Scientist
5 Mountain Road, Cape Neddick, Maine 03902 (207) 351-1943

Biddeford-Scantic Complex, Filled and Ditched (BS)

This soil complex represents two soil series in such close association it was not possible to accurately separate them into different soil map units. The Biddeford soil series is described above. The Scantic soil series is described below.

This complex occurs in a landscape greatly manipulated by humans, which is the main reason the two soil series can't be mapped separately. This area has been ditched, with the ditch spoil both side cast into low berms and smoothed over nearby areas which were not ditched. Parts of this map unit have been partially filled with a thin layer of gravelly or stony fill, and other parts have been filled with trash.

Both Biddeford and Scantic are wetland soils. In one portion of the map unit, the fill over the wetland soils is deep enough that the area is no longer a jurisdictional wetland, provided that the fill was placed legally. The primary restriction to the development of Biddeford soils are the regulatory restrictions on dredge and fill activities within wetlands. The most important physical limitations to development of the Biddeford soil series are the prolonged presence of water at or above the soil surface and low bearing strength. The soil material responds poorly to manipulation by heavy equipment and becomes an unsuitable medium for plant growth.

The primary restriction to the development of Scantic soils are the regulatory restrictions on dredge and fill activities within wetlands. The most important physical limitation to the development of Scantic soils is the prolonged presence of ground water at or near the soil surface for much of the year. Other physical limitations are related to the texture of the soil, which makes it very difficult to work with heavy equipment when wet,

which is the majority of the year. The soil also has very low infiltration capacity and high erosion rates once vegetation is removed. It is very difficult to establish vegetation on the exposed subsoil.

Disturbed Area, Not Mapped (DANI)

The areas marked on the soil survey as DANI were not soil mapped. This portion of the soil survey does not meet Maine Association of Professional Soil Scientists' standards for soil surveys. They are briefly described as follows:

DANI (1): This area is the existing mobile home park which covers the western third of the subject property. This area was not investigated due to the safety hazard represented by the underground utilities and concerns about interrupting utility service to the park residents.

DANI (2): This area is the existing nursing home and the landscaped area around it. This area was not investigated due to the safety hazard represented by the underground utilities and concerns about interrupting utility service to the residents.

DANI (3): This area contains the abandoned subsurface wastewater disposal systems which served the nursing home before municipal sewer service was extended to this use.

DANI (4): This area along Adams Road contains an old house and barn foundations. Soil was obviously excavated and the area reshaped by humans. There are large amounts of debris and trash on the surface in this area.

Dixfield (Dx)

The Dixfield fine sandy loam series forms in moderately well drained deposits of unstratified basal till. The textures are sandy loam to fine sandy loam throughout the profile. Stones of various sizes are present. The Dixfield series has a compact 'hardpan' substrate, which impedes the internal drainage of water.

This series is typically deep to bedrock, and in this investigation, no bedrock was found to a depth of at least five feet in these map units.

The Dixfield soil map units occupy some of the high ground and the side slopes of the subject property. The surface slopes of the Dixfield soils range from 3 to 15%. Test pits six, 14, 15, and 19 are examples of the Dixfield soil series.

There are inclusions of the well drained Marlow fine sandy loam soil series in the Dixfield map units. These inclusions are mostly on the steeper side slope landscape positions. Marlow is very similar to the Dixfield, but the Marlow soil series is better drained and deeper to the seasonal high water table. Test pit 13 is an example of a Marlow inclusion. There is also an area approximately 1/8th acre in size from which the topsoil has been removed from a Marlow soil map unit.

The Dixfield series is in Hydrologic Group C. Dixfield is not a wetland soil. The primary limitation to development is the presence of seasonal high water table 1.5 to 2 feet from the soil surface after storm events and during the winter and spring. This limitation can be overcome by drainage structures.

Elmwood (Em)

The Elmwood series forms in moderately well drained deposits of mixed geologic origin. The surface and subsoil are very fine sandy loam which probably forms from ancient wind-blown deposits. The substrate is glacial marine origin silt loam or silty clay loam. The percent of rock fragments is low. This series is typically deep to bedrock, and in this investigation, no bedrock was found to a depth of at least five feet in these map units.

The Elmwood soil is found on side-slope landscape positions. The surface slopes of the Elmwood soil on this parcel range from 3 to 15%. Test pits 16 and 18 are examples of the Elmwood series.

There are inclusions of unnamed moderately well drained soils which have textures in the substrate which do not conform to the normal range of characteristics for the Elmwood soil series. Test pit ten is an example of this unnamed soil.

The Elmwood soil series is in hydrologic group "C." Elmwood is not a wetland soil. The primary limitation to the development of these soils is the seasonal presence of ground water within 1.5 to 2 feet of the soil surface. A secondary physical limitation is the fine texture of the soils, which make them difficult to work when wet and subject to significant erosion when the vegetation is removed. Once the substrate is exposed, reestablishing vegetation is very difficult.

Lyman-Tunbridge Complex (LT)

The Lyman-Tunbridge complex represents two soil series which occur together on the landscape. The nature of their association is such that they are impossible to accurately separate into individual map units, so they are mapped as a complex.

The Lyman fine sandy loam and Tunbridge fine sandy loam series both form from unsorted glacial till. The Lyman is between 10 and 20 inches in total depth of soil above bedrock and is somewhat excessively drained. The Tunbridge is 20 to 40 inches deep to bedrock and is well drained. Both typically have fine sandy loam textures in the surface and subsoil. The texture in the substrate of the Tunbridge is usually fine sandy loam, but can range to loamy sand. Coarse fragments are a common feature.

The Lyman series is represented by test pit three. The Tunbridge series is described in test pit nine. Test pits one, seven and eleven span both soil series, illustrating how difficult it would be to split them into separate soil map units. The Lyman-Tunbridge complex ranges in surface slope from 3 to 25% and occupies a variety of landscape positions.

Inclusions within the Lyman-Tunbridge complex map units include occasional bedrock exposures at the surface. The Abram fine sandy loam soil series, which has less than 10 inches of mineral soil over bedrock, is present as an inclusion. There are inclusions of the moderately well drained Waumbek fine sandy loam soil series, as described in test pit five, which occur in topographic swales. There are also unnamed soils which are moderately deep to bedrock and moderately well drained. Test pit four is an example of one such soil, which is similar to the Waumbek soil series but is moderately deep to bedrock. Test pit 20 is another unnamed moderately well drained soil, but it has a firm 'hardpan' layer above the bedrock. There are also inclusions of an unnamed somewhat poorly drained and moderately deep to bedrock soil.

The Lyman soil series is in hydrologic group C/D. The Tunbridge soil series is in hydrologic group C. Neither of these are wetland soils. The primary limitation to development is the presence of bedrock close to the soil surface. This limitation can be overcome by filling and blasting.

Scantic (Sc)

The Scantic series forms in poorly drained deposits of glacial marine origin silts and clays. The surface and subsoil textures are silt loam. The substrate texture is typically silty clay loam. The percent of rock fragments in all layers is very low. This

series is typically deep to bedrock, and in this investigation, no bedrock was encountered within 60 inches of the surface.

The Scantic soil forms in low-lying flat or concave landscape positions which receive surface and subsurface runoff from better drained, higher, and/or more strongly sloping areas. The slopes of the Scantic soil on this parcel are 3% or less.

There are inclusions of an unnamed poorly drained soil along the edge of some of the Scantic soil map units where they adjoin glacial till origin soils. Test pits two and twelve show a substratum that is coarser than allowed in the normal range of characteristics for this soil series. One Scantic observation found an accumulation of sediment at the surface which had apparently eroded off an upslope field due to poor historic agricultural practices.

The Scantic soil series is in hydrologic group "D" and is a wetland soil. The primary restriction to the development of Scantic soils are the regulatory prohibitions on dredge and fill activities within wetlands. The primary physical limitation to the development of these soils is the prolonged presence of ground water at or near the soil surface for much of the year. Other physical limitations are related to the texture of the soil, which makes it very difficult to work with heavy equipment when wet, which is the majority of the year. The soil also has very low infiltration capacity and suffers high erosion rates once vegetation is removed. It is very difficult to establish vegetation on the exposed subsoil and substrate.

Swanton (Sw)

The Swanton very fine sandy loam soil series forms in poorly drained deposits of mixed geologic origin. The surface and subsoil

are very fine sandy loam which probably derives from wind-blown deposits. The substrate is glacial marine origin silt loam or silty clay loam. The percent of rock fragments is low. This series is typically deep to bedrock, and in this investigation, no bedrock was found to a depth of at least five feet in this map unit. The Swanton soil series is similar in most respects to the Elmwood soil described above, but is wetter.

The Swanton soils occurs on this site at footslope landscape positions which receive surface and subsurface runoff from better drained, higher, and/or more strongly sloping areas. The slopes of the Swanton soil on this parcel range from 3 to 8%.

The Swanton series as described in the published literature spans two drainage classes, poorly drained and somewhat poorly drained. On this site the Swanton soil series was used only to represent somewhat poorly drained soils which are not wetlands. Poorly drained wetland soils on this site are mapped as Scantic.

Test pit 17 is an example of the Swanton soil series. No inclusions were noted in the Swanton soil map units.

The Swanton soil series is in hydrologic group "C/D." Swanton is not a wetland soil. The primary limitation to the development of these soils would be the prolonged presence of ground water within one foot of the soil surface for part of the year. Other physical limitations are related to the texture of the soil, which makes it very difficult to work with heavy equipment when wet. The soil has high erosion rates once vegetation is removed. It is very difficult to establish vegetation on the exposed substrate.

Michael Cuomo
Soil Scientist
5 Mountain Road, Cape Neddick, Maine 03902 (207) 351-1943

Westbury (Ws)

The Westbury soil series forms in somewhat poorly drained deposits of unstratified basal till. The textures are typically sandy loam to fine sandy loam throughout the soil profile. Stones of various sizes are present within the profile. The Westbury series has a compact "hardpan" substrate, which impedes the internal drainage of water. Westbury is typically deep to bedrock, and no bedrock was encountered during this investigation to a depth of five feet. Westbury is similar to the Dixfield soil series in most respects but is wetter.

The Westbury occupies the bottom of a gentle swale. The slopes of the Westbury soil map unit are 8% or less. This swale receives runoff water from better drained soils which are higher in the landscape. The gentle slope, landscape position, and compact substrate combine to make these soils drain slowly.

The Westbury soil map unit includes sôme soils with textures of loamy fine sand in the substrate, as shown in test pit eight. This is outside the normal range of characteristics for this soil series.

The Westbury soil series is in Hydrologic Group "C" and is not a wetland soil. The most significant physical limitation to development is seasonal wetness within one foot of the surface.

Michael Cuomo
Soil Scientist
5 Mountain Road, Cape Neddick, Maine 03902 (207) 351-1943

The following must appear on the plan which has the Soil Map.

Class "B" High Intensity Soil Survey Legend

Symbol	Soil Series
Bm	Biddeford mucky peat*
BS	Biddeford/Scantic complex, filled and ditched*
DANI	Developed area not investigated
Dx	Dixfield fine sandy loam
Em	Elmwood very fine sandy loam
LT	Lyman/Tunbridge complex
Sc	Scantic silt loam*
Sw	Swanton very fine sandy loam
Ws	Westbury fine sandy loam

* These are wetland soils.

Slope Legend

(None)	0 to 3%
B	3 to 8%
C	8 to 15%
D	15 to 25%

_____ / _____

Michael Cuomo, Maine Certified Soil Scientist #211

This map complies with the standards for High Intensity Soil Survey except as noted in report dated 14 April 2000.

Michael Cuomo
Soil Scientist
5 Mountain Road, Cape Neddick, Maine 03902 (207) 351-1943

The following information for calculation purposes. This should not appear on the finished map.

Map Unit	Drainage Class	Hydrologic Group
Bm	Very poorly drained	D
BS	Very poorly drained and poorly drained	D
DANI	Drainage class not assigned	UNKNOWN
Dx	Moderately well drained	C
Em	Moderately well drained	C
LT	Somewhat excessively drained and well drained	C/D
Sc	Poorly drained	D
Sw	Somewhat poorly drained	C/D
Ws	Somewhat poorly drained	C

The following information for calculation purposes. This should not appear on the finished map.

Map Unit	Drainage Class	Hydrologic Group
Bm	Very poorly drained	D
BS	Very poorly drained and poorly drained	D
DANI	Drainage class not assigned	UNKNOWN
Dx	Moderately well drained	C
Em	Moderately well drained	C
LT	Somewhat excessively drained and well drained	C/D
Sc	Poorly drained	D
Sw	Somewhat poorly drained	C/D
Ws	Somewhat poorly drained	C

Town, City, Plantation: KITTERY | Street, Road Subdivision: US ROUTE ONE AND ADAMS ROAD | Owner's Name: KITTERY RETAIL VENTURES

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole ONE ■ Test Pit ☐ Boring
0" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–10	STONY FINE SANDY LOAM	FRIABLE	10YR 3/2	
10–20			10YR 4/4	NONE
20–50	BEDROCK			

Soil Classification	Slope	Limiting Factor	
Profile: 2	C %	12"	☐ Ground Water ☐ Restrictive Layer ■ Bedrock ☐ Pit Depth
Condition: A II			

Observation Hole TWO ■ Test Pit ☐ Boring
0" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–10	SILT LOAM	FRIABLE	2.5Y 3/2	
10–20			5Y 5/1	REDOX
20–30	STONY	FIRM		FEATURES
30–40	FINE SANDY LOAM		2.5Y 5/3	
40–50				

Soil Classification	Slope	Limiting Factor	
Profile: 9	A %	0"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
Condition: E			

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole THREE ■ Test Pit ☐ Boring
2" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–10	STONY FINE SANDY LOAM	FRIABLE	10YR 2/2	
10–20			10YR 3/4	NONE
20–50	BEDROCK			

Soil Classification	Slope	Limiting Factor	
Profile: 2	C %	10"	☐ Ground Water ☐ Restrictive Layer ■ Bedrock ☐ Pit Depth
Condition: A I			

Observation Hole FOUR ■ Test Pit ☐ Boring
2" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–10	STONY FINE SANDY LOAM	FRIABLE	10YR 3/3	
10–20			10YR 4/6	NONE
20–30	STONY LOAMY SAND		2.5Y 5/4	REDOX FEATURES
30–50	BEDROCK			

Soil Classification	Slope	Limiting Factor	
Profile: 4	C %	22"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
Condition: C/A III			

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SE# 211 — SE #
24 MAR 00 — Date

MICHAEL CUOMO

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SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole FIVE ■ Test Pit ☐ Boring
2" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	STONY		10YR 3/3	
10	FINE SANDY LOAM		10YR 4/6	NONE
20		FRIABLE	2.5Y 5/6	
30	LOAMY SAND		2.5Y 6/6	REDOX FEATURES
40				
50				

Soil Classification: Profile 4, Condition C
Slope: C %
Limiting Factor: 31"
■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole SIX ■ Test Pit ☐ Boring
0" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	GRAVELLY FINE SANDY LOAM	FRIABLE	10YR 3/3	NONE
10			10YR 5/6	
20				
30	SANDY LOAM	FIRM	2.5Y 5/4	REDOX FEATURES
40				
50				

Soil Classification: Profile 3, Condition C
Slope: B %
Limiting Factor: 24"
■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole SEVEN ■ Test Pit ☐ Boring
8" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	STONY FINE SANDY LOAM	FRIABLE	10YR 2/2	
10			10YR 4/6	NONE
20				
30	BEDROCK			
40				
50				

Soil Classification: Profile 2, Condition A III
Slope: B %
Limiting Factor: 18"
☐ Ground Water ☐ Restrictive Layer ■ Bedrock ☐ Pit Depth

Observation Hole EIGHT ■ Test Pit ☐ Boring
0" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	FINE SANDY LOAM	FRIABLE	10YR 3/3	NONE
10				
20	V.F.S.L.		2.5Y 4/4	REDOX
30	FINE SANDY LOAM		5Y 4/3	
40	LOAMY FINE SAND	FIRM	2.5Y 4/4	FEATURES
50				

Soil Classification: Profile 3, Condition D
Slope: B %
Limiting Factor: 8"
■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

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SE# 211 — SE #
24 MAR 00 — Date

MICHAEL CUOMO

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SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole NINE ■ Test Pit ☐ Boring
2" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	STONY		10YR 3/3	
10	FINE SANDY LOAM	FRIABLE	10YR 4/6	NONE
20				
30				
40	BEDROCK			
50				

Soil Classification	Slope	Limiting Factor	
Profile: 2 / Condition: A III	C %	28"	☐ Ground Water ☐ Restrictive Layer ■ Bedrock ☐ Pit Depth

Observation Hole TEN ■ Test Pit ☐ Boring
3" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	FINE SANDY LOAM	FRIABLE	10YR 3/3	NONE
10			10YR 5/6	
20			2.5Y 5/4	
30	SILT LOAM	FIRM	5Y 5/3	REDOX.
40	LOAMY SAND	FRIABLE	2.5Y 4/4	FEATURES
50				

Soil Classification	Slope	Limiting Factor	
Profile: 7 / Condition: C	C %	16"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole ELEVEN ■ Test Pit ☐ Boring
0" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	GRAVELLY FINE SANDY LOAM	FRIABLE	10YR 3/3	
10			10YR 4/6	NONE
20				
30				
40	BEDROCK			
50				

Soil Classification	Slope	Limiting Factor	
Profile: 2 / Condition: A III	B %	16"	☐ Ground Water ☐ Restrictive Layer ■ Bedrock ☐ Pit Depth

Observation Hole TWELVE ■ Test Pit ☐ Boring
0" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	SILT LOAM	FRIABLE	5Y 2.5/2	
10			5Y 5/3	REDOX
20				
30		FIRM	5Y 5/2	
40	GRAVELLY FINE SANDY LOAM		2.5Y 4/4	FEATURES
50				

Soil Classification	Slope	Limiting Factor	
Profile: 9 / Condition: E	A %	0"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

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24 MAR 00 — Date

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SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 13 ■ Test Pit ☐ Boring
0" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	GRAVELLY		10YR 3/2	
10	FINE SANDY LOAM	FRIABLE	10YR 4/6	
20				
30	LOAM	FIRM	2.5Y 5/4	REDOX
40	GRAVELLY COARSE SANDY LOAM	FRIABLE	5Y 4/4	FEATURES
50				

Soil Classification: 3 Profile, C Condition | Slope: B % | Limiting Factor: 28" | ■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole 14 ■ Test Pit ☐ Boring
0" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0			10YR 3/3	
10	GRAVELLY	FRIABLE	10YR 5/6	NONE
20	FINE SANDY LOAM	FIRM	2.5Y 5/4	REDOX
30			2.5Y 4/3	FEATURES
40				
50				

Soil Classification: 3 Profile, C Condition | Slope: B % | Limiting Factor: 20" | ■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 15 ■ Test Pit ☐ Boring
0" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	GRAVELLY FINE SANDY LOAM		10YR 2/2	
10		FRIABLE	10YR 4/6	NONE
20	GRAVELLY LOAMY SAND		10YR 3/6	
30	GRAVELLY FINE SANDY LOAM	FIRM	5Y 4/4	REDOX FEATURES
40				
50				

Soil Classification: 3 Profile, C Condition | Slope: C % | Limiting Factor: 21" | ■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole 16 ■ Test Pit ☐ Boring
2" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0	VERY FINE SANDY LOAM	FRIABLE	10YR 3/2	NONE
10			2.5Y 5/4	
20	SILT LOAM	FIRM	5Y 5/4	REDOX
30	SILTY CLAY LOAM		5Y 5/3	
40			5Y 4/3	FEATURES
50				

Soil Classification: 7 Profile, C Condition | Slope: B % | Limiting Factor: 15" | ■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

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Site Evaluator Signature

SE# 211
SE

24 MAR 00
Date

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SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 17 ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0	VERY FINE SANDY LOAM	FRIABLE	10YR 3/2	
10			10YR 4/4	NONE
20	FINE SANDY LOAM		2.5Y 4/3	
30	SILT			REDOX.
40	LOAM	FIRM	5Y 4/3	FEATURES
50				

Soil Classification	Slope	Limiting Factor	
7 (Profile) D (Condition)	B %	13"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole 18 ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0	VERY		10YR 2/2	
10	FINE SANDY	FRIABLE	10YR 4/6	NONE
20	LOAM		2.5Y 5/4	
30	SILT			REDOX.
40	LOAM	FIRM	5Y 5/3	FEATURES
50				

Soil Classification	Slope	Limiting Factor	
8 (Profile) C (Condition)	B %	17"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 19 ■ Test Pit ☐ Boring

12 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0	GRAVELLY FINE	FRIABLE	10YR 3/3	NONE
10	SANDY LOAM		10YR 5/6	
20	GRAVELLY LOAMY SAND		2.5Y 5/4	
30	STONY FINE SANDY LOAM	FIRM	2.5Y 5/6	REDOX
40				FEATURES
50				

Soil Classification	Slope	Limiting Factor	
3 (Profile) C (Condition)	B %	16"	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole 20 ■ Test Pit ☐ Boring

0 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0	GRAVELLY FINE	FRIABLE	10YR 3/2	NONE
10	SANDY LOAM		10YR 4/6	
20	STONY FINE SANDY LOAM	FIRM	2.5Y 5/4	REDOX. FEATURES
30	/	/	/	/
40	BEDROCK			
50				

Soil Classification	Slope	Limiting Factor	
3 (Profile) C/A III (Condition)	C %	20"	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

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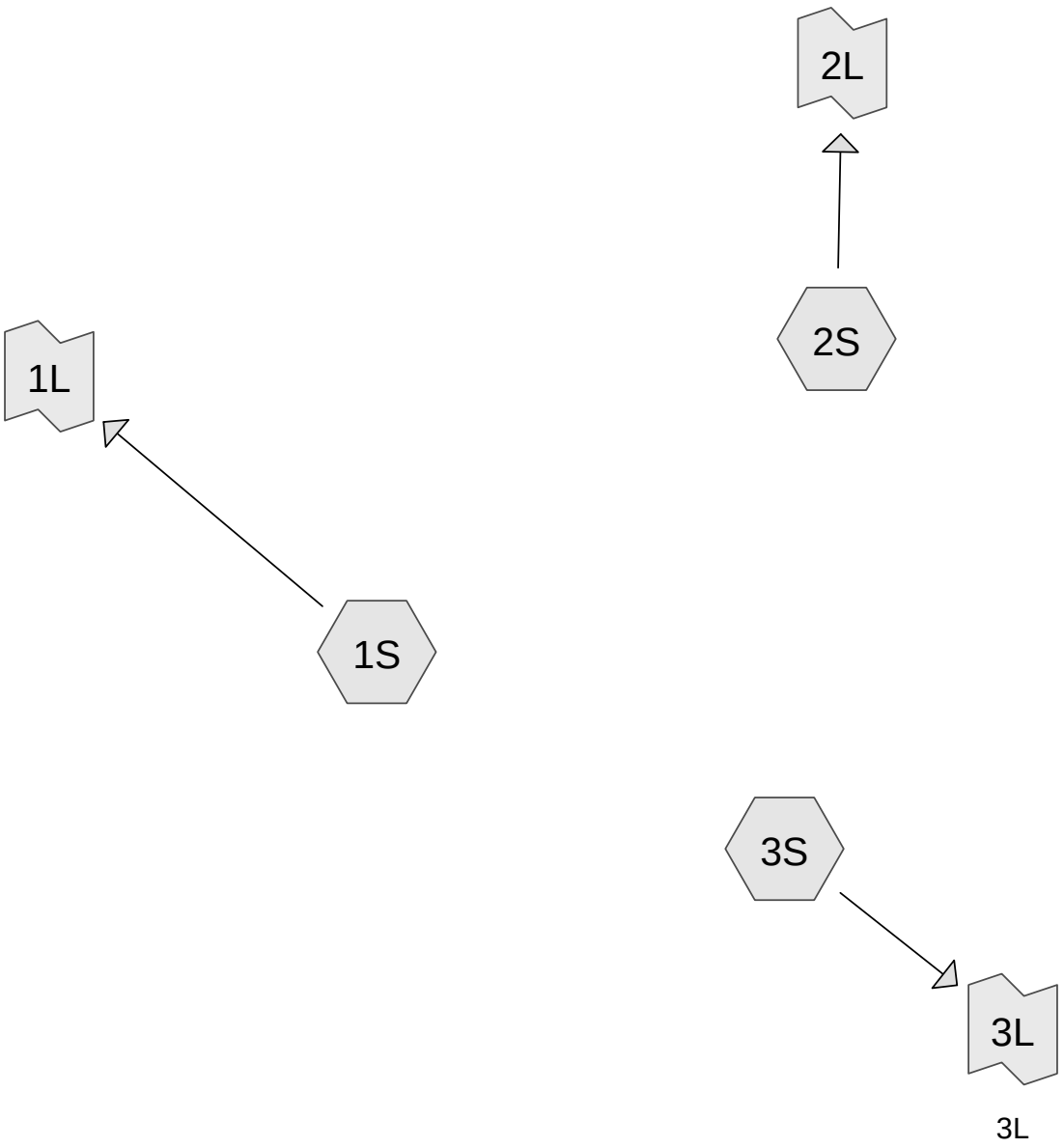
EXISTING CONDITION CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for The Homestead EXT
Prepared by Hewlett-Packard Company, Printed 4/20/2018

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
4.177	HSG B	2S, 3S
18.006	HSG C	1S, 2S, 3S
7.060	HSG D	1S, 2S, 3S
2.920	Other	1S, 2S, 3S
32.163		**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Runoff Area=757,963 sf 11.63% Impervious Runoff Depth>1.05"
Flow Length=1,580' Tc=36.4 min CN=75 Runoff=11.72 cfs 1.522 af

Subcatchment2S: Runoff Area=418,478 sf 5.53% Impervious Runoff Depth>0.65"
Flow Length=931' Tc=41.7 min CN=67 Runoff=3.43 cfs 0.521 af

Subcatchment3S: Runoff Area=224,598 sf 7.08% Impervious Runoff Depth>0.85"
Flow Length=629' Tc=11.2 min CN=71 Runoff=4.33 cfs 0.365 af

Link 1L: Inflow=11.72 cfs 1.522 af
Primary=11.72 cfs 1.522 af

Link 2L: Inflow=3.43 cfs 0.521 af
Primary=3.43 cfs 0.521 af

Link 3L: 3L Inflow=4.33 cfs 0.365 af
Primary=4.33 cfs 0.365 af

Total Runoff Area = 32.163 ac Runoff Volume = 2.408 af Average Runoff Depth = 0.90"
90.92% Pervious = 29.244 ac 9.08% Impervious = 2.920 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Runoff Area=757,963 sf 11.63% Impervious Runoff Depth>2.17"
Flow Length=1,580' Tc=36.4 min CN=75 Runoff=24.79 cfs 3.149 af

Subcatchment2S: Runoff Area=418,478 sf 5.53% Impervious Runoff Depth>1.56"
Flow Length=931' Tc=41.7 min CN=67 Runoff=9.01 cfs 1.251 af

Subcatchment3S: Runoff Area=224,598 sf 7.08% Impervious Runoff Depth>1.88"
Flow Length=629' Tc=11.2 min CN=71 Runoff=10.13 cfs 0.807 af

Link 1L: Inflow=24.79 cfs 3.149 af
Primary=24.79 cfs 3.149 af

Link 2L: Inflow=9.01 cfs 1.251 af
Primary=9.01 cfs 1.251 af

Link 3L: 3L Inflow=10.13 cfs 0.807 af
Primary=10.13 cfs 0.807 af

Total Runoff Area = 32.163 ac Runoff Volume = 5.206 af Average Runoff Depth = 1.94"
90.92% Pervious = 29.244 ac 9.08% Impervious = 2.920 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Runoff Area=757,963 sf 11.63% Impervious Runoff Depth>3.19"
Flow Length=1,580' Tc=36.4 min CN=75 Runoff=36.34 cfs 4.622 af

Subcatchment2S: Runoff Area=418,478 sf 5.53% Impervious Runoff Depth>2.44"
Flow Length=931' Tc=41.7 min CN=67 Runoff=14.32 cfs 1.954 af

Subcatchment3S: Runoff Area=224,598 sf 7.08% Impervious Runoff Depth>2.84"
Flow Length=629' Tc=11.2 min CN=71 Runoff=15.41 cfs 1.218 af

Link 1L: Inflow=36.34 cfs 4.622 af
Primary=36.34 cfs 4.622 af

Link 2L: Inflow=14.32 cfs 1.954 af
Primary=14.32 cfs 1.954 af

Link 3L: 3L Inflow=15.41 cfs 1.218 af
Primary=15.41 cfs 1.218 af

Total Runoff Area = 32.163 ac Runoff Volume = 7.794 af Average Runoff Depth = 2.91"
90.92% Pervious = 29.244 ac 9.08% Impervious = 2.920 ac

Summary for Subcatchment 1S:

Runoff = 36.34 cfs @ 12.51 hrs, Volume= 4.622 af, Depth> 3.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

Area (sf)	CN	Description
88,161	98	Paved parking & roofs
463,315	70	Woods, Good, HSG C
206,487	77	Woods, Good, HSG D
757,963	75	Weighted Average
669,802		88.37% Pervious Area
88,161		11.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.7	257	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	32	0.0310	3.92	2.74	**Pipe Channel, Culvert** 12.0" Round w/ 2.0" inside fill Area= 0.7 sf Perim= 3.0' r= 0.23' n= 0.025 Corrugated metal
2.6	145	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	18	0.0310	3.92	2.74	**Pipe Channel, Culvert** 12.0" Round w/ 2.0" inside fill Area= 0.7 sf Perim= 3.0' r= 0.23' n= 0.025 Corrugated metal
15.9	1,038	0.0150	1.09	119.37	**Trap/Vee/Rect Channel Flow, Wetland** Bot.W=90.00' D=1.00' Z= 20.0 '/' Top.W=130.00' n= 0.150
0.3	40	0.0050	1.97	1.38	**Pipe Channel,** 12.0" Round w/ 2.0" inside fill Area= 0.7 sf Perim= 3.0' r= 0.23' n= 0.020 Corrugated PE, corrugated interior
36.4	1,580	Total			

Summary for Subcatchment 2S:

Runoff = 14.32 cfs @ 12.60 hrs, Volume= 1.954 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
	23,128	98	Paved parking & roofs
	138,618	55	Woods, Good, HSG B
	207,144	70	Woods, Good, HSG C
*	49,588	77	Woods, Good, HSG D, Wetlands
	418,478	67	Weighted Average
	395,350		94.47% Pervious Area
	23,128		5.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.7	74	0.0230	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.00"
6.1	326	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.9	531	0.0260	1.28	63.79	**Trap/Vee/Rect Channel Flow, Wetland** Bot.W=30.00' D=1.00' Z= 20.0 '/' Top.W=70.00' n= 0.150
41.7	931	Total			

Summary for Subcatchment 3S:

Runoff = 15.41 cfs @ 12.16 hrs, Volume= 1.218 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
	15,896	98	Paved parking & roofs
*	51,460	77	Woods, Good, HSG D, Wetland
	113,902	70	Woods, Good, HSG C
	43,340	55	Woods, Good, HSG B
	224,598	71	Weighted Average
	208,702		92.92% Pervious Area
	15,896		7.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	27	0.0200	1.03		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
2.2	153	0.0536	1.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.6	449	0.0110	0.87	56.45	**Trap/Vee/Rect Channel Flow, Wetland** Bot.W=45.00' D=1.00' Z= 20.0 '/' Top.W=85.00' n= 0.150
11.2	629	Total			

Summary for Link 1L:

Inflow Area = 17.400 ac, 11.63% Impervious, Inflow Depth > 3.19" for 25 YEAR STORM event
Inflow = 36.34 cfs @ 12.51 hrs, Volume= 4.622 af
Primary = 36.34 cfs @ 12.51 hrs, Volume= 4.622 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2L:

Inflow Area = 9.607 ac, 5.53% Impervious, Inflow Depth > 2.44" for 25 YEAR STORM event
Inflow = 14.32 cfs @ 12.60 hrs, Volume= 1.954 af
Primary = 14.32 cfs @ 12.60 hrs, Volume= 1.954 af, Atten= 0%, Lag= 0.0 min

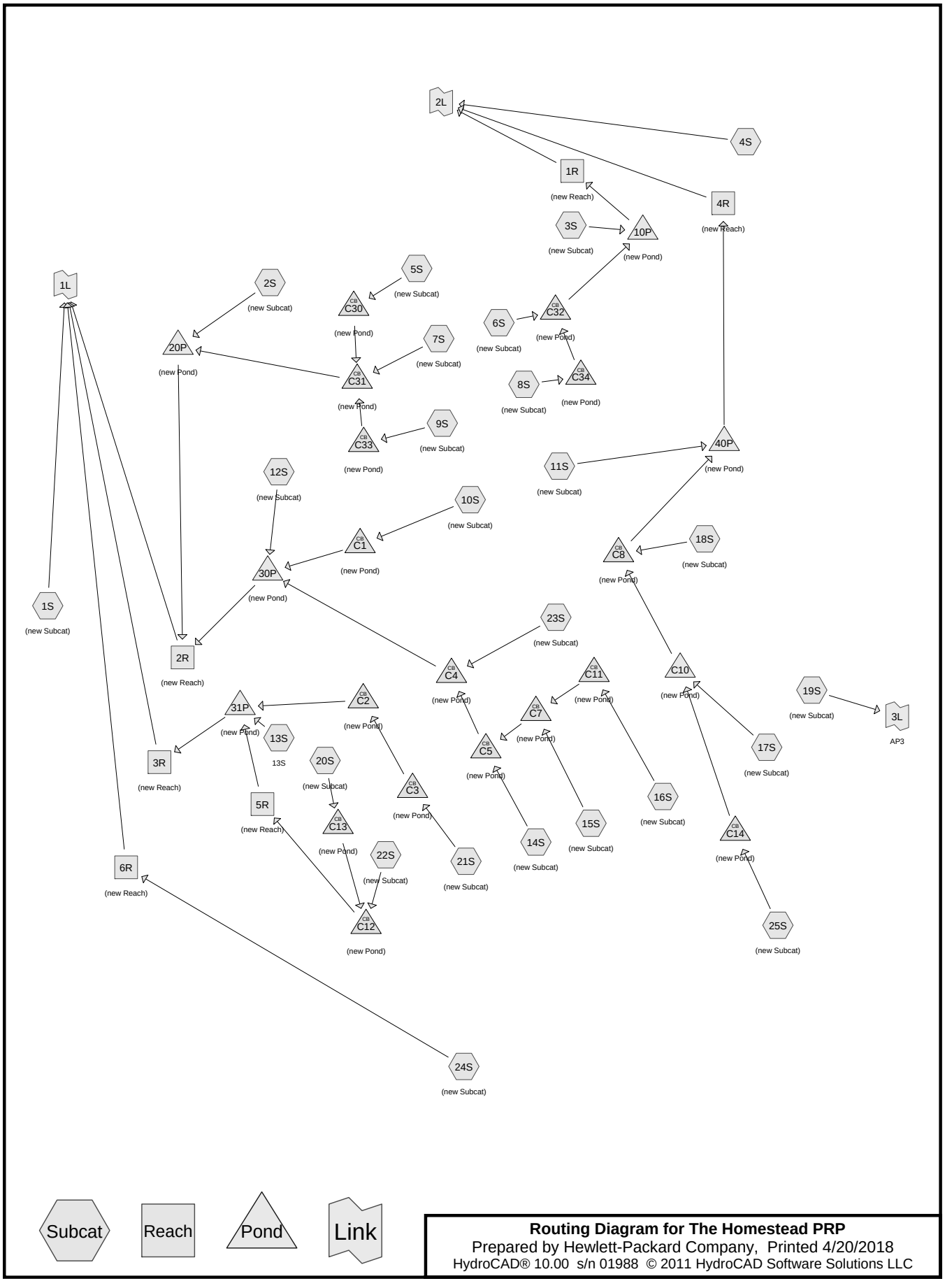
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3L: 3L

Inflow Area = 5.156 ac, 7.08% Impervious, Inflow Depth > 2.84" for 25 YEAR STORM event
Inflow = 15.41 cfs @ 12.16 hrs, Volume= 1.218 af
Primary = 15.41 cfs @ 12.16 hrs, Volume= 1.218 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

DEVELOPED CONDITION CALCULATIONS



Routing Diagram for The Homestead PRP

Prepared by Hewlett-Packard Company, Printed 4/20/2018

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.029	55	Woods, Good, HSG B (4S, 19S)
1.358	61	>75% Grass cover, Good, HSG B (4S, 14S, 15S, 19S, 24S)
11.038	70	Woods, Good, HSG C (1S, 4S, 19S)
5.585	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 16S, 17S, 20S, 21S, 22S, 24S)
5.922	77	Woods, Good, HSG D (1S, 19S)
1.138	77	Woods, Good, HSG D, Wetlands (4S)
0.060	86	Newly graded area, HSG B (25S)
0.513	98	Existing Impervious (1S)
0.573	98	Existing Road (19S, 24S)
0.251	98	Houses AND Roads (11S)
0.186	98	Houses and Roads (3S)
0.264	98	Lot and Homes (21S)
0.059	98	Paved parking & roofs (4S)
0.180	98	Paved parking, HSG C (1S, 20S, 22S, 23S, 24S, 25S)
0.029	98	Proposed Driveway, HSG C (19S)
0.365	98	Roads and Homes (13S)
0.406	98	Roads and Houses (2S)
0.948	98	Roads and Parking Lot (14S, 15S, 16S, 17S)
0.078	98	Roads, Driveway, Parking Lot (18S)
0.108	98	Roads, Driveways (5S)
0.296	98	Roads, Driveways, Houses (6S, 7S, 8S, 9S)
0.167	98	Roads, Homes (12S)
0.628	98	Roads, Houses (10S)
32.182	**75**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
3.447	HSG B	4S, 14S, 15S, 19S, 24S, 25S
16.833	HSG C	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 16S, 17S, 19S, 20S, 21S, 22S, 23S, 24S, 25S
7.060	HSG D	1S, 4S, 19S
4.843	Other	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S, 21S, 24S
32.182		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	1.358	5.585	0.000	0.000	6.943	>75% Grass cover, Good	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 19S, 20S, 21S, 22S, 24S
0.000	0.000	0.000	0.000	0.513	0.513	Existing Impervious	1S
0.000	0.000	0.000	0.000	0.573	0.573	Existing Road	19S, 24S
0.000	0.000	0.000	0.000	0.251	0.251	Houses AND Roads	11S
0.000	0.000	0.000	0.000	0.186	0.186	Houses and Roads	3S
0.000	0.000	0.000	0.000	0.264	0.264	Lot and Homes	21S
0.000	0.000	0.180	0.000	0.000	0.180	Paved parking	1S, 20S, 22S, 23S, 24S, 25S
0.000	0.000	0.029	0.000	0.000	0.029	Proposed Driveway	19S
0.000	0.000	0.000	0.000	0.365	0.365	Roads and Homes	13S
0.000	0.000	0.000	0.000	0.406	0.406	Roads and Houses	2S
0.000	0.000	0.000	0.000	0.059	0.059	Paved parking & roofs	4S
0.000	0.000	0.000	0.000	0.948	0.948	Roads and Parking Lot	14S, 15S, 16S, 17S

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.078	0.078	Roads, Driveway, Parking Lot	18S
0.000	0.000	0.000	0.000	0.108	0.108	Roads, Driveways	5S
0.000	0.000	0.000	0.000	0.296	0.296	Roads, Driveways, Houses	6S, 7S, 8S, 9S
0.000	0.000	0.000	0.000	0.167	0.167	Roads, Homes	12S
0.000	0.000	0.000	0.000	0.628	0.628	Roads, Houses	10S
0.000	0.060	0.000	0.000	0.000	0.060	Newly graded area	25S
0.000	2.029	11.038	7.060	0.000	20.127	Woods, Good	1S, 4S, 19S
0.000	**3.447**	**16.833**	**7.060**	**4.843**	**32.182**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: (new Subcat) Runoff Area=410,732 sf 5.70% Impervious Runoff Depth>3.20"
Flow Length=1,178' Tc=22.4 min CN=75 Runoff=24.50 cfs 2.517 af

Subcatchment2S: (new Subcat) Runoff Area=65,037 sf 27.21% Impervious Runoff Depth>3.82"
Flow Length=188' Tc=5.6 min CN=81 Runoff=6.97 cfs 0.475 af

Subcatchment3S: (new Subcat) Runoff Area=28,485 sf 28.49% Impervious Runoff Depth>3.82"
Flow Length=195' Tc=4.7 min CN=81 Runoff=3.15 cfs 0.208 af

Subcatchment4S: Runoff Area=353,785 sf 0.72% Impervious Runoff Depth>2.44"
Flow Length=931' Tc=40.4 min CN=67 Runoff=12.31 cfs 1.653 af

Subcatchment5S: (new Subcat) Runoff Area=9,321 sf 50.55% Impervious Runoff Depth>4.34"
Flow Length=127' Tc=4.1 min CN=86 Runoff=1.18 cfs 0.077 af

Subcatchment6S: (new Subcat) Runoff Area=8,073 sf 43.42% Impervious Runoff Depth>4.14"
Flow Length=90' Slope=0.0667 '/' Tc=0.8 min CN=84 Runoff=1.05 cfs 0.064 af

Subcatchment7S: (new Subcat) Runoff Area=6,033 sf 37.33% Impervious Runoff Depth>4.03"
Flow Length=102' Slope=0.0588 '/' Tc=1.0 min CN=83 Runoff=0.76 cfs 0.047 af

Subcatchment8S: (new Subcat) Runoff Area=7,337 sf 35.23% Impervious Runoff Depth>3.93"
Flow Length=99' Slope=0.0400 '/' Tc=1.2 min CN=82 Runoff=0.90 cfs 0.055 af

Subcatchment9S: (new Subcat) Runoff Area=11,435 sf 39.71% Impervious Runoff Depth>4.13"
Flow Length=102' Slope=0.0588 '/' Tc=1.0 min CN=84 Runoff=1.48 cfs 0.090 af

Subcatchment10S: (new Subcat) Runoff Area=60,852 sf 44.95% Impervious Runoff Depth>4.23"
Flow Length=158' Tc=8.1 min CN=85 Runoff=6.62 cfs 0.493 af

Subcatchment11S: (new Subcat) Runoff Area=28,681 sf 38.15% Impervious Runoff Depth>4.02"
Flow Length=258' Tc=7.7 min CN=83 Runoff=3.04 cfs 0.221 af

Subcatchment12S: (new Subcat) Runoff Area=29,337 sf 24.82% Impervious Runoff Depth>3.72"
Flow Length=120' Tc=4.5 min CN=80 Runoff=3.20 cfs 0.209 af

Subcatchment13S: 13S Runoff Area=40,918 sf 38.90% Impervious Runoff Depth>4.02"
Flow Length=300' Tc=6.1 min CN=83 Runoff=4.54 cfs 0.315 af

Subcatchment14S: (new Subcat) Runoff Area=12,509 sf 87.37% Impervious Runoff Depth>5.08"
Flow Length=190' Tc=1.1 min CN=93 Runoff=1.86 cfs 0.121 af

Subcatchment15S: (new Subcat) Runoff Area=14,458 sf 85.80% Impervious Runoff Depth>5.08"
Flow Length=120' Tc=0.8 min CN=93 Runoff=2.18 cfs 0.140 af

Subcatchment16S: (new Subcat) Runoff Area=15,913 sf 68.89% Impervious Runoff Depth>4.87"
Flow Length=86' Tc=0.4 min CN=91 Runoff=2.37 cfs 0.148 af

Subcatchment17S: (new Subcat) Runoff Area=16,946 sf 41.19% Impervious Runoff Depth>4.13"
Flow Length=376' Tc=6.1 min CN=84 Runoff=1.92 cfs 0.134 af

Subcatchment18S: (new Subcat) Runoff Area=3,382 sf 100.00% Impervious Runoff Depth>5.51"
Flow Length=48' Slope=0.0050 '/' Tc=0.6 min CN=98 Runoff=0.53 cfs 0.036 af

Subcatchment19S: (new Subcat) Runoff Area=197,865 sf 7.42% Impervious Runoff Depth>3.02"
Flow Length=612' Tc=10.7 min CN=73 Runoff=14.68 cfs 1.145 af

Subcatchment20S: (new Subcat) Runoff Area=1,203 sf 52.04% Impervious Runoff Depth>4.35"
Flow Length=51' Slope=0.0290 '/' Tc=0.6 min CN=86 Runoff=0.16 cfs 0.010 af

Subcatchment21S: (new Subcat) Runoff Area=14,378 sf 80.05% Impervious Runoff Depth>5.08"
Flow Length=114' Tc=0.5 min CN=93 Runoff=2.19 cfs 0.140 af

Subcatchment22S: (new Subcat) Runoff Area=3,701 sf 28.69% Impervious Runoff Depth>3.82"
Flow Length=111' Tc=0.8 min CN=81 Runoff=0.45 cfs 0.027 af

Subcatchment23S: (new Subcat) Runoff Area=407 sf 100.00% Impervious Runoff Depth>5.51"
Flow Length=32' Slope=0.0170 '/' Tc=0.2 min CN=98 Runoff=0.06 cfs 0.004 af

Subcatchment24S: (new Subcat) Runoff Area=56,549 sf 25.34% Impervious Runoff Depth>3.02"
Flow Length=361' Tc=12.8 min CN=73 Runoff=3.93 cfs 0.327 af

Subcatchment25S: (new Subcat) Runoff Area=4,529 sf 42.02% Impervious Runoff Depth>4.87"
Flow Length=86' Tc=0.7 min CN=91 Runoff=0.67 cfs 0.042 af

Reach 1R: (new Reach) Avg. Flow Depth=0.02' Max Vel=1.82 fps Inflow=1.58 cfs 0.327 af
n=0.030 L=40.0' S=0.3000 '/' Capacity=483.59 cfs Outflow=1.58 cfs 0.327 af

Reach 2R: (new Reach) Avg. Flow Depth=0.17' Max Vel=0.47 fps Inflow=9.32 cfs 1.499 af
n=0.150 L=700.0' S=0.0257 '/' Capacity=156.29 cfs Outflow=7.48 cfs 1.420 af

Reach 3R: (new Reach) Avg. Flow Depth=0.07' Max Vel=0.24 fps Inflow=3.62 cfs 0.402 af
n=0.150 L=850.0' S=0.0212 '/' Capacity=141.83 cfs Outflow=1.45 cfs 0.346 af

Reach 4R: (new Reach) Avg. Flow Depth=0.05' Max Vel=0.23 fps Inflow=1.60 cfs 0.337 af
n=0.150 L=531.0' S=0.0301 '/' Capacity=169.18 cfs Outflow=1.08 cfs 0.305 af

Reach 5R: (new Reach) Avg. Flow Depth=0.03' Max Vel=1.17 fps Inflow=0.62 cfs 0.037 af
n=0.030 L=95.0' S=0.0558 '/' Capacity=63.43 cfs Outflow=0.56 cfs 0.037 af

Reach 6R: (new Reach) Avg. Flow Depth=0.06' Max Vel=0.19 fps Inflow=3.93 cfs 0.327 af
n=0.150 L=1,128.0' S=0.0160 '/' Capacity=123.12 cfs Outflow=1.06 cfs 0.265 af

Pond 10P: (new Pond) Peak Elev=54.26' Storage=2,656 cf Inflow=4.82 cfs 0.327 af
Outflow=1.58 cfs 0.327 af

Pond 20P: (new Pond) Peak Elev=43.78' Storage=11,106 cf Inflow=9.81 cfs 0.690 af
Outflow=3.76 cfs 0.565 af

Pond 30P: (new Pond) Peak Elev=45.36' Storage=18,017 cf Inflow=13.93 cfs 1.116 af
Outflow=5.56 cfs 0.934 af

Pond 31P: (new Pond) Peak Elev=50.58' Storage=7,263 cf Inflow=6.49 cfs 0.492 af
Outflow=3.62 cfs 0.402 af

Pond 40P: (new Pond) Peak Elev=60.48' Storage=8,335 cf Inflow=5.44 cfs 0.432 af
Outflow=1.60 cfs 0.337 af

Pond C1: (new Pond) Peak Elev=57.18' Inflow=6.62 cfs 0.493 af
15.0" Round Culvert n=0.010 L=170.0' S=0.0753 '/' Outflow=6.62 cfs 0.493 af

Pond C10: (new Pond) Peak Elev=59.69' Storage=296 cf Inflow=2.34 cfs 0.176 af
12.0" Round Culvert n=0.010 L=100.0' S=0.0030 '/' Outflow=2.15 cfs 0.176 af

Pond C11: (new Pond) Peak Elev=58.89' Inflow=2.37 cfs 0.148 af
12.0" Round Culvert n=0.010 L=60.0' S=0.0100 '/' Outflow=2.37 cfs 0.148 af

Pond C12: (new Pond) Peak Elev=55.20' Inflow=0.62 cfs 0.037 af
12.0" Round Culvert n=0.013 L=83.0' S=0.0096 '/' Outflow=0.62 cfs 0.037 af

Pond C13: (new Pond) Peak Elev=55.63' Inflow=0.16 cfs 0.010 af
12.0" Round Culvert n=0.013 L=94.9' S=0.0053 '/' Outflow=0.16 cfs 0.010 af

Pond C14: (new Pond) Peak Elev=59.71' Inflow=0.67 cfs 0.042 af
12.0" Round Culvert n=0.020 L=115.0' S=0.0017 '/' Outflow=0.67 cfs 0.042 af

Pond C2: (new Pond) Peak Elev=57.04' Inflow=2.19 cfs 0.140 af
12.0" Round Culvert n=0.010 L=119.0' S=0.0647 '/' Outflow=2.19 cfs 0.140 af

Pond C3: (new Pond) Peak Elev=57.60' Inflow=2.19 cfs 0.140 af
12.0" Round Culvert n=0.010 L=62.5' S=0.0032 '/' Outflow=2.19 cfs 0.140 af

Pond C30: (new Pond) Peak Elev=55.87' Inflow=1.18 cfs 0.077 af
12.0" Round Culvert n=0.010 L=29.0' S=0.0103 '/' Outflow=1.18 cfs 0.077 af

Pond C31: (new Pond) Peak Elev=55.93' Inflow=3.24 cfs 0.214 af
12.0" Round Culvert n=0.010 L=127.0' S=0.0921 '/' Outflow=3.24 cfs 0.214 af

Pond C32: (new Pond) Peak Elev=58.87' Inflow=1.95 cfs 0.119 af
12.0" Round Culvert n=0.010 L=65.0' S=0.0708 '/' Outflow=1.95 cfs 0.119 af

Pond C33: (new Pond) Peak Elev=55.85' Inflow=1.48 cfs 0.090 af
12.0" Round Culvert n=0.010 L=45.0' S=0.0089 '/' Outflow=1.48 cfs 0.090 af

Pond C34: (new Pond) Peak Elev=59.01' Inflow=0.90 cfs 0.055 af
12.0" Round Culvert n=0.010 L=48.0' S=0.0062 '/' Outflow=0.90 cfs 0.055 af

Pond C4: (new Pond) Peak Elev=59.73' Inflow=6.47 cfs 0.415 af
12.0" Round Culvert n=0.010 L=116.0' S=0.0121 '/' Outflow=6.47 cfs 0.415 af

Pond C5: (new Pond) Peak Elev=60.84' Inflow=6.41 cfs 0.410 af
12.0" Round Culvert n=0.010 L=99.0' S=0.0051 '/' Outflow=6.41 cfs 0.410 af

Pond C7: (new Pond) Peak Elev=59.36' Inflow=4.55 cfs 0.289 af
12.0" Round Culvert n=0.010 L=60.0' S=0.0050 '/' Outflow=4.55 cfs 0.289 af

Pond C8: (new Pond) Peak Elev=59.41' Inflow=2.41 cfs 0.212 af
12.0" Round Culvert n=0.010 L=100.0' S=0.0040 '/' Outflow=2.41 cfs 0.212 af

Link 1L: Inflow=25.15 cfs 4.547 af
Primary=25.15 cfs 4.547 af

Link 2L: Inflow=13.99 cfs 2.284 af
Primary=13.99 cfs 2.284 af

Link 3L: AP3 Inflow=14.68 cfs 1.145 af
Primary=14.68 cfs 1.145 af

Total Runoff Area = 32.182 ac Runoff Volume = 8.698 af Average Runoff Depth = 3.24"
84.30% Pervious = 27.130 ac 15.70% Impervious = 5.052 ac

Summary for Subcatchment 1S: (new Subcat)

Runoff = 24.50 cfs @ 12.31 hrs, Volume= 2.517 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
	1,054	98	Paved parking, HSG C
	21,035	74	>75% Grass cover, Good, HSG C
*	22,365	98	Existing Impervious
	206,487	77	Woods, Good, HSG D
	159,791	70	Woods, Good, HSG C
	410,732	75	Weighted Average
	387,313		94.30% Pervious Area
	23,419		5.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	50	0.0380	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
15.9	1,128	0.0150	1.19	110.23	**Trap/Vee/Rect Channel Flow,** Bot.W=90.00' D=1.00' Z= 3.0 '/' Top.W=96.00' n= 0.150
22.4	1,178	Total			

Summary for Subcatchment 2S: (new Subcat)

Runoff = 6.97 cfs @ 12.09 hrs, Volume= 0.475 af, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
	47,342	74	>75% Grass cover, Good, HSG C
*	17,695	98	Roads and Houses
	65,037	81	Weighted Average
	47,342		72.79% Pervious Area
	17,695		27.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	75	0.0980	0.29		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.1	73	0.0270	1.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.0270	4.36	13.07	**Trap/Vee/Rect Channel Flow,** Bot.W=4.50' D=0.50' Z= 3.0 '/' Top.W=7.50' n= 0.030 Earth, grassed & winding
5.6	188	Total			

Summary for Subcatchment 3S: (new Subcat)

Runoff = 3.15 cfs @ 12.07 hrs, Volume= 0.208 af, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	8,115	98	Houses and Roads
	20,370	74	>75% Grass cover, Good, HSG C
	28,485	81	Weighted Average
	20,370		71.51% Pervious Area
	8,115		28.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	60	0.1000	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.8	48	0.0210	1.01		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	87	0.0230	3.64	17.30	**Trap/Vee/Rect Channel Flow,** Bot.W=8.00' D=0.50' Z= 3.0 '/' Top.W=11.00' n= 0.035
4.7	195	Total			

Summary for Subcatchment 4S:

Runoff = 12.31 cfs @ 12.58 hrs, Volume= 1.653 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
	2,560	98	Paved parking & roofs
	75,951	55	Woods, Good, HSG B
	207,144	70	Woods, Good, HSG C
*	49,588	77	Woods, Good, HSG D, Wetlands
	18,542	61	>75% Grass cover, Good, HSG B
	353,785	67	Weighted Average
	351,225		99.28% Pervious Area
	2,560		0.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.7	74	0.0230	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.00"
4.8	326	0.0520	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.9	531	0.0260	1.28	63.79	**Trap/Vee/Rect Channel Flow, Wetland** Bot.W=30.00' D=1.00' Z= 20.0 '/' Top.W=70.00' n= 0.150

40.4 931 Total

Summary for Subcatchment 5S: (new Subcat)

Runoff = 1.18 cfs @ 12.06 hrs, Volume= 0.077 af, Depth> 4.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
	4,609	74	>75% Grass cover, Good, HSG C
*	4,712	98	Roads, Driveways
	9,321	86	Weighted Average
	4,609		49.45% Pervious Area
	4,712		50.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.0800	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.8	77	0.0519	1.59		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.1	127	Total			

Summary for Subcatchment 6S: (new Subcat)

Runoff = 1.05 cfs @ 12.01 hrs, Volume= 0.064 af, Depth> 4.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	3,505	98	Roads, Driveways, Houses
	4,568	74	>75% Grass cover, Good, HSG C
	8,073	84	Weighted Average
	4,568		56.58% Pervious Area
	3,505		43.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	90	0.0667	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps

Summary for Subcatchment 7S: (new Subcat)

Runoff = 0.76 cfs @ 12.01 hrs, Volume= 0.047 af, Depth> 4.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	2,252	98	Roads, Driveways, Houses
	3,781	74	>75% Grass cover, Good, HSG C
	6,033	83	Weighted Average
	3,781		62.67% Pervious Area
	2,252		37.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	102	0.0588	1.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps

Summary for Subcatchment 8S: (new Subcat)

Runoff = 0.90 cfs @ 12.02 hrs, Volume= 0.055 af, Depth> 3.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	2,585	98	Roads, Driveways, Houses
	4,752	74	>75% Grass cover, Good, HSG C
	7,337	82	Weighted Average
	4,752		64.77% Pervious Area
	2,585		35.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	99	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps

Summary for Subcatchment 9S: (new Subcat)

Runoff = 1.48 cfs @ 12.01 hrs, Volume= 0.090 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	4,541	98	Roads, Driveways, Houses
	6,894	74	>75% Grass cover, Good, HSG C
	11,435	84	Weighted Average
	6,894		60.29% Pervious Area
	4,541		39.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	102	0.0588	1.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps

Summary for Subcatchment 10S: (new Subcat)

Runoff = 6.62 cfs @ 12.11 hrs, Volume= 0.493 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	27,350	98	Roads, Houses
	33,502	74	>75% Grass cover, Good, HSG C
	60,852	85	Weighted Average
	33,502		55.05% Pervious Area
	27,350		44.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0120	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.0	108	0.0720	1.88		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.1	158	Total			

Summary for Subcatchment 11S: (new Subcat)

Runoff = 3.04 cfs @ 12.11 hrs, Volume= 0.221 af, Depth> 4.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
	17,738	74	>75% Grass cover, Good, HSG C
*	10,943	98	Houses AND Roads
	28,681	83	Weighted Average
	17,738		61.85% Pervious Area
	10,943		38.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	60	0.1000	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.3	42	0.0950	2.16		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.9	156	0.0090	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.7	258	Total			

Summary for Subcatchment 12S: (new Subcat)

Runoff = 3.20 cfs @ 12.07 hrs, Volume= 0.209 af, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
	22,056	74	>75% Grass cover, Good, HSG C
*	7,281	98	Roads, Homes
	29,337	80	Weighted Average
	22,056		75.18% Pervious Area
	7,281		24.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	70	0.0850	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	50	0.3200	3.96		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.5	120	Total			

Summary for Subcatchment 13S: 13S

Runoff = 4.54 cfs @ 12.09 hrs, Volume= 0.315 af, Depth> 4.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
	25,002	74	>75% Grass cover, Good, HSG C
*	15,916	98	Roads and Homes
	40,918	83	Weighted Average
	25,002		61.10% Pervious Area
	15,916		38.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	35	0.0200	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	45	0.0310	1.23		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	64	0.0050	1.97	1.38	**Pipe Channel,** 12.0" Round w/ 2.0" inside fill Area= 0.7 sf Perim= 3.0' r= 0.23' n= 0.020 Corrugated PE, corrugated interior
0.2	110	0.0360	7.41	185.31	**Trap/Vee/Rect Channel Flow,** Bot.W=22.00' D=1.00' Z= 3.0 '/' Top.W=28.00' n= 0.035
0.4	46	0.0050	1.97	1.38	**Pipe Channel,** 12.0" Round w/ 2.0" inside fill Area= 0.7 sf Perim= 3.0' r= 0.23' n= 0.020 Corrugated PE, corrugated interior

6.1	300	Total

Summary for Subcatchment 14S: (new Subcat)

Runoff = 1.86 cfs @ 12.01 hrs, Volume= 0.121 af, Depth> 5.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	10,929	98	Roads and Parking Lot
	1,580	61	>75% Grass cover, Good, HSG B
	12,509	93	Weighted Average
	1,580		12.63% Pervious Area
	10,929		87.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	91	0.0175	2.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	99	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
1.1	190	Total			

Summary for Subcatchment 15S: (new Subcat)

Runoff = 2.18 cfs @ 12.01 hrs, Volume= 0.140 af, Depth> 5.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	12,405	98	Roads and Parking Lot
	2,053	61	>75% Grass cover, Good, HSG B
	14,458	93	Weighted Average
	2,053		14.20% Pervious Area
	12,405		85.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	91	0.0175	2.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	29	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.8	120	Total			

Summary for Subcatchment 16S: (new Subcat)

Runoff = 2.37 cfs @ 12.01 hrs, Volume= 0.148 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	10,963	98	Roads and Parking Lot
	4,950	74	>75% Grass cover, Good, HSG C
	15,913	91	Weighted Average
	4,950		31.11% Pervious Area
	10,963		68.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	49	0.0280	3.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	37	0.0060	3.51	2.76	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.4	86	Total			

Summary for Subcatchment 17S: (new Subcat)

Runoff = 1.92 cfs @ 12.09 hrs, Volume= 0.134 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	6,980	98	Roads and Parking Lot
	9,966	74	>75% Grass cover, Good, HSG C
	16,946	84	Weighted Average
	9,966		58.81% Pervious Area
	6,980		41.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	50	0.0320	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	82	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	46	0.0220	3.52	14.97	**Trap/Vee/Rect Channel Flow,** Bot.W=7.00' D=0.50' Z= 3.0 '/' Top.W=10.00' n= 0.035
0.4	95	0.0210	4.04	2.82	**Pipe Channel,** 12.0" Round w/ 2.0" inside fill Area= 0.7 sf Perim= 3.0' r= 0.23' n= 0.020 Corrugated PE, corrugated interior
0.3	103	0.0390	5.50	3.85	**Pipe Channel,** 12.0" Round w/ 2.0" inside fill Area= 0.7 sf Perim= 3.0' r= 0.23'

n= 0.020 Corrugated PE, corrugated interior

6.1	376	Total

Summary for Subcatchment 18S: (new Subcat)

Runoff = 0.53 cfs @ 12.01 hrs, Volume= 0.036 af, Depth> 5.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	3,382	98	Roads, Driveway, Parking Lot
	3,382		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	48	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps

Summary for Subcatchment 19S: (new Subcat)

Runoff = 14.68 cfs @ 12.15 hrs, Volume= 1.145 af, Depth> 3.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	1,275	98	Proposed Driveway, HSG C
	5,391	61	>75% Grass cover, Good, HSG B
*	13,416	98	Existing Road
	51,460	77	Woods, Good, HSG D
	113,902	70	Woods, Good, HSG C
	12,421	55	Woods, Good, HSG B
	197,865	73	Weighted Average
	183,174		92.58% Pervious Area
	14,691		7.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0200	1.05		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	100	0.0570	1.67		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.2	482	0.0110	0.87	56.45	**Trap/Vee/Rect Channel Flow,** Bot.W=45.00' D=1.00' Z= 20.0 '/' Top.W=85.00' n= 0.150
10.7	612	Total			

Summary for Subcatchment 20S: (new Subcat)

Runoff = 0.16 cfs @ 12.01 hrs, Volume= 0.010 af, Depth> 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

Area (sf)	CN	Description
626	98	Paved parking, HSG C
577	74	>75% Grass cover, Good, HSG C
1,203	86	Weighted Average
577		47.96% Pervious Area
626		52.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	51	0.0290	1.35		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"

Summary for Subcatchment 21S: (new Subcat)

Runoff = 2.19 cfs @ 12.01 hrs, Volume= 0.140 af, Depth> 5.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
*	11,509	98	Lot and Homes
	2,869	74	>75% Grass cover, Good, HSG C
	14,378	93	Weighted Average
	2,869		19.95% Pervious Area
	11,509		80.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	49	0.0280	3.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	65	0.0050	4.17	3.28	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.5	114	Total			

Summary for Subcatchment 22S: (new Subcat)

Runoff = 0.45 cfs @ 12.01 hrs, Volume= 0.027 af, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

Area (sf)	CN	Description
1,062	98	Paved parking, HSG C
2,639	74	>75% Grass cover, Good, HSG C
3,701	81	Weighted Average
2,639		71.31% Pervious Area
1,062		28.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	51	0.0290	1.35		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.1	39	0.0500	4.54		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	21	0.0060	3.51	2.76	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.8	111	Total			

Summary for Subcatchment 23S: (new Subcat)

Runoff = 0.06 cfs @ 12.00 hrs, Volume= 0.004 af, Depth> 5.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

Area (sf)	CN	Description
407	98	Paved parking, HSG C
407		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	32	0.0170	2.65		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps

Summary for Subcatchment 24S: (new Subcat)

Runoff = 3.93 cfs @ 12.18 hrs, Volume= 0.327 af, Depth> 3.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

	Area (sf)	CN	Description
	10,637	74	>75% Grass cover, Good, HSG C
	2,780	98	Paved parking, HSG C
	31,580	61	>75% Grass cover, Good, HSG B
*	11,552	98	Existing Road
	56,549	73	Weighted Average
	42,217		74.66% Pervious Area
	14,332		25.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
4.3	311	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.8	361	Total			

Summary for Subcatchment 25S: (new Subcat)

Runoff = 0.67 cfs @ 12.01 hrs, Volume= 0.042 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YEAR STORM Rainfall=6.20"

Area (sf)	CN	Description
1,903	98	Paved parking, HSG C
2,626	86	Newly graded area, HSG B
4,529	91	Weighted Average
2,626		57.98% Pervious Area
1,903		42.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.3	36	0.0050	1.97	1.38	**Pipe Channel,** 12.0" Round w/ 2.0" inside fill Area= 0.7 sf Perim= 3.0' r= 0.23' n= 0.020 Corrugated PE, corrugated interior
0.7	86	Total			

Summary for Reach 1R: (new Reach)

Inflow Area = 1.008 ac, 32.36% Impervious, Inflow Depth > 3.89" for 25 YEAR STORM event
Inflow = 1.58 cfs @ 12.35 hrs, Volume= 0.327 af
Outflow = 1.58 cfs @ 12.36 hrs, Volume= 0.327 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.82 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.93 fps, Avg. Travel Time= 0.7 min

Peak Storage= 35 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 0.50' Flow Area= 32.5 sf, Capacity= 483.59 cfs

50.00' x 0.50' deep channel, n= 0.030 Short grass
Side Slope Z-value= 30.0 '/' Top Width= 80.00'
Length= 40.0' Slope= 0.3000 '/'
Inlet Invert= 50.00', Outlet Invert= 38.00'

‡

Summary for Reach 2R: (new Reach)

Inflow Area = 5.172 ac, 43.73% Impervious, Inflow Depth > 3.48" for 25 YEAR STORM event
Inflow = 9.32 cfs @ 12.34 hrs, Volume= 1.499 af
Outflow = 7.48 cfs @ 13.09 hrs, Volume= 1.420 af, Atten= 20%, Lag= 45.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.47 fps, Min. Travel Time= 24.6 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 60.9 min

Peak Storage= 11,053 cf @ 12.68 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 1.00' Flow Area= 110.0 sf, Capacity= 156.29 cfs

90.00' x 1.00' deep channel, n= 0.150
Side Slope Z-value= 20.0 '/' Top Width= 130.00'
Length= 700.0' Slope= 0.0257 '/'
Inlet Invert= 50.00', Outlet Invert= 32.00'

‡

Summary for Reach 3R: (new Reach)

Inflow Area = 1.382 ac, 48.36% Impervious, Inflow Depth > 3.49" for 25 YEAR STORM event
Inflow = 3.62 cfs @ 12.22 hrs, Volume= 0.402 af
Outflow = 1.45 cfs @ 13.67 hrs, Volume= 0.346 af, Atten= 60%, Lag= 87.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.24 fps, Min. Travel Time= 60.0 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 124.6 min

Peak Storage= 5,203 cf @ 12.67 hrs
Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 1.00' Flow Area= 110.0 sf, Capacity= 141.83 cfs

90.00' x 1.00' deep channel, n= 0.150
Side Slope Z-value= 20.0 '/' Top Width= 130.00'
Length= 850.0' Slope= 0.0212 '/'
Inlet Invert= 50.00', Outlet Invert= 32.00'

‡

Summary for Reach 4R: (new Reach)

Inflow Area = 1.229 ac, 43.35% Impervious, Inflow Depth > 3.29" for 25 YEAR STORM event
Inflow = 1.60 cfs @ 12.48 hrs, Volume= 0.337 af
Outflow = 1.08 cfs @ 13.56 hrs, Volume= 0.305 af, Atten= 33%, Lag= 64.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.23 fps, Min. Travel Time= 37.9 min
Avg. Velocity = 0.12 fps, Avg. Travel Time= 71.3 min

Peak Storage= 2,446 cf @ 12.93 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 1.00' Flow Area= 110.0 sf, Capacity= 169.18 cfs

90.00' x 1.00' deep channel, n= 0.150
Side Slope Z-value= 20.0 '/' Top Width= 130.00'
Length= 531.0' Slope= 0.0301 '/'
Inlet Invert= 54.00', Outlet Invert= 38.00'

‡

Summary for Reach 5R: (new Reach)

Inflow Area = 0.113 ac, 34.42% Impervious, Inflow Depth > 3.95" for 25 YEAR STORM event
Inflow = 0.62 cfs @ 12.01 hrs, Volume= 0.037 af
Outflow = 0.56 cfs @ 12.05 hrs, Volume= 0.037 af, Atten= 8%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.17 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.38 fps, Avg. Travel Time= 4.1 min

Peak Storage= 48 cf @ 12.03 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 63.43 cfs

15.00' x 0.50' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/' Top Width= 25.00'
Length= 95.0' Slope= 0.0558 '/'
Inlet Invert= 54.00', Outlet Invert= 48.70'

‡

Summary for Reach 6R: (new Reach)

Inflow Area = 1.298 ac, 25.34% Impervious, Inflow Depth > 3.02" for 25 YEAR STORM event
Inflow = 3.93 cfs @ 12.18 hrs, Volume= 0.327 af
Outflow = 1.06 cfs @ 14.28 hrs, Volume= 0.265 af, Atten= 73%, Lag= 126.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.19 fps, Min. Travel Time= 98.0 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 176.6 min

Peak Storage= 6,248 cf @ 12.65 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 1.00' Flow Area= 110.0 sf, Capacity= 123.12 cfs

90.00' x 1.00' deep channel, n= 0.150
Side Slope Z-value= 20.0 '/' Top Width= 130.00'
Length= 1,128.0' Slope= 0.0160 '/'
Inlet Invert= 50.00', Outlet Invert= 32.00'

‡

Summary for Pond 10P: (new Pond)

Inflow Area = 1.008 ac, 32.36% Impervious, Inflow Depth > 3.90" for 25 YEAR STORM event
Inflow = 4.82 cfs @ 12.05 hrs, Volume= 0.327 af
Outflow = 1.58 cfs @ 12.35 hrs, Volume= 0.327 af, Atten= 67%, Lag= 18.3 min
Primary = 1.58 cfs @ 12.35 hrs, Volume= 0.327 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 54.26' @ 12.35 hrs Surf.Area= 3,846 sf Storage= 2,656 cf

Plug-Flow detention time= 10.0 min calculated for 0.327 af (100% of inflow)
Center-of-Mass det. time= 9.7 min (783.3 - 773.6)

Volume	Invert	Avail.Storage	Storage Description
#1	53.50'	34,319 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
53.50	3,157	0	0
55.00	4,520	5,758	5,758
57.00	6,971	11,491	17,249
59.00	10,099	17,070	34,319

Device	Routing	Invert	Outlet Devices
#1	Primary	51.03'	**12.0" Round Culvert** L= 46.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.03' / 50.00' S= 0.0224 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	51.23'	**6.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 51.23' / 51.13' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	53.50'	**2.40 cfs Exfiltration at all elevations**
#4	Device 1	55.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#5	Device 1	58.00'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.58 cfs @ 12.35 hrs HW=54.26' (Free Discharge)
- **1=Culvert** (Passes 1.58 cfs of 6.25 cfs potential flow)
  - **2=Culvert** (Inlet Controls 1.58 cfs @ 8.03 fps)
    - **3=Exfiltration** (Passes 1.58 cfs of 2.40 cfs potential flow)
  - **4=Orifice/Grate** (Controls 0.00 cfs)
  - **5=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 20P: (new Pond)

Inflow Area = 2.108 ac, 31.80% Impervious, Inflow Depth > 3.93" for 25 YEAR STORM event
Inflow = 9.81 cfs @ 12.07 hrs, Volume= 0.690 af
Outflow = 3.76 cfs @ 12.33 hrs, Volume= 0.565 af, Atten= 62%, Lag= 15.7 min
Primary = 3.76 cfs @ 12.33 hrs, Volume= 0.565 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 43.78' @ 12.33 hrs Surf.Area= 6,851 sf Storage= 11,106 cf

Plug-Flow detention time= 102.0 min calculated for 0.565 af (82% of inflow)
Center-of-Mass det. time= 52.2 min (825.9 - 773.7)

Volume	Invert	Avail.Storage	Storage Description
#1	41.50'	25,716 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.50	3,014	0	0
43.00	5,404	6,314	6,314
44.00	7,254	6,329	12,643
45.50	10,177	13,073	25,716

Device	Routing	Invert	Outlet Devices
#1	Primary	39.03'	**12.0" Round Culvert** L= 91.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.03' / 38.00' S= 0.0113 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	39.23'	**6.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.23' / 39.13' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	41.50'	**2.400 in/hr Exfiltration over Surface area**
#4	Device 1	43.00'	**8.0" Vert. Orifice/Grate X 3.00** C= 0.600
#5	Device 1	45.67'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.75 cfs @ 12.33 hrs HW=43.78' (Free Discharge)
- **1=Culvert** (Passes 3.75 cfs of 7.71 cfs potential flow)
  - **2=Culvert** (Passes 0.38 cfs of 1.96 cfs potential flow)
    - **3=Exfiltration** (Exfiltration Controls 0.38 cfs)
  - **4=Orifice/Grate** (Orifice Controls 3.37 cfs @ 3.22 fps)
  - **5=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: (new Pond)

Inflow Area = 3.064 ac, 51.95% Impervious, Inflow Depth > 4.37" for 25 YEAR STORM event
Inflow = 13.93 cfs @ 12.06 hrs, Volume= 1.116 af
Outflow = 5.56 cfs @ 12.35 hrs, Volume= 0.934 af, Atten= 60%, Lag= 17.7 min
Primary = 5.56 cfs @ 12.35 hrs, Volume= 0.934 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 45.36' @ 12.35 hrs Surf.Area= 7,931 sf Storage= 18,017 cf

Plug-Flow detention time= 91.3 min calculated for 0.934 af (84% of inflow)
Center-of-Mass det. time= 44.1 min (806.3 - 762.2)

Volume	Invert	Avail.Storage	Storage Description
#1	42.50'	32,387 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.50	4,718	0	0
44.00	6,330	8,286	8,286
46.00	8,677	15,007	23,293
47.00	9,510	9,094	32,387

Device	Routing	Invert	Outlet Devices
#1	Primary	40.03'	**12.0" Round Culvert** L= 63.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.03' / 38.00' S= 0.0320 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	40.23'	**6.0" Round Culvert** L= 20.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.23' / 40.13' S= 0.0050 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

#3	Device 2	42.50'	**2.400 in/hr Exfiltration over Surface area**
#4	Device 1	44.00'	**8.0" Vert. Orifice/Grate X 3.00** C= 0.600
#5	Device 1	45.67'	**12.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=5.56 cfs @ 12.35 hrs HW=45.36' (Free Discharge)
- **1=Culvert** (Passes 5.56 cfs of 8.31 cfs potential flow)
  - **2=Culvert** (Passes 0.44 cfs of 1.95 cfs potential flow)
    - **3=Exfiltration** (Exfiltration Controls 0.44 cfs)
  - **4=Orifice/Grate** (Orifice Controls 5.12 cfs @ 4.89 fps)
  - **5=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 31P: (new Pond)

Inflow Area = 1.382 ac, 48.36% Impervious, Inflow Depth > 4.27" for 25 YEAR STORM event
Inflow = 6.49 cfs @ 12.06 hrs, Volume= 0.492 af
Outflow = 3.62 cfs @ 12.22 hrs, Volume= 0.402 af, Atten= 44%, Lag= 9.4 min
Primary = 3.62 cfs @ 12.22 hrs, Volume= 0.402 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.58' @ 12.22 hrs Surf.Area= 4,438 sf Storage= 7,263 cf

Plug-Flow detention time= 100.8 min calculated for 0.402 af (82% of inflow)
Center-of-Mass det. time= 50.2 min (814.8 - 764.6)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	14,300 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	2,400	0	0
50.00	4,000	4,800	4,800
52.00	5,500	9,500	14,300

Device	Routing	Invert	Outlet Devices
#1	Primary	46.03'	**12.0" Round Culvert**
			L= 59.5' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 46.03' / 43.50' S= 0.0425 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	46.23'	**6.0" Round Culvert**
			L= 20.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 46.23' / 46.13' S= 0.0050 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	48.50'	**2.400 in/hr Exfiltration over Surface area**
#4	Device 1	50.00'	**8.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	51.67'	**12.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=3.58 cfs @ 12.22 hrs HW=50.58' (Free Discharge)
└**1=Culvert** (Passes 3.58 cfs of 7.61 cfs potential flow)
  ├**2=Culvert** (Passes 0.25 cfs of 1.78 cfs potential flow)
  │ └**3=Exfiltration** (Exfiltration Controls 0.25 cfs)
  ├**4=Orifice/Grate** (Orifice Controls 3.34 cfs @ 2.59 fps)
  └**5=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 40P: (new Pond)

Inflow Area = 1.229 ac, 43.35% Impervious, Inflow Depth > 4.22" for 25 YEAR STORM event
Inflow = 5.44 cfs @ 12.11 hrs, Volume= 0.432 af
Outflow = 1.60 cfs @ 12.48 hrs, Volume= 0.337 af, Atten= 71%, Lag= 22.5 min
Primary = 1.60 cfs @ 12.48 hrs, Volume= 0.337 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 60.48' @ 12.48 hrs Surf.Area= 5,944 sf Storage= 8,335 cf

Plug-Flow detention time= 133.9 min calculated for 0.336 af (78% of inflow)
Center-of-Mass det. time= 78.3 min (845.7 - 767.4)

Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	19,335 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	2,028	0	0
59.50	2,873	3,676	3,676
60.00	5,124	1,999	5,675
62.00	8,536	13,660	19,335

Device	Routing	Invert	Outlet Devices
#1	Primary	56.03'	**12.0" Round Culvert** L= 81.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.03' / 55.00' S= 0.0127 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	56.23'	**6.0" Round Culvert** L= 20.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.23' / 56.13' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	58.00'	**2.400 in/hr Exfiltration over Surface area**
#4	Device 1	60.00'	**8.0" Vert. Orifice/Grate X 2.00** C= 0.600
#5	Device 1	61.00'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.60 cfs @ 12.48 hrs HW=60.48' (Free Discharge)
└**1=Culvert** (Passes 1.60 cfs of 6.63 cfs potential flow)
  ├**2=Culvert** (Passes 0.33 cfs of 1.76 cfs potential flow)
  │ └**3=Exfiltration** (Exfiltration Controls 0.33 cfs)
  ├**4=Orifice/Grate** (Orifice Controls 1.27 cfs @ 2.36 fps)
  └**5=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond C1: (new Pond)

Inflow Area = 1.397 ac, 44.95% Impervious, Inflow Depth > 4.23" for 25 YEAR STORM event
Inflow = 6.62 cfs @ 12.11 hrs, Volume= 0.493 af
Outflow = 6.62 cfs @ 12.11 hrs, Volume= 0.493 af, Atten= 0%, Lag= 0.0 min
Primary = 6.62 cfs @ 12.11 hrs, Volume= 0.493 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 57.18' @ 12.11 hrs
Flood Elev= 58.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.30'	**15.0" Round Culvert** L= 170.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.30' / 42.50' S= 0.0753 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.46 cfs @ 12.11 hrs HW=57.12' (Free Discharge)
1=Culvert (Inlet Controls 6.46 cfs @ 5.27 fps)

Summary for Pond C10: (new Pond)

Inflow Area = 0.493 ac, 41.36% Impervious, Inflow Depth > 4.29" for 25 YEAR STORM event
Inflow = 2.34 cfs @ 12.07 hrs, Volume= 0.176 af
Outflow = 2.15 cfs @ 12.11 hrs, Volume= 0.176 af, Atten= 8%, Lag= 2.6 min
Primary = 2.15 cfs @ 12.11 hrs, Volume= 0.176 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 59.69' @ 12.11 hrs Surf.Area= 590 sf Storage= 296 cf
Flood Elev= 60.00' Surf.Area= 735 sf Storage= 504 cf

Plug-Flow detention time= 1.0 min calculated for 0.175 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (766.3 - 765.4)

Volume	Invert	Avail.Storage	Storage Description
#1	59.00'	504 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	272	0	0
60.00	735	504	504

Device	Routing	Invert	Outlet Devices
#1	Primary	58.70'	**12.0" Round Culvert** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.70' / 58.40' S= 0.0030 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.12 cfs @ 12.11 hrs HW=59.68' (Free Discharge)
1=Culvert (Barrel Controls 2.12 cfs @ 3.44 fps)

Summary for Pond C11: (new Pond)

Inflow Area = 0.365 ac, 68.89% Impervious, Inflow Depth > 4.87" for 25 YEAR STORM event
Inflow = 2.37 cfs @ 12.01 hrs, Volume= 0.148 af
Outflow = 2.37 cfs @ 12.01 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min
Primary = 2.37 cfs @ 12.01 hrs, Volume= 0.148 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 58.89' @ 12.00 hrs
Flood Elev= 61.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	**12.0" Round Culvert** L= 60.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.00' / 57.40' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.32 cfs @ 12.01 hrs HW=58.88' (Free Discharge)
1=Culvert (Inlet Controls 2.32 cfs @ 3.19 fps)

Summary for Pond C12: (new Pond)

Inflow Area = 0.113 ac, 34.42% Impervious, Inflow Depth > 3.95" for 25 YEAR STORM event
Inflow = 0.62 cfs @ 12.01 hrs, Volume= 0.037 af
Outflow = 0.62 cfs @ 12.01 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 12.01 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.20' @ 12.01 hrs
Flood Elev= 57.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.80'	**12.0" Round Culvert** L= 83.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.80' / 54.00' S= 0.0096 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.59 cfs @ 12.01 hrs HW=55.19' (Free Discharge)
1=Culvert (Barrel Controls 0.59 cfs @ 3.11 fps)

Summary for Pond C13: (new Pond)

Inflow Area = 0.028 ac, 52.04% Impervious, Inflow Depth > 4.35" for 25 YEAR STORM event
Inflow = 0.16 cfs @ 12.01 hrs, Volume= 0.010 af
Outflow = 0.16 cfs @ 12.01 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.01 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.63' @ 12.01 hrs
Flood Elev= 58.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.40'	**12.0" Round Culvert** L= 94.9' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.40' / 54.90' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.01 hrs HW=55.63' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.16 cfs @ 1.80 fps)

Summary for Pond C14: (new Pond)

Inflow Area = 0.104 ac, 42.02% Impervious, Inflow Depth > 4.87" for 25 YEAR STORM event
Inflow = 0.67 cfs @ 12.01 hrs, Volume= 0.042 af
Outflow = 0.67 cfs @ 12.01 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.01 hrs, Volume= 0.042 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 59.71' @ 12.01 hrs
Flood Elev= 60.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	59.00'	**12.0" Round Culvert** L= 115.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 59.00' / 58.80' S= 0.0017 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.65 cfs @ 12.01 hrs HW=59.69' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.65 cfs @ 1.57 fps)

Summary for Pond C2: (new Pond)

Inflow Area = 0.330 ac, 80.05% Impervious, Inflow Depth > 5.08" for 25 YEAR STORM event
Inflow = 2.19 cfs @ 12.01 hrs, Volume= 0.140 af
Outflow = 2.19 cfs @ 12.01 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min
Primary = 2.19 cfs @ 12.01 hrs, Volume= 0.140 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 57.04' @ 12.01 hrs
Flood Elev= 60.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.20'	**12.0" Round Culvert** L= 119.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.20' / 48.50' S= 0.0647 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.14 cfs @ 12.01 hrs HW=57.02' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.14 cfs @ 3.09 fps)

Summary for Pond C3: (new Pond)

Inflow Area = 0.330 ac, 80.05% Impervious, Inflow Depth > 5.08" for 25 YEAR STORM event
Inflow = 2.19 cfs @ 12.01 hrs, Volume= 0.140 af
Outflow = 2.19 cfs @ 12.01 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min
Primary = 2.19 cfs @ 12.01 hrs, Volume= 0.140 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 57.60' @ 12.01 hrs
Flood Elev= 62.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.60'	**12.0" Round 0.0070** L= 62.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.60' / 56.40' S= 0.0032 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.14 cfs @ 12.01 hrs HW=57.58' (Free Discharge)
1=0.0070 (Barrel Controls 2.14 cfs @ 3.45 fps)

Summary for Pond C30: (new Pond)

Inflow Area = 0.214 ac, 50.55% Impervious, Inflow Depth > 4.34" for 25 YEAR STORM event
Inflow = 1.18 cfs @ 12.06 hrs, Volume= 0.077 af
Outflow = 1.18 cfs @ 12.06 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min
Primary = 1.18 cfs @ 12.06 hrs, Volume= 0.077 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.87' @ 12.06 hrs
Flood Elev= 57.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.30'	**12.0" Round Culvert** L= 29.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.30' / 55.00' S= 0.0103 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.14 cfs @ 12.06 hrs HW=55.86' (Free Discharge)
1=Culvert (Barrel Controls 1.14 cfs @ 3.65 fps)

Summary for Pond C31: (new Pond)

Inflow Area = 0.615 ac, 42.95% Impervious, Inflow Depth > 4.18" for 25 YEAR STORM event
Inflow = 3.24 cfs @ 12.03 hrs, Volume= 0.214 af
Outflow = 3.24 cfs @ 12.03 hrs, Volume= 0.214 af, Atten= 0%, Lag= 0.0 min
Primary = 3.24 cfs @ 12.03 hrs, Volume= 0.214 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.93' @ 12.03 hrs
Flood Elev= 57.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.70'	**12.0" Round Culvert** L= 127.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.70' / 43.00' S= 0.0921 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.13 cfs @ 12.03 hrs HW=55.88' (Free Discharge)
1=Culvert (Inlet Controls 3.13 cfs @ 3.98 fps)

Summary for Pond C32: (new Pond)

Inflow Area = 0.354 ac, 39.52% Impervious, Inflow Depth > 4.04" for 25 YEAR STORM event
Inflow = 1.95 cfs @ 12.01 hrs, Volume= 0.119 af
Outflow = 1.95 cfs @ 12.01 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 1.95 cfs @ 12.01 hrs, Volume= 0.119 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 58.87' @ 12.01 hrs
Flood Elev= 59.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.10'	**12.0" Round Culvert** L= 65.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.10' / 53.50' S= 0.0708 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.86 cfs @ 12.01 hrs HW=58.85' (Free Discharge)
1=Culvert (Inlet Controls 1.86 cfs @ 2.95 fps)

Summary for Pond C33: (new Pond)

Inflow Area = 0.263 ac, 39.71% Impervious, Inflow Depth > 4.13" for 25 YEAR STORM event
Inflow = 1.48 cfs @ 12.01 hrs, Volume= 0.090 af
Outflow = 1.48 cfs @ 12.01 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min
Primary = 1.48 cfs @ 12.01 hrs, Volume= 0.090 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.85' @ 12.01 hrs
Flood Elev= 56.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.20'	**12.0" Round Culvert** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.20' / 54.80' S= 0.0089 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.41 cfs @ 12.01 hrs HW=55.83' (Free Discharge)
1=Culvert (Inlet Controls 1.41 cfs @ 2.70 fps)

Summary for Pond C34: (new Pond)

Inflow Area = 0.168 ac, 35.23% Impervious, Inflow Depth > 3.93" for 25 YEAR STORM event
Inflow = 0.90 cfs @ 12.02 hrs, Volume= 0.055 af
Outflow = 0.90 cfs @ 12.02 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
Primary = 0.90 cfs @ 12.02 hrs, Volume= 0.055 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 59.01' @ 12.02 hrs
Flood Elev= 60.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.50'	**12.0" Round Culvert** L= 48.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.50' / 58.20' S= 0.0062 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.86 cfs @ 12.02 hrs HW=59.00' (Free Discharge)
1=Culvert (Barrel Controls 0.86 cfs @ 3.20 fps)

Summary for Pond C4: (new Pond)

Inflow Area = 0.994 ac, 80.17% Impervious, Inflow Depth > 5.01" for 25 YEAR STORM event
Inflow = 6.47 cfs @ 12.01 hrs, Volume= 0.415 af
Outflow = 6.47 cfs @ 12.01 hrs, Volume= 0.415 af, Atten= 0%, Lag= 0.0 min
Primary = 6.47 cfs @ 12.01 hrs, Volume= 0.415 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 59.73' @ 12.01 hrs
Flood Elev= 62.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.30'	**12.0" Round Culvert** L= 116.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.30' / 54.90' S= 0.0121 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.28 cfs @ 12.01 hrs HW=59.55' (Free Discharge)
1=Culvert (Inlet Controls 6.28 cfs @ 7.99 fps)

Summary for Pond C5: (new Pond)

Inflow Area = 0.984 ac, 79.98% Impervious, Inflow Depth > 5.00" for 25 YEAR STORM event
Inflow = 6.41 cfs @ 12.01 hrs, Volume= 0.410 af
Outflow = 6.41 cfs @ 12.01 hrs, Volume= 0.410 af, Atten= 0%, Lag= 0.0 min
Primary = 6.41 cfs @ 12.01 hrs, Volume= 0.410 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 60.84' @ 12.01 hrs
Flood Elev= 62.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.90'	**12.0" Round Culvert** L= 99.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.90' / 56.40' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.20 cfs @ 12.01 hrs HW=60.63' (Free Discharge)
└**1=Culvert** (Barrel Controls 6.20 cfs @ 7.90 fps)

Summary for Pond C7: (new Pond)

Inflow Area = 0.697 ac, 76.94% Impervious, Inflow Depth > 4.97" for 25 YEAR STORM event
Inflow = 4.55 cfs @ 12.01 hrs, Volume= 0.289 af
Outflow = 4.55 cfs @ 12.01 hrs, Volume= 0.289 af, Atten= 0%, Lag= 0.0 min
Primary = 4.55 cfs @ 12.01 hrs, Volume= 0.289 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 59.36' @ 12.01 hrs
Flood Elev= 61.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.30'	**12.0" Round Culvert** L= 60.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 57.30' / 57.00' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.43 cfs @ 12.01 hrs HW=59.29' (Free Discharge)
└**1=Culvert** (Barrel Controls 4.43 cfs @ 5.64 fps)

Summary for Pond C8: (new Pond)

Inflow Area = 0.571 ac, 49.34% Impervious, Inflow Depth > 4.45" for 25 YEAR STORM event
Inflow = 2.41 cfs @ 12.09 hrs, Volume= 0.212 af
Outflow = 2.41 cfs @ 12.09 hrs, Volume= 0.212 af, Atten= 0%, Lag= 0.0 min
Primary = 2.41 cfs @ 12.09 hrs, Volume= 0.212 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 59.41' @ 12.09 hrs
Flood Elev= 62.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.40'	**12.0" Round Culvert** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.40' / 58.00' S= 0.0040 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.40 cfs @ 12.09 hrs HW=59.41' (Free Discharge)
└**1=Culvert** (Barrel Controls 2.40 cfs @ 3.78 fps)

Summary for Link 1L:

Inflow Area = 17.282 ac, 21.97% Impervious, Inflow Depth > 3.16" for 25 YEAR STORM event
Inflow = 25.15 cfs @ 12.31 hrs, Volume= 4.547 af
Primary = 25.15 cfs @ 12.31 hrs, Volume= 4.547 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2L:

Inflow Area = 10.359 ac, 8.86% Impervious, Inflow Depth > 2.65" for 25 YEAR STORM event
Inflow = 13.99 cfs @ 12.58 hrs, Volume= 2.284 af
Primary = 13.99 cfs @ 12.58 hrs, Volume= 2.284 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3L: AP3

Inflow Area = 4.542 ac, 7.42% Impervious, Inflow Depth > 3.02" for 25 YEAR STORM event
Inflow = 14.68 cfs @ 12.15 hrs, Volume= 1.145 af
Primary = 14.68 cfs @ 12.15 hrs, Volume= 1.145 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: (new Subcat) Runoff Area=410,732 sf 5.70% Impervious Runoff Depth>1.06"
Flow Length=1,178' Tc=22.4 min CN=75 Runoff=7.88 cfs 0.830 af

Subcatchment2S: (new Subcat) Runoff Area=65,037 sf 27.21% Impervious Runoff Depth>1.43"
Flow Length=188' Tc=5.6 min CN=81 Runoff=2.67 cfs 0.178 af

Subcatchment3S: (new Subcat) Runoff Area=28,485 sf 28.49% Impervious Runoff Depth>1.43"
Flow Length=195' Tc=4.7 min CN=81 Runoff=1.20 cfs 0.078 af

Subcatchment4S: Runoff Area=353,785 sf 0.72% Impervious Runoff Depth>0.65"
Flow Length=931' Tc=40.4 min CN=67 Runoff=2.95 cfs 0.441 af

Subcatchment5S: (new Subcat) Runoff Area=9,321 sf 50.55% Impervious Runoff Depth>1.80"
Flow Length=127' Tc=4.1 min CN=86 Runoff=0.50 cfs 0.032 af

Subcatchment6S: (new Subcat) Runoff Area=8,073 sf 43.42% Impervious Runoff Depth>1.65"
Flow Length=90' Slope=0.0667 '/' Tc=0.8 min CN=84 Runoff=0.43 cfs 0.025 af

Subcatchment7S: (new Subcat) Runoff Area=6,033 sf 37.33% Impervious Runoff Depth>1.58"
Flow Length=102' Slope=0.0588 '/' Tc=1.0 min CN=83 Runoff=0.31 cfs 0.018 af

Subcatchment8S: (new Subcat) Runoff Area=7,337 sf 35.23% Impervious Runoff Depth>1.50"
Flow Length=99' Slope=0.0400 '/' Tc=1.2 min CN=82 Runoff=0.35 cfs 0.021 af

Subcatchment9S: (new Subcat) Runoff Area=11,435 sf 39.71% Impervious Runoff Depth>1.65"
Flow Length=102' Slope=0.0588 '/' Tc=1.0 min CN=84 Runoff=0.60 cfs 0.036 af

Subcatchment10S: (new Subcat) Runoff Area=60,852 sf 44.95% Impervious Runoff Depth>1.72"
Flow Length=158' Tc=8.1 min CN=85 Runoff=2.77 cfs 0.200 af

Subcatchment11S: (new Subcat) Runoff Area=28,681 sf 38.15% Impervious Runoff Depth>1.57"
Flow Length=258' Tc=7.7 min CN=83 Runoff=1.21 cfs 0.086 af

Subcatchment12S: (new Subcat) Runoff Area=29,337 sf 24.82% Impervious Runoff Depth>1.37"
Flow Length=120' Tc=4.5 min CN=80 Runoff=1.19 cfs 0.077 af

Subcatchment13S: 13S Runoff Area=40,918 sf 38.90% Impervious Runoff Depth>1.57"
Flow Length=300' Tc=6.1 min CN=83 Runoff=1.82 cfs 0.123 af

Subcatchment14S: (new Subcat) Runoff Area=12,509 sf 87.37% Impervious Runoff Depth>2.40"
Flow Length=190' Tc=1.1 min CN=93 Runoff=0.92 cfs 0.058 af

Subcatchment15S: (new Subcat) Runoff Area=14,458 sf 85.80% Impervious Runoff Depth>2.40"
Flow Length=120' Tc=0.8 min CN=93 Runoff=1.07 cfs 0.067 af

Subcatchment16S: (new Subcat) Runoff Area=15,913 sf 68.89% Impervious Runoff Depth>2.22"
Flow Length=86' Tc=0.4 min CN=91 Runoff=1.13 cfs 0.068 af

Subcatchment17S: (new Subcat) Runoff Area=16,946 sf 41.19% Impervious Runoff Depth>1.64"
Flow Length=376' Tc=6.1 min CN=84 Runoff=0.79 cfs 0.053 af

Subcatchment18S: (new Subcat) Runoff Area=3,382 sf 100.00% Impervious Runoff Depth>2.87"
Flow Length=48' Slope=0.0050 '/' Tc=0.6 min CN=98 Runoff=0.28 cfs 0.019 af

Subcatchment19S: (new Subcat) Runoff Area=197,865 sf 7.42% Impervious Runoff Depth>0.95"
Flow Length=612' Tc=10.7 min CN=73 Runoff=4.44 cfs 0.360 af

Subcatchment20S: (new Subcat) Runoff Area=1,203 sf 52.04% Impervious Runoff Depth>1.80"
Flow Length=51' Slope=0.0290 '/' Tc=0.6 min CN=86 Runoff=0.07 cfs 0.004 af

Subcatchment21S: (new Subcat) Runoff Area=14,378 sf 80.05% Impervious Runoff Depth>2.40"
Flow Length=114' Tc=0.5 min CN=93 Runoff=1.08 cfs 0.066 af

Subcatchment22S: (new Subcat) Runoff Area=3,701 sf 28.69% Impervious Runoff Depth>1.44"
Flow Length=111' Tc=0.8 min CN=81 Runoff=0.17 cfs 0.010 af

Subcatchment23S: (new Subcat) Runoff Area=407 sf 100.00% Impervious Runoff Depth>2.87"
Flow Length=32' Slope=0.0170 '/' Tc=0.2 min CN=98 Runoff=0.03 cfs 0.002 af

Subcatchment24S: (new Subcat) Runoff Area=56,549 sf 25.34% Impervious Runoff Depth>0.95"
Flow Length=361' Tc=12.8 min CN=73 Runoff=1.19 cfs 0.103 af

Subcatchment25S: (new Subcat) Runoff Area=4,529 sf 42.02% Impervious Runoff Depth>2.22"
Flow Length=86' Tc=0.7 min CN=91 Runoff=0.32 cfs 0.019 af

Reach 1R: (new Reach) Avg. Flow Depth=0.02' Max Vel=1.72 fps Inflow=1.38 cfs 0.125 af
n=0.030 L=40.0' S=0.3000 '/' Capacity=483.59 cfs Outflow=1.38 cfs 0.125 af

Reach 2R: (new Reach) Avg. Flow Depth=0.05' Max Vel=0.21 fps Inflow=1.07 cfs 0.540 af
n=0.150 L=700.0' S=0.0257 '/' Capacity=156.29 cfs Outflow=0.91 cfs 0.442 af

Reach 3R: (new Reach) Avg. Flow Depth=0.02' Max Vel=0.11 fps Inflow=0.21 cfs 0.157 af
n=0.150 L=850.0' S=0.0212 '/' Capacity=141.83 cfs Outflow=0.20 cfs 0.088 af

Reach 4R: (new Reach) Avg. Flow Depth=0.02' Max Vel=0.12 fps Inflow=0.18 cfs 0.125 af
n=0.150 L=531.0' S=0.0301 '/' Capacity=169.18 cfs Outflow=0.17 cfs 0.093 af

Reach 5R: (new Reach) Avg. Flow Depth=0.02' Max Vel=0.82 fps Inflow=0.24 cfs 0.014 af
n=0.030 L=95.0' S=0.0558 '/' Capacity=63.43 cfs Outflow=0.22 cfs 0.014 af

Reach 6R: (new Reach) Avg. Flow Depth=0.02' Max Vel=0.09 fps Inflow=1.19 cfs 0.103 af
n=0.150 L=1,128.0' S=0.0160 '/' Capacity=123.12 cfs Outflow=0.17 cfs 0.054 af

Pond 10P: (new Pond) Peak Elev=53.60' Storage=307 cf Inflow=1.87 cfs 0.125 af
Outflow=1.38 cfs 0.125 af

Pond 20P: (new Pond) Peak Elev=42.88' Storage=5,663 cf Inflow=3.84 cfs 0.265 af
Outflow=0.29 cfs 0.201 af

Pond 30P: (new Pond) Peak Elev=44.20' Storage=9,606 cf Inflow=6.00 cfs 0.471 af
Outflow=0.79 cfs 0.339 af

Pond 31P: (new Pond) Peak Elev=49.87' Storage=4,280 cf Inflow=2.72 cfs 0.204 af
Outflow=0.21 cfs 0.157 af

Pond 40P: (new Pond) Peak Elev=59.57' Storage=3,880 cf Inflow=2.28 cfs 0.177 af
Outflow=0.18 cfs 0.125 af

Pond C1: (new Pond) Peak Elev=56.15' Inflow=2.77 cfs 0.200 af
15.0" Round Culvert n=0.010 L=170.0' S=0.0753 '/' Outflow=2.77 cfs 0.200 af

Pond C10: (new Pond) Peak Elev=59.28' Storage=95 cf Inflow=0.99 cfs 0.073 af
12.0" Round Culvert n=0.010 L=100.0' S=0.0030 '/' Outflow=0.93 cfs 0.073 af

Pond C11: (new Pond) Peak Elev=58.55' Inflow=1.13 cfs 0.068 af
12.0" Round Culvert n=0.010 L=60.0' S=0.0100 '/' Outflow=1.13 cfs 0.068 af

Pond C12: (new Pond) Peak Elev=55.04' Inflow=0.24 cfs 0.014 af
12.0" Round Culvert n=0.013 L=83.0' S=0.0096 '/' Outflow=0.24 cfs 0.014 af

Pond C13: (new Pond) Peak Elev=55.55' Inflow=0.07 cfs 0.004 af
12.0" Round Culvert n=0.013 L=94.9' S=0.0053 '/' Outflow=0.07 cfs 0.004 af

Pond C14: (new Pond) Peak Elev=59.48' Inflow=0.32 cfs 0.019 af
12.0" Round Culvert n=0.020 L=115.0' S=0.0017 '/' Outflow=0.32 cfs 0.019 af

Pond C2: (new Pond) Peak Elev=56.74' Inflow=1.08 cfs 0.066 af
12.0" Round Culvert n=0.010 L=119.0' S=0.0647 '/' Outflow=1.08 cfs 0.066 af

Pond C3: (new Pond) Peak Elev=57.24' Inflow=1.08 cfs 0.066 af
12.0" Round Culvert n=0.010 L=62.5' S=0.0032 '/' Outflow=1.08 cfs 0.066 af

Pond C30: (new Pond) Peak Elev=55.65' Inflow=0.50 cfs 0.032 af
12.0" Round Culvert n=0.010 L=29.0' S=0.0103 '/' Outflow=0.50 cfs 0.032 af

Pond C31: (new Pond) Peak Elev=55.31' Inflow=1.35 cfs 0.086 af
12.0" Round Culvert n=0.010 L=127.0' S=0.0921 '/' Outflow=1.35 cfs 0.086 af

Pond C32: (new Pond) Peak Elev=58.55' Inflow=0.78 cfs 0.047 af
12.0" Round Culvert n=0.010 L=65.0' S=0.0708 '/' Outflow=0.78 cfs 0.047 af

Pond C33: (new Pond) Peak Elev=55.59' Inflow=0.60 cfs 0.036 af
12.0" Round Culvert n=0.010 L=45.0' S=0.0089 '/' Outflow=0.60 cfs 0.036 af

Pond C34: (new Pond) Peak Elev=58.80' Inflow=0.35 cfs 0.021 af
12.0" Round Culvert n=0.010 L=48.0' S=0.0062 '/' Outflow=0.35 cfs 0.021 af

Pond C4: (new Pond) Peak Elev=57.49' Inflow=3.15 cfs 0.194 af
12.0" Round Culvert n=0.010 L=116.0' S=0.0121 '/' Outflow=3.15 cfs 0.194 af

Pond C5: (new Pond) Peak Elev=58.10' Inflow=3.12 cfs 0.192 af
12.0" Round Culvert n=0.010 L=99.0' S=0.0051 '/' Outflow=3.12 cfs 0.192 af

Pond C7: (new Pond) Peak Elev=58.23' Inflow=2.20 cfs 0.134 af
12.0" Round Culvert n=0.010 L=60.0' S=0.0050 '/' Outflow=2.20 cfs 0.134 af

Pond C8: (new Pond) Peak Elev=59.00' Inflow=1.07 cfs 0.091 af
12.0" Round Culvert n=0.010 L=100.0' S=0.0040 '/' Outflow=1.07 cfs 0.091 af

Link 1L: Inflow=8.15 cfs 1.414 af
Primary=8.15 cfs 1.414 af

Link 2L: Inflow=3.30 cfs 0.658 af
Primary=3.30 cfs 0.658 af

Link 3L: AP3 Inflow=4.44 cfs 0.360 af
Primary=4.44 cfs 0.360 af

Total Runoff Area = 32.182 ac Runoff Volume = 2.975 af Average Runoff Depth = 1.11"
84.30% Pervious = 27.130 ac 15.70% Impervious = 5.052 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: (new Subcat) Runoff Area=410,732 sf 5.70% Impervious Runoff Depth>2.18"
Flow Length=1,178' Tc=22.4 min CN=75 Runoff=16.71 cfs 1.715 af

Subcatchment2S: (new Subcat) Runoff Area=65,037 sf 27.21% Impervious Runoff Depth>2.71"
Flow Length=188' Tc=5.6 min CN=81 Runoff=5.01 cfs 0.337 af

Subcatchment3S: (new Subcat) Runoff Area=28,485 sf 28.49% Impervious Runoff Depth>2.71"
Flow Length=195' Tc=4.7 min CN=81 Runoff=2.26 cfs 0.148 af

Subcatchment4S: Runoff Area=353,785 sf 0.72% Impervious Runoff Depth>1.56"
Flow Length=931' Tc=40.4 min CN=67 Runoff=7.75 cfs 1.058 af

Subcatchment5S: (new Subcat) Runoff Area=9,321 sf 50.55% Impervious Runoff Depth>3.18"
Flow Length=127' Tc=4.1 min CN=86 Runoff=0.87 cfs 0.057 af

Subcatchment6S: (new Subcat) Runoff Area=8,073 sf 43.42% Impervious Runoff Depth>2.99"
Flow Length=90' Slope=0.0667 '/' Tc=0.8 min CN=84 Runoff=0.77 cfs 0.046 af

Subcatchment7S: (new Subcat) Runoff Area=6,033 sf 37.33% Impervious Runoff Depth>2.89"
Flow Length=102' Slope=0.0588 '/' Tc=1.0 min CN=83 Runoff=0.56 cfs 0.033 af

Subcatchment8S: (new Subcat) Runoff Area=7,337 sf 35.23% Impervious Runoff Depth>2.80"
Flow Length=99' Slope=0.0400 '/' Tc=1.2 min CN=82 Runoff=0.65 cfs 0.039 af

Subcatchment9S: (new Subcat) Runoff Area=11,435 sf 39.71% Impervious Runoff Depth>2.99"
Flow Length=102' Slope=0.0588 '/' Tc=1.0 min CN=84 Runoff=1.08 cfs 0.065 af

Subcatchment10S: (new Subcat) Runoff Area=60,852 sf 44.95% Impervious Runoff Depth>3.08"
Flow Length=158' Tc=8.1 min CN=85 Runoff=4.88 cfs 0.358 af

Subcatchment11S: (new Subcat) Runoff Area=28,681 sf 38.15% Impervious Runoff Depth>2.89"
Flow Length=258' Tc=7.7 min CN=83 Runoff=2.21 cfs 0.159 af

Subcatchment12S: (new Subcat) Runoff Area=29,337 sf 24.82% Impervious Runoff Depth>2.62"
Flow Length=120' Tc=4.5 min CN=80 Runoff=2.28 cfs 0.147 af

Subcatchment13S: 13S Runoff Area=40,918 sf 38.90% Impervious Runoff Depth>2.89"
Flow Length=300' Tc=6.1 min CN=83 Runoff=3.30 cfs 0.226 af

Subcatchment14S: (new Subcat) Runoff Area=12,509 sf 87.37% Impervious Runoff Depth>3.88"
Flow Length=190' Tc=1.1 min CN=93 Runoff=1.44 cfs 0.093 af

Subcatchment15S: (new Subcat) Runoff Area=14,458 sf 85.80% Impervious Runoff Depth>3.88"
Flow Length=120' Tc=0.8 min CN=93 Runoff=1.69 cfs 0.107 af

Subcatchment16S: (new Subcat) Runoff Area=15,913 sf 68.89% Impervious Runoff Depth>3.68"
Flow Length=86' Tc=0.4 min CN=91 Runoff=1.82 cfs 0.112 af

Subcatchment17S: (new Subcat) Runoff Area=16,946 sf 41.19% Impervious Runoff Depth>2.98"
Flow Length=376' Tc=6.1 min CN=84 Runoff=1.41 cfs 0.097 af

Subcatchment18S: (new Subcat) Runoff Area=3,382 sf 100.00% Impervious Runoff Depth>4.33"
Flow Length=48' Slope=0.0050 '/' Tc=0.6 min CN=98 Runoff=0.42 cfs 0.028 af

Subcatchment19S: (new Subcat) Runoff Area=197,865 sf 7.42% Impervious Runoff Depth>2.03"
Flow Length=612' Tc=10.7 min CN=73 Runoff=9.84 cfs 0.769 af

Subcatchment20S: (new Subcat) Runoff Area=1,203 sf 52.04% Impervious Runoff Depth>3.18"
Flow Length=51' Slope=0.0290 '/' Tc=0.6 min CN=86 Runoff=0.12 cfs 0.007 af

Subcatchment21S: (new Subcat) Runoff Area=14,378 sf 80.05% Impervious Runoff Depth>3.88"
Flow Length=114' Tc=0.5 min CN=93 Runoff=1.70 cfs 0.107 af

Subcatchment22S: (new Subcat) Runoff Area=3,701 sf 28.69% Impervious Runoff Depth>2.71"
Flow Length=111' Tc=0.8 min CN=81 Runoff=0.32 cfs 0.019 af

Subcatchment23S: (new Subcat) Runoff Area=407 sf 100.00% Impervious Runoff Depth>4.33"
Flow Length=32' Slope=0.0170 '/' Tc=0.2 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment24S: (new Subcat) Runoff Area=56,549 sf 25.34% Impervious Runoff Depth>2.03"
Flow Length=361' Tc=12.8 min CN=73 Runoff=2.63 cfs 0.220 af

Subcatchment25S: (new Subcat) Runoff Area=4,529 sf 42.02% Impervious Runoff Depth>3.68"
Flow Length=86' Tc=0.7 min CN=91 Runoff=0.51 cfs 0.032 af

Reach 1R: (new Reach) Avg. Flow Depth=0.02' Max Vel=1.77 fps Inflow=1.47 cfs 0.233 af
n=0.030 L=40.0' S=0.3000 '/' Capacity=483.59 cfs Outflow=1.47 cfs 0.233 af

Reach 2R: (new Reach) Avg. Flow Depth=0.12' Max Vel=0.38 fps Inflow=5.84 cfs 1.039 af
n=0.150 L=700.0' S=0.0257 '/' Capacity=156.29 cfs Outflow=4.19 cfs 0.957 af

Reach 3R: (new Reach) Avg. Flow Depth=0.04' Max Vel=0.17 fps Inflow=1.69 cfs 0.282 af
n=0.150 L=850.0' S=0.0212 '/' Capacity=141.83 cfs Outflow=0.67 cfs 0.220 af

Reach 4R: (new Reach) Avg. Flow Depth=0.03' Max Vel=0.16 fps Inflow=0.56 cfs 0.229 af
n=0.150 L=531.0' S=0.0301 '/' Capacity=169.18 cfs Outflow=0.44 cfs 0.195 af

Reach 5R: (new Reach) Avg. Flow Depth=0.03' Max Vel=1.04 fps Inflow=0.45 cfs 0.027 af
n=0.030 L=95.0' S=0.0558 '/' Capacity=63.43 cfs Outflow=0.41 cfs 0.026 af

Reach 6R: (new Reach) Avg. Flow Depth=0.04' Max Vel=0.15 fps Inflow=2.63 cfs 0.220 af
n=0.150 L=1,128.0' S=0.0160 '/' Capacity=123.12 cfs Outflow=0.58 cfs 0.163 af

Pond 10P: (new Pond) Peak Elev=53.91' Storage=1,367 cf Inflow=3.47 cfs 0.233 af
Outflow=1.47 cfs 0.233 af

Pond 20P: (new Pond) Peak Elev=43.44' Storage=8,875 cf Inflow=7.09 cfs 0.492 af
Outflow=2.01 cfs 0.384 af

Pond 30P: (new Pond) Peak Elev=44.80' Storage=13,742 cf Inflow=10.34 cfs 0.820 af
Outflow=3.86 cfs 0.655 af

Pond 31P: (new Pond) Peak Elev=50.34' Storage=6,223 cf Inflow=4.78 cfs 0.359 af
Outflow=1.69 cfs 0.282 af

Pond 40P: (new Pond) Peak Elev=60.19' Storage=6,697 cf Inflow=4.02 cfs 0.315 af
Outflow=0.56 cfs 0.229 af

Pond C1: (new Pond) Peak Elev=56.60' Inflow=4.88 cfs 0.358 af
15.0" Round Culvert n=0.010 L=170.0' S=0.0753 '/' Outflow=4.88 cfs 0.358 af

Pond C10: (new Pond) Peak Elev=59.51' Storage=200 cf Inflow=1.73 cfs 0.129 af
12.0" Round Culvert n=0.010 L=100.0' S=0.0030 '/' Outflow=1.62 cfs 0.129 af

Pond C11: (new Pond) Peak Elev=58.74' Inflow=1.82 cfs 0.112 af
12.0" Round Culvert n=0.010 L=60.0' S=0.0100 '/' Outflow=1.82 cfs 0.112 af

Pond C12: (new Pond) Peak Elev=55.13' Inflow=0.45 cfs 0.027 af
12.0" Round Culvert n=0.013 L=83.0' S=0.0096 '/' Outflow=0.45 cfs 0.027 af

Pond C13: (new Pond) Peak Elev=55.60' Inflow=0.12 cfs 0.007 af
12.0" Round Culvert n=0.013 L=94.9' S=0.0053 '/' Outflow=0.12 cfs 0.007 af

Pond C14: (new Pond) Peak Elev=59.61' Inflow=0.51 cfs 0.032 af
12.0" Round Culvert n=0.020 L=115.0' S=0.0017 '/' Outflow=0.51 cfs 0.032 af

Pond C2: (new Pond) Peak Elev=56.91' Inflow=1.70 cfs 0.107 af
12.0" Round Culvert n=0.010 L=119.0' S=0.0647 '/' Outflow=1.70 cfs 0.107 af

Pond C3: (new Pond) Peak Elev=57.44' Inflow=1.70 cfs 0.107 af
12.0" Round Culvert n=0.010 L=62.5' S=0.0032 '/' Outflow=1.70 cfs 0.107 af

Pond C30: (new Pond) Peak Elev=55.78' Inflow=0.87 cfs 0.057 af
12.0" Round Culvert n=0.010 L=29.0' S=0.0103 '/' Outflow=0.87 cfs 0.057 af

Pond C31: (new Pond) Peak Elev=55.59' Inflow=2.39 cfs 0.155 af
12.0" Round Culvert n=0.010 L=127.0' S=0.0921 '/' Outflow=2.39 cfs 0.155 af

Pond C32: (new Pond) Peak Elev=58.73' Inflow=1.42 cfs 0.085 af
12.0" Round Culvert n=0.010 L=65.0' S=0.0708 '/' Outflow=1.42 cfs 0.085 af

Pond C33: (new Pond) Peak Elev=55.74' Inflow=1.08 cfs 0.065 af
12.0" Round Culvert n=0.010 L=45.0' S=0.0089 '/' Outflow=1.08 cfs 0.065 af

Pond C34: (new Pond) Peak Elev=58.93' Inflow=0.65 cfs 0.039 af
12.0" Round Culvert n=0.010 L=48.0' S=0.0062 '/' Outflow=0.65 cfs 0.039 af

Pond C4: (new Pond) Peak Elev=58.53' Inflow=4.99 cfs 0.315 af
12.0" Round Culvert n=0.010 L=116.0' S=0.0121 '/' Outflow=4.99 cfs 0.315 af

Pond C5: (new Pond) Peak Elev=59.44' Inflow=4.94 cfs 0.312 af
12.0" Round Culvert n=0.010 L=99.0' S=0.0051 '/' Outflow=4.94 cfs 0.312 af

Pond C7: (new Pond) Peak Elev=58.80' Inflow=3.50 cfs 0.219 af
12.0" Round Culvert n=0.010 L=60.0' S=0.0050 '/' Outflow=3.50 cfs 0.219 af

Pond C8: (new Pond) Peak Elev=59.23' Inflow=1.83 cfs 0.157 af
12.0" Round Culvert n=0.010 L=100.0' S=0.0040 '/' Outflow=1.83 cfs 0.157 af

Link 1L: Inflow=17.23 cfs 3.056 af
Primary=17.23 cfs 3.056 af

Link 2L: Inflow=9.28 cfs 1.486 af
Primary=9.28 cfs 1.486 af

Link 3L: AP3 Inflow=9.84 cfs 0.769 af
Primary=9.84 cfs 0.769 af

Total Runoff Area = 32.182 ac Runoff Volume = 5.983 af Average Runoff Depth = 2.23"
84.30% Pervious = 27.130 ac 15.70% Impervious = 5.052 ac

BMP CALCULATIONS

TABLE 1 - QUANTITY CALCULATIONS

		STORM EVENT 2	10	25
EXISTING	**AP 1**	11.72	24.79	36.34
	AP 2	3.43	9.01	14.32
	AP 3	4.33	10.13	15.51
DEVELOPED	**AP 1**	8.15	17.23	25.15
	AP 2	3.30	9.28	13.99
	AP 3	4.44	9.84	14.68
CHANGE	**AP 1**	-3.57	-7.56	-11.19
	AP 2	-0.13	0.27	-0.33
	AP 3	0.11	-0.29	-0.83
	TOTAL	-3.59	-7.58	-12.35

TREATMENT CALCULATIONS

New Impervious Area to be Treated @95% 170,853 sf 3.92 Acres
New Developed Area to be Treated @80% 444,383 sf 10.20 Acres

AMENDED DEVELOPED CONDITIONS:

AREA	IMP. (ft^2)					LA. (ft^2)					DEV. (ft^2)				
	Ext.	Created Require to Treat	Total (Hydro CAD)	Treated	Not Treated	Ext. (HCAD)	Created Require to Treat	Total (Hydro CAD)	Treated	Not Treated	Ext.	Created Require to Treat	Total (Hydro CAD)	Treated	Not Treated
1S	37241	1,055		0	1,055		21,035		0	21,035	1,055	22,090	0	0	22,090
2S		17,695		17,695	0		47,342		47,342	0	17,695	65,037	0	65,037	0
3S		8,115		8,115	0		20,370		20,370	0	8,115	28,485	0	28,485	0
4S		2,560		0	2,560		18,452		0	18,452		21,012	0	0	21,012
5S		4,712		4,712	0		4,609		4,609	0		9,321	0	9,321	0
6S		3,505		3,505	0		4,568		4,568	0		8,073	0	8,073	0
7S		2,252		2,252	0		3,781		3,781	0		6,033	0	6,033	0
8S		2,585		2,585	0		4,752		4,752	0		7,337	0	7,337	0
9S		4,541		4,541	0		6,894		6,894	0		11,435		11,435	0
10S		27350		27350	0		33502		33502	0		60852		60852	0
11S		10943		10943	0		17738		17738	0		28681		28681	0
12S		7281		7281	0		22056		22056	0		29337		29337	0
13S		15916		15916	0		25002		25002	0		40918		40918	0
14S		10929		10929	0		1580		1580	0		12509		12509	0
15S		12405		12405	0		2053		2053	0		14458		14458	0
16S		10963		10963	0		4950		4950	0		15913		15913	0
17S		6980		6980	0		9966		9966	0		16946		16946	0
18S		3382		3382	0		0		0	0		3382		3382	0
19S	13416	1275		0	1275	50736	5391		0	5391		6666		0	6666
20S		626		626	0		577		577	0		1203		1203	0
21S		11509		11509	0		2869		2869	0		14378		14378	0
22S		1062		1062	0		2639		2639	0		3701		3701	0
23S		407		407	0		0		0	0		407		407	0
24S		2780		0	2780		10637		0	10637		13417		0	13417
25S		1903		1903	0		2626		2626	0		4529		4529	0
TOTAL	50,657	172,731	0	165,061	7,670	50,736	273,389	0	217,874	55,515	101,393	446,120	0	**382,935**	63,185

NEW

AREA	IMP. (ft^2)	DEV (ft^2)
Total Area	**165061**	**382935**
Total Acres	**3.79**	**8.79**
% Treated=	**96.6%**	**86.2%**

POND SIZING CALCULATIONS

AREA	IMP. (ft^2)	LA. (ft^2)	RA. (ft^2)	BMP	CPV (ft^3)	P. POOL (ft^3)	CHECK
Pond 10				**Soil Filter**			
3S	8,115	20,370			1,355	N/A	
6S	3,505	4,568			444		
8S	2,585	4,752			374		
Total	14,205	29,690			2,173	N/A	
				5% Impervious + 2% Landscaped Area =	1,304		
				5% Impervious + 2% Remaining Area =	1,304		
				Provided CPV =	5,758		OK
				Provided Area =	3157		OK
Pond 20				**Soil Filter**			
2S	17,695	47,342			3,053	N/A	
5S	4,712	4,609			546		
7S	2,252	3,781			314		
9S	4,541	6,894			608		
Total	29,200	62,626	0		4,521	N/A	0.00
				5% Impervious + 2% Landscaped Area =	2,713		
				5% Impervious + 2% Remaining Area =			
				Provided CPV =	6,314		OK
				Provided Area =	3,014		OK
Pond 30				**Soil Filter**			
10S	27,350	33,502			3,396		
12S	7,281	22,056			1,342		
14S	10,929	1,580			963		
15S	12,405	2,053			1,102		
16S	10,963	4,950			1,079		
23S	407	0			34		
Total	69,335	64,141			7,916	N/A	
				5% Impervious + 2% Landscaped Area =	4,750		
				5% Impervious + 2% Remaining Area =			
				Provided CPV =	8,286		OK
				Provided Area =	4,756		OK
Pond 31				**Soil Filter**			
13S	15,916	25,002			2,160		
20S	626	577			71		
21S	11,509	2,869			1,055		
22S	1,062	2,639			176		
Total	29,113	31,087			3,462	N/A	0.00
				5% Impervious + 2% Landscaped Area =	2,077		
				5% Impervious + 2% Remaining Area =	2,077		
				Provided CPV =	4,800		OK
				Provided Area =	2,434		OK
Pond 40				**Soil Filter**			
11S	10,943	17,738			1,503	N/A	
17S	6,980	9,966			914		
18S	3,382	0			282		
25S	1903	2626			246		
Total	23,208	30,330	0		2,945	N/A	0.00
				5% Impervious + 2% Landscaped Area =	1,767		
				5% Impervious + 2% Remaining Area =	1,767		
				Provided CPV =	3,676		OK
				Provided Area =	2,028		OK

OPERATION AND MAINTENANCE PROGRAM

ATTAR
ENGINEERING, INC
CIVIL • STRUCTURAL • MARINE

THE HOMESTEAD - MIXED USE DEVELOPMENT
459 U.S. ROUTE 1
KITTERY, MAINE

OPERATION AND MAINTENANCE PROGRAM STORMWATER MANAGEMENT BMP's

This project contains specific Best Management Practices (BMP's) for the conveyance, storage, and treatment of stormwater and the prevention of erosion. These BMP's consist of swales, underdrained soil filter ponds, catchbasins and culverts. All components should be inspected quarterly, and after every significant rain event of 1" in any 24-hour period. Additional inspection intervals are specified for certain BMP's, specifically, underdrained soil filters.

The party responsible for implementing this Operation and Maintenance Program (O & M Program) shall be the property owner or condominium association.

Swales
All swales should be inspected for accumulation of debris, which could adversely affect the function of this BMP. These areas should also be maintained to have gradual slopes, which prevent channeling of stormwater and erosion of the bottom and sides of the swales.

Catch Basins
All catch basin grates, sumps, and inlets/outlets should be inspected for accumulation of debris, which could adversely affect the function of this BMP. Additionally, the basin inverts shall be inspected for clogging and material soundness. Sumps shall always be clear to a depth of 1' below the outlet invert. Inlet structures shall be inspected and cleaned of debris at least twice annually, once in the spring following snow melt and once in the autumn after leaf fall.

Culverts
Culvert inlets and outlets should be inspected for debris, which could clog the BMP. Additionally, the placement of rip-rap should be inspected to ensure that all areas remain smooth and no areas exhibit erosion in the form of rills or gullies.

Snow Removal
Snow shall be stockpiled only in the approved snow storage areas. Plowing of snow into wetland areas or detention ponds shall be avoided. Additionally, a mostly sand mix (reduced salt) shall be applied during winter months to prevent excessive salt from leaching into wetland areas. Excess sand shall be removed from the storage areas, all paved surfaces and adjacent areas each spring.

Underdrained Soil Filters
The underdrained soil filter area is a very effective BMP, however, long term maintenance is essential to its operation. The soil filter should be inspected after every major storm event during the first year to ensure proper function and at least twice-annually, thereafter. The inspection should ensure that the filter drains within 24 - 48

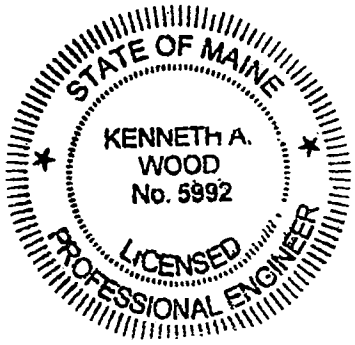
hours. The top several inches of the filter should be replaced with fresh filter material, when water ponds for longer than 72 hours. Debris and sediment that builds up should be removed from the pre-treatment structure at least annually. Outlet structures shall be inspected and cleaned of debris at least twice annually, once in the spring following snow melt and once in the autumn after leaf fall. The height of grass shall be maintained at a maximum of 12"; mowing shall be limited to no more than two times during the growing season.

Seeding, Fertilizing and Mulching

All exposed soil materials and stockpiles must be either temporarily or permanently seeded, fertilized and mulched in accordance with plan specifications. This is one of the most important features of the Erosion Control Plan, which will provide both temporary and permanent stabilization. Eroded or damaged lawn areas must be repaired until a 75% effective growth of vegetation is established and permanently maintained.

Record Keeping

Routine maintenance and inspections will be accomplished by the future property owner/developer [Michael Brigham, Landmark Hill, LLC; 79 Congress Street, Portsmouth, NH 03801, (603)-294-4000] until the condominium association had been formed and maintenance has been turned over to the association. At that time, routine maintenance and inspections will be the responsibility of the condominium association's maintenance staff or third party contracted by the property owner or condominium association. All inspections accomplished in accordance with this program shall be documented on the attached Inspection & Maintenance Log. Copies of the Log shall be kept by the property owner or condominium association, and be made available to the Department (Maine Department of Environmental Protection), upon request.



INSPECTION & MAINTENANCE LOG
THE HOMESTEAD – MIXED USE DEVELOPMENT

Date	Purpose[1]	Maintenance Done[2]	By

1. Purpose is the reason for the inspection. For example; "quarterly' or "after a significant rain event."
2. Maintenance Done means any maintenance required as a result of the inspection, such as trash removal or re-seeding of areas.