



File Number: PB 1707 DEF SUB  
Spalding Hill Estates – 5 St. Augustine Drive

**Planning Board**  
**Town of Westford**  
55 Main Street  
Westford, MA 01886  
Tel: 978 692 5524  
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**PB 1707 DEF SUB**  
**Definitive Subdivision**  
**5 St. Augustine Drive**

**CERTIFICATE OF DEFINITIVE SUBDIVISION APPROVAL**

**This is to certify that, at its regular meeting on May 4, 2020, the Planning Board voted 4-0-0 to APPROVE, with conditions, the Definitive Subdivision application of Connell Real Estate Trust submitted under Section 218-11 of the Town of Westford Subdivision Rules and Regulations for "Spalding Hill Estates," a 29-lot OSRD residential subdivision, together with the grant of a Stormwater Management Permit and the grant of a Special Permit for a 29-lot Open Space Residential Development, for property located at 5 St. Augustine Drive, Westford, MA.**

**Application No.** PB 1707 DEF SUB  
**Applicant:** Connell Real Estate Trust  
**Property Location:** 5 St. Augustine Drive  
Map 040, Parcel 0017, Lot 0000  
**Zoning District:** Residence A (RA)  
Water Resource Protection Overlay District III

**Application Submitted:** January 6, 2017

**Public Hearing Dates:** December 18, 2017  
February 5, 2018  
March 19, 2018  
April 23, 2018  
August 20, 2018  
October 22, 2018  
March 18, 2019  
June 24, 2019  
August 5, 2019  
October 7, 2019  
January 27, 2020  
May 4, 2020 (hearing closed)

RECEIVED  
AUG 23 2020  
TOWN CLERK  
WESTFORD

**Planning Board Vote:** May 4, 2020

**Filed with Town Clerk:** Aug 24, 2020

**Appeal Period Ends:** Sept 15, 2020 (20 days after filed with Town Clerk)

**Available for Pick-up:** Sept 14, 2020

## **BACKGROUND**

*Concurrent Special Permit, Definitive Subdivision and Stormwater Management Permit applications were submitted to the Planning Board on January 6, 2017 for a proposed 31-lot Open Space Residential Development (OSRD) subdivision. In accordance with Section 6.0 D(1) of the Planning Board Stormwater Management Regulations, the Planning Board (Board) reviewed the Stormwater Management Permit concurrently with the Special Permit and Definitive Subdivision applications.*

*The subject property (Property) contains approximately 43.6 acres of land that is identified as 5 St. Augustine Drive. The Property lies within the Residence A (RA) Zoning District and Zone III Water Resource Protection Overlay District (WRPOD). The Property is bounded by St. Augustine Drive to the south and west, and lands owned by Connell, Liner, and the American Legion Post 437 to the north. Although the Property benefits from minimal frontage along the westerly sideline of Dunstable Road, the Property is generally bounded by a series of residential lots (with frontage on Dunstable Road) to the east. Finally, the Property is bounded by residential lots to the south which front along either Groton Road (Route 40) or Oakmont Drive.*

*Primary access to the Spalding Hill Estates development is to be provided through St. Augustine Drive, previously approved by the Planning Board (Board) as a minor street. A portion of St. Augustine Drive is intended to become accepted as a public way after modification of the roadway between Stations 0+00 and 13+65 has been completed. Until then, the entirety of St. Augustine Drive shall remain as a private way. With the exceptions of proposed Lot 28 (the "Farm" lot) and proposed Lot 29, all the proposed lots within the Spalding Hill Estates development obtain their practical access from St. Paul Lane, a proposed minor street within Spalding Hill Estates. St. James Way is proposed as an emergency access only street between St. Paul Lane and Dunstable Road.*

## **PROJECT SUMMARY**

- 1. The initial application proposed to subdivide the 43.6-acre Property into a total of thirty-one (31) residential building lots and multiple open space and common land parcels.*
- 2. Pursuant to M.G.L. Chapter 41, Sections 81K through 81GG ("the subdivision control law"), the Applicant needs Definitive Subdivision approval because the proposal calls for the division of a tract of land into two or more lots.*
- 3. On January 5, 2017, the Applicant submitted applications for a Special Permit for an Open Space Residential Development, a Definitive Subdivision Plan and a Stormwater Management Permit.*
- 4. On December 18, 2017, the Board opened the concurrent public hearings for the Special Permit and Definitive Subdivision, and public meeting (collectively referred to hereinafter as "public hearing") for a Stormwater Management Permit.*
- 5. The Planning Board received the Board of Health report on February 2, 2017 advising the Applicant of particular septic system design requirements, including the requirement for a reserve area on each lot. Due to the presence of nearby water bodies, the Board of Health encouraged any efforts to provide enhanced nitrogen removal as part any septic system design.*
- 6. The public hearings continued through May 4, 2020. During the course of such hearings, the times for final action on the Definitive Subdivision Application and related applications, was extended by agreement of the Applicant and the Planning Board numerous times, with the final extended date being August 26, 2020.*
- 7. On May 4, 2020, the Board closed the public hearing and voted on the application for definitive subdivision approval, based upon the following:*

- a. *The Applications, and accompanying materials submitted for the Spalding Hill Estates Definitive Subdivision Approval, dated January 5, 2017 as supplemented and revised by the Applicant through April 6, 2020, including:*

*The Definitive Subdivision Plan set entitled “Definitive Subdivision Open Space Residential Development, Spalding Hill Estates, Westford, Massachusetts” prepared for Connell Real Estate Trust, prepared by Alan Engineering, LLC,, with an original plan date of July 20, 2018, and with latest revision date of December 9, 2019, and containing the following plan sheets:*

<i>Sheet 1</i>	<i>Title Sheet</i>
<i>Sheet 2</i>	<i>Existing Conditions Index Plan</i>
<i>Sheets 3-6</i>	<i>Existing Conditions Plans</i>
<i>Sheet 7</i>	<i>Definitive Subdivision Index Plan</i>
<i>Sheets 8-10</i>	<i>Definitive Subdivision Plans</i>
<i>Sheet 11</i>	<i>Grading and Drainage Index Plan</i>
<i>Sheets 12-15</i>	<i>Grading and Drainage Plans</i>
<i>Sheets 16-22</i>	<i>Roadway Profiles</i>
<i>Sheet 23</i>	<i>Storm Water Pollution Prevention Plan</i>
<i>Sheets 24-25</i>	<i>Erosion Control Plans</i>
<i>Sheet 26</i>	<i>Landscape Plan</i>
<i>Sheets 27-30</i>	<i>Construction Details</i>

*and the Drainage report entitled “Stormwater Management Report, Spalding Hill Estates, Westford, MA” dated July 20, 2018, with latest revision date of May 10, 2019;*

- b. *Technical Review Memoranda prepared by the Town of Westford Engineering Department dated February 13, 2018; March 5, 2018; March 13, 2018; September 26, 2018; May 2, 2019; June 11, 2019; July 9, 2019; August 2, 2019; September 30, 2019;*
- c. *Staff Report dated February 3, 2017;*
- d. *Correspondence provided by Alan Engineering, LLC dated August 2, 2018; February 8, 2019; December 17, 2019; May 10, 2019; June 14, 2019; July 24, 2019; July 29, 2019; August 23, 2019;*
- e. *Memoranda from Conservation Resource Planner dated January 30, 2017; January 30, 2018; August 17, 2018; January 27, 2020*
- f. *Correspondence from Health Department dated February 2, 2017; February 2, 2018; August 2, 2019;*
- g. *Correspondence from Water Superintendent dated August 9, 2018; October 3, 2019; November 27, 2019;*
- h. *Correspondence from TEC, Inc., traffic peer reviewer, dated August 10, 2018; July 25, 2019; July 31, 2019; and*
- i. *Legal Opinions from Town Counsel (KP Law) dated October 19, 2018; January 22, 2020.*

## **WAIVERS**

*On May 4, 2020, the Board took the following actions with respect to the Applicant’s waiver requests from the Town of Westford Subdivision Rules and Regulations:*

### **Section 218-11 F (4) Design Standards (Performance Guarantee)**

*To receive building permits prior to the installation of curbing.*

The Board **GRANTED** this waiver, subject to the requirement that the final pavement course and curbing shall be installed in accordance with Subdivision Rules and Regulations. In reaching their decision to grant this waiver, the Board made the following findings:

- That the Applicant has proposed another means to capture drainage flow from the road and shall provide a gutter to collect run-off.
- That the Applicant proposes to install granite curbing in St. Paul Lane concurrent with installation of the final pavement course.
- That installing curbing prior to the final course of pavement may subject the curbing to damage from vehicles during construction.
- The Board notes that there is no estimated cost savings to the Applicant; however, the granting of the waiver may result in a better-quality curbing installation, which is in the public interest.
- That granting the waiver was not inconsistent with the intent and purpose of the Subdivision Control Law because appropriate curbing would still be installed in accordance with approved plans.

**Section 218-11 B (17) (C) Design Standards (Landscape Plan)**

To not show all large trees in excess of ten (10) inches in diameter that exist within the proposed roadways and/or within twenty-five (25) feet off the edge of the roadway or within ten (10) feet beyond the edge of any cut and fill for the roadway, whichever is greater.

In reaching their decision to grant this waiver, the Board made the following findings:

- That there are conditions of approval designed to ensure the maximum retention of trees within the approved limits of work.
- That the proposed alignment and construction of the roadway will preserve trees of 10" in diameter or greater to the greatest extent possible, but that the site is uniformly heavily wooded and that it is impractical to avoid removing some large trees.
- That the Board had the benefit of conducting a site visit to observe the subject property first-hand, and that a sufficient level of detail and information had been provided to satisfy the intended purpose of the requirement.
- That the subject parcel is wooded to an extent that meeting this requirement would be unduly burdensome to the Applicant and that adding this detail to the plans would render them unreadable by regulators, inspectors and contractors.
- That information was submitted on behalf of the Applicant that the granting of the waiver would result in an estimated cost savings of \$1,200.00.
- That granting the waiver was not inconsistent with the intent and purpose of the Subdivision Control Law.

**Section 218-12 B (3) Design Standards (Streets)**

To eliminate the requirement that a dead-end street have two means of access via roadways built to town standards between Lots 8 to 24.

In reaching their decision to grant this waiver, the Board made the following findings:

- That the loop feature at St. Paul Lane serves to mitigate some of the concerns otherwise associated with a conventional dead-end cul-de-sac.

- That Common Land Parcel C, located within the center of the St. Paul Lane “loop”, is typically not less than one hundred (100) feet wide, and that it is very unlikely that a single obstruction (such as fallen trees, downed wires, car accident, etc.) would block both sides of the loop.
- That the proposed 30-foot wide access and utility easement between St. Paul Lane and St. Augustine Drive provides a secondary emergency means of access that further serves to mitigate the concerns of this standard.
- That the Project serves to provide a secondary means of emergency access for the existing St. Augustine Drive subdivision, which is in the public interest.
- The Board did not find that there was a specific cost savings (short-term or long-term) to the Applicant because two means of emergency access (30-foot wide access and utility easement, and St. James Way) will be constructed to serve the Project.

**Section 218-12d (2) Design Standards (Pedestrian and bicycle circulation systems), 218-13A (1) Streets & 218-13 F (1) Sidewalks – St. Paul Lane**

To reduce the requirement for sidewalks from two (2) sidewalks along St. Paul Lane to one (1).

The Board **GRANTED** this waiver subject to a condition of approval, as volunteered by the Applicant, that the Applicant contribute funds to the Sidewalk Gift Account in the amount of \$31,965.65, in lieu of constructing portions of onsite sidewalks, and pursuant to Section 218-19(C)(2) of the Subdivision Rules and Regulations, for the purpose of studying, designing, acquiring easement(s) and/or constructing sidewalks, pathways, walkways, bicycle paths, and/or other pedestrian access and safety measures.

Said contribution to the Sidewalk Gift Account shall occur **on a pro rata basis for Lots 1 through 27 prior to the issuance of the Certificate of Occupancy for each lot**. In reaching its decision to grant this waiver, the Board made the following findings:

- That the Board made a determination that the general guidelines enumerated in Section 218-12D (2) can be better implemented by granting waivers from 218-13A (1) Streets & 218-13 F (1) Sidewalks.
- That the length of sidewalk waiver requested for St. Paul Lane totals approximately 2,515 feet.
- That one sidewalk can adequately serve pedestrian and non-motorized circulation within the subdivision.
- That by granting the waiver (and other related waivers), the public interest would be served by either providing or planning for pedestrian access and safety measures that could benefit the general public, as opposed to improvements for the benefit a single residential subdivision.
- That the initial estimated cost savings to the Applicant is \$31,965.65.
- The Board did not find there to be an estimated long-term annual maintenance cost savings because it is the intention to apply the fee in lieu of construction towards the installation of sidewalks in a different location.

The Board made the determination that the general guidelines of Section 218-12 can be better implemented by the granting of the above-listed waiver from the specific design requirements. In reaching this determination, the Board considered (pursuant to Section 218-13) the width of the existing road providing access, that St. James Way will generally be gated and not subject to vehicular traffic excepting emergency situations, and topography, and made the following supportive findings:

- i. That granting the waivers was consistent with Section 218-12(A)(1) – Environmental protection – by minimizing the creation of proposed impervious areas and preserving more of the existing vegetative cover and runoff characteristics; and

- ii. As testified by the Applicant's engineer, the Board found that the waivers will reduce impervious surfaces and stormwater runoff.

**Section 218-12d (2) Design Standards (Pedestrian and bicycle circulation systems), 218-13A (1) Streets & 218-13 F(1) Sidewalks – St. James Way**

To reduce the requirement for sidewalks from two (2) sidewalks along St. James Way to zero (0).

The Board **GRANTED** this waiver subject to a condition of approval as volunteered by the Applicant, that the Applicant contribute funds to the Sidewalk Gift Account in the amount of \$17,183.92, in lieu of constructing onsite sidewalks, and pursuant to Section 218-19(C)(2) of the Subdivision Rules and Regulations for the purpose of studying, designing, acquiring easement(s) and/or constructing sidewalks, pathways, walkways, bicycle paths, and/or other pedestrian access and safety measures.

Said contribution to the Sidewalk Gift Account shall occur **on a pro rata basis for Lots 1 through 27 prior to the issuance of the Certificate of Occupancy for each lot**. In reaching their decision to grant this waiver, the Board made the following findings:

- That the Board made the determination that the general guidelines enumerated in Section 218-12D (2) can be better implemented by granting waivers from 218-13A (1) Streets & 218-13 F (1) Sidewalks.
- That the length of sidewalk waiver requested for St. James Way totals approximately 1,352 feet.
- That without benefit of any sidewalks, there is safe and adequate circulation for pedestrians because St. James Way will be gated and not subject to customary vehicular traffic.
- That St. James Way is intended to remain privately owned and maintained in perpetuity.
- That by granting this waiver (and related waivers), that the public interest criterion would be satisfied by either providing or planning for offsite pedestrian access and traffic safety measures that would benefit the general public, as opposed to non-public improvements for the benefit a single residential subdivision, and that without said waivers, no such public benefit would be realized.
- That the initial estimated cost savings to the Applicant is \$17,183.92.
- The Board did not find there to be an estimated long-term annual maintenance cost savings because it is the intention to apply the fee in lieu of construction towards the installation of sidewalks in a different location and for the benefit of the public.

The Board made the determination that the general guidelines of Section 218-12 can be better implemented by the granting of the above-listed waiver from the specific design requirements. In reaching this determination, the Board considered (pursuant to Section 218-13) that St. James Way will generally be gated and not subject to vehicular traffic, excepting emergency situations, and topography, and made the following supportive findings:

- i. That granting the waivers was consistent with Section 218-12(A)(1) – Environmental protection – by minimizing the creation of proposed impervious areas and preserving more of the existing vegetative cover and runoff characteristics; and
- ii. As testified by the Applicant's engineer, the Board found that the waivers will reduce impervious surfaces and stormwater runoff and allow for a smaller stormwater management system which will, in turn, preserve the existing vegetation and natural character of the site.

**Section 218-13 B (6) Drainage**

To eliminate the requirement that pipe inlet inverts discharging into the Wetland Basin and Detention Basin 3A shall be at or above the twenty-five (25) year storm event capacity of the basin.

In reaching their decision to grant this waiver, the Board made the following findings:

- That the Board made a determination that the general guidelines enumerated in Section 218-12 can be better implemented by granting waivers from 218-13B (6) Drainage.
- That the design was reviewed by the Engineering Department and deemed adequate for the intended purpose.
- That, as testified by the Applicant's engineer, in granting the waiver, erosion protection will be maximized at stormwater outlets and that a submerged outlet will reduce stormwater flow velocities in the most severe storm events.
- The Board did not find that there was a cost savings to the Applicant.
- That the public interest would be served by reducing the likelihood of increased maintenance for stormwater outlets after the more severe storm events.

The Board made the determination that the general guidelines of Section 218-12 can be better implemented by the granting of the above-listed waiver from the specific design requirements. In reaching this determination, the Board made (pursuant to Section 218-13) the following supportive finding:

- i. That granting the waiver was consistent with Sections 218-12(A) (1&2) – Environmental protection – by minimizing stormwater velocities in greater storm events and reducing the risk of erosion with said drainage structures, and that vegetative cover and water resources were more likely to be preserved.

**Section 218-13 B (6) Drainage**

To allow stormwater detention basins to within 30 feet of a lot line.

In reaching their decision to grant this waiver, the Board made the following findings:

- That the Board made a determination that the general guidelines enumerated in Section 218-12 can be better implemented by granting waivers from 218-13B (6) Drainage.
- That the detention basins shall be contained within their own individual parcels, even those within 30 feet of a lot line, rather than within an easement on privately owned lots.
- That the requested waiver applies only to existing detention basins on St. Augustine Drive where re-locating the lot lines to meet the 30-foot setback requirement is not possible.
- That all parcels containing detention basins shall be owned and maintained by the respective Homeowners' Association.
- That the design was reviewed by the Engineering Department and deemed adequate for the intended purpose, and that this requirement was primarily intended for public projects that would be maintained by the Town, which is not the case with the current proposal.
- The Board did not find that there was a cost savings to the Applicant.

The Board made the determination that the general guidelines of Section 218-12 can be better implemented by the granting of the above-listed waiver from the specific design requirements. In reaching this determination, the Board made (pursuant to Section 218-13) the following supportive finding:

- i. *That granting the waiver was consistent with Sections 218-12(C)(4) – Utilities – that by maintaining detention basins within parcels to be owned by the Homeowners' Association, maintenance of stormwater drainage shall remain the responsibility of the HOA, in perpetuity.*

**Section 218-13 E (2) Curbing**

*To eliminate the requirement for curbing along St. James Way be standard vertical or sloping granite.*

*In reaching their decision to grant this waiver, the Board made the following findings:*

- *That the Board made a determination that the general guidelines enumerated in Section 218-12 can be better implemented by granting waivers from 218-13E (2) Curbing.*
- *That by providing bituminous Cape Cod berm, adequate protection was afforded to pedestrians and that the intended purpose of the requirement was satisfied.*
- *That the design was reviewed by the Engineering Department and was deemed adequate for the intended purpose.*
- *That this requirement was primarily intended for roads with a likelihood of being accepted as public ways, which is not the case with this roadway.*
- *That the initial estimated cost savings to the Applicant is \$80,650.49.*

*The Board made the determination that the general guidelines of Section 218-12 can be better implemented by the granting of the above-listed waiver from the specific design requirements. In reaching this determination, the Board made (pursuant to Section 218-13) the following supportive finding:*

- i. *That granting the waiver was consistent with Sections 218-12(E)(4) – Drainage – that by allowing the use of bituminous Cape Cod berm in place of granite curbing, the berm serves the same purpose as the granite curbing in directing runoff to catch basins and stormwater BMPs.*

**Section 218-17(E) Utility installation, grading and surfacing**

*To reduce the requirement for four (4) feet of cover over drain pipes to two (2) feet of cover at catch basins 21 and 22 in St. Paul Lane, catch basins 25 and 26 in St. James Way, and at the intersection of St. Paul Lane and St. James Way.*

*In reaching their decision to grant this waiver, the Board made the following findings:*

- *That the Applicant's engineer testified that in order to comply with the requirement for four (4) feet of cover, the catch basins could be moved further uphill or the roadways could be raised, however the catch basin locations were chosen to maximize stormwater attenuation. And that moving the catch basins would reduce the amount of runoff draining to the catch basins and raising the roadway would result in significant cost to the Applicant.*
- *That the current positioning of the system maximizes both storm water quality and quantity management and that no benefit would be derived by moving the catch basins or raising the roadways for the purposes of providing four (4) feet of cover.*
- *That the design was reviewed by the Engineering Department and deemed adequate for the intended purpose.*
- *The Board did not find that there was a cost savings to the Applicant.*

**Section 218-17(E) Utility installation, grading and surfacing**

*To replace reinforced concrete pipe with smooth wall corrugated high density polyethylene (HDPE) piping in the drainage system in St. James Way, emergency access road, and off-road easement.*

*In reaching their decision to grant this waiver, the Board made the following findings:*

- *That the design was reviewed by the Engineering Department and deemed adequate for the intended purpose of providing drainage in a way that is to be privately maintained in perpetuity.*
- *That, as testified by the Applicant's engineer, HDPE piping is lighter than concrete, provides equal or better hydraulic capacity and lasts longer because of its greater resistance to road salt, other de-icing chemicals and scouring.*
- *That HDPE piping is more expensive than concrete pipe and, while easier to install, the increased expense is not offset by a reduction in labor costs;*
- *That the Applicant derives no financial benefit from the grant of this waiver.*
- *The Board did not find that there was a cost savings to the Applicant.*

### **CONDITIONS OF APPROVAL**

*In approving the Application for Definitive Subdivision Approval, the Board imposes the following conditions:*

#### **Conditions of Approval – Administrative:**

*To ensure clarity regarding the administration of the Definitive Subdivision application approval, the Planning Board imposes the following conditions of approval:*

1. *As used herein, the term "Applicant" shall mean the Applicant, its heirs, successors and assigns. The term "Board" as set forth herein shall mean the Westford Planning Board. The provisions of this approval shall apply to and be binding upon the Applicant, its employees and all successors and assigns in interest or control.*
2. *Prior to commencing any construction activity hereunder, the applicant shall record this Certificate of Definitive Subdivision Approval and the endorsed Definitive Subdivision Plan in the Middlesex North Registry of Deeds, together with the OSRD Special Permit and the Stormwater Management Permit granted by the Board on May 4, 2020, and provide evidence of such recordings to the Planning Board's staff.*
3. *Prior to commencing any construction activity, the Applicant shall secure the Board's approval of a Modification to the St. Augustine Drive Definitive Subdivision to allow the improvements (such as street widening, slope adjustments, installation of a sidewalk, changes to drainage and landscaping, etc.) requested by the Highway and Engineering Departments to accommodate the changing street classification for a portion of St. Augustine Drive from a Minor Street to a Secondary Street.*
4. *By recording this Certificate of Approval, the Applicant acknowledges the rights of the Board or its designated agent(s) to enter onto and view and inspect the Property during regular business hours to ensure compliance with the terms of this Approval, subject to applicable safety requirements.*
5. *With the exception of the waivers explicitly set forth herein, the current Subdivision Rules and Regulations of the Planning Board shall govern all subdivision design and construction details and shall be deemed an integral part of this Approval.*
6. *All work shall be done in accordance with the endorsed Plans. Changes, revisions or modifications to the endorsed Plans shall be subject to review in accordance with Section 218-5.1 of the Subdivision Rules and Regulations.*

7. *This Approval is subject to the Applicant's obtaining all necessary approvals from the Town of Westford Conservation Commission and Board of Health to complete the subdivision as approved.*
8. *This Approval is subject to compliance with all applicable provisions of the Westford Zoning Bylaws, including compliance with all terms and conditions of the Open Space Residential Development (OSRD) Special Permit granted for this Subdivision on May 4, 2020. Said OSRD Special Permit shall be referenced on, and recorded with, the endorsed Plans.*
9. *This Approval is subject to compliance with all terms and conditions of the Stormwater Management Permit issued by the Board on May 4, 2020. Said Permit shall be referenced on, and recorded with, the endorsed Plans.*

**Conditions of Approval – Approved Plans:**

*To ensure plan clarity and an orderly permitting process for the individual building lots, the Board imposes the following conditions of approval:*

10. *Prior to plan endorsement by the Board, the Applicant shall contact the Building Commissioner and secure approval from the e911 Committee for all proposed street names and street addresses (including proposed Lot 29 located at St. Augustine Drive and, if applicable, #48 Dunstable Road if access is to be provided through St. James Way).*
11. *Prior to plan endorsement by the Board, the Applicant shall work with the planning staff to revise the final plan set to make non-substantive changes (such as adding informative plan notes, noting any required certifications, correcting typographical errors, identifying recordable plan sheets, clearly delineating the limits between St. Paul Lane and St. James Way, etc.).*
12. *The Emergency Access Road identified as St. James Way and the emergency access road providing access between St. Augustine Drive and St. Paul Lane (through a 30-foot wide access and utility easement) are intended to be gated and restricted for emergency vehicles only. The Emergency Access road identified as St. James Way may also be used for pedestrian purposes. Prior to plan endorsement by the Board, the Applicant shall secure approvals from the Engineering, Fire, and Highway Departments relative to the gate types, locations, and locking mechanisms.*
13. *Prior to plan endorsement by the Board, the final Plans shall be revised to show "Building Location Boundaries" pursuant to Section 7.1.5 of the Zoning Bylaw to indicate reduced or increased yard requirements as approved by the Board in the OSRD Special Permit issued for this Subdivision.*
14. *Prior to plan endorsement by the Board, the final Plans shall be revised to extend the proposed 30-foot wide access and utility easement (intended to provide a secondary means of emergency access from St. Augustine Drive to St. Paul Lane, and which currently terminates at the northerly boundary of proposed Lot 28) across Open Space Parcel A to St. Paul Lane.*
15. *Prior to plan endorsement by the Board, the final Plans shall be revised to show boundary markers on the rear lot lines of Lots 15 and 16.*
16. *Prior to plan endorsement by the Board, an updated Operations and Maintenance Plan and Long-Term Pollution Prevention Plan (LTPPP) shall be submitted to, and approved by, the Planning and Engineering Departments.*
17. *Prior to plan endorsement by the Board, the Applicant shall revise the final Plans to show easements for drainage and other utilities (benefitting the subdivision), which are located on proposed Lot 28, but outside the proposed 30-foot wide Access and Utility Easement.*
18. *Prior to plan endorsement by the Board, final Plans shall be stamped, signed and dated by the appropriate qualified licensed professionals. Existing Conditions Plan and Definitive Subdivision Plan sheets shall be stamped by a Professional Land Surveyor.*

19. Prior to plan endorsement by the Board, the Applicant shall add sight triangles to the final plans as recommended by the traffic peer reviewer (TEC) in their technical review memorandum dated July 25, 2019.
20. Prior to plan endorsement by the Board, the Applicant shall include a dedicated plan sheet for all traffic signage and pavement markings, as recommended by the traffic peer reviewer (TEC) in their technical review memorandum dated July 25, 2019.
21. Prior to plan endorsement by the Board, the Applicant shall adjust the vertical curve with PVI STA 10+00 at St. Paul Lane to achieve a K value that will provide adequate sight distance for a 30 MPH speed.
22. Prior to plan endorsement by the Board, the Applicant shall revise the Plans to show 20 MPH advisory speed signs in advance of the curved loop section of St. Paul Lane as recommended by the traffic peer reviewer (TEC) in email dated July 31, 2019.
23. Prior to plan endorsement by the Board, the Applicant shall add a conspicuous note to the Plans stating that the proposed ways (identified on the Plans as St. Paul Lane and St. James Way) shall not be relied upon as frontage for purposes of any Approval Not Required Plan (ANR Plan) intended to create additional building lots.
24. Prior to plan endorsement by the Board, the Applicant shall provide a report from a wetland specialist approving the Applicant's proposed plantings in Wetland Basin B, and such plantings shall be indicated on the Plan.
25. Prior to plan endorsement by the Board, the construction of ways and installation of municipal services required to serve proposed Lots 1 through 27, including any associated improvements to St. Augustine Drive required by this Approval and the repair of any construction-related damage to St. Augustine Drive that may be caused during construction, shall be secured by one, or in part by one and in part by another, of the four methods described in MGL Chapter 41, Section 81U. The security instrument shall specify the time within which such construction of ways and installation of utilities shall be completed.
26. Prior to plan endorsement by the Board, the Applicant shall add a conspicuous note to the Plan referencing this Certificate of Approval to be recorded with the Plan and stating that the Plan is subject to the Certificate of Approval and all conditions set forth therein.
27. Prior to plan endorsement by the Board, the Applicant shall revise the final plans to the satisfaction of the Highway Department to include signage at both ends of St. James Way indicating that there is no through access.
28. Prior to plan endorsement by the Board, the Applicant shall revise the final plan set to the satisfaction of the Fire and Highway Departments to include "No Parking" signage along St. James Way.
29. Within sixty (60) days after expiration of the appeal period (if no appeal has been taken), the Applicant shall provide the Planning Department with the following:
  - a. Mylar sheets of the full Plan set suitable for endorsement;
  - b. Mylar sheets of the Plans to be recorded at the Registry of Deeds;
  - c. Five (5) paper sets of the full Plan set submitted for endorsement; and
  - d. Electronic drawing files in a medium and format acceptable to the Town for incorporation into the Town's Geographic Information System (GIS). Acceptable file formats include AutoCAD \*.dwg, AutoCAD \*.dxf, ArcView \*.shp, or ArcGIS Geodatabase \*.mdb. The files must be identical to and contain all the information on the printed plan set. All digital mapping data must be delivered in the Massachusetts State Plane Coordinate system with a horizontal datum of NAD83 and vertical datum of NGVD88. Each feature type shall be organized in the CAD or GIS data structure as a separate layer using logical layer names. For example, there shall be separate CAD layers for buildings, roads, parcel lines, and wetlands. Having all these features in a single CAD layer or GIS file is not acceptable. The data submitted shall include documentation on the method

used to gather the data, the name of the person(s) responsible for preparing the data, contact information, and the date of data capture. All media shall be free from any and all defects and viruses and labeled as to their content.

The Director of Land use Management shall have authority to allow reasonable extensions of the 60-day time period for good cause, if requested in writing by the Applicant.

30. Within fourteen (14) days of plan endorsement, and prior to the required Preconstruction Meeting, the Applicant shall provide the Planning Department with digital copies in a format acceptable to the Town (such as PDF or JPEG, minimum resolution of 150 dpi) of the full final endorsed plan set.

**Condition of Approval – Frontage Limitations for Future Development:**

Recognizing that a number of substantial waivers from the Town of Westford Subdivision Rules and Regulations were granted as part of this approval, and to protect the public interest, the Board imposes the following conditions of approval:

31. Approval of this Subdivision, including the Board's decision to grant one or more waivers from the Subdivision Rules and Regulations, is directly related to the Board's grant of an OSRD Special Permit for this Subdivision with a total of twenty-nine (29) residential lots as shown on the approved Plan. Consequently, no additional building lots may be created, the boundaries of the Subdivision tract shall not be altered, and no access may be provided to or through abutting property, without modification of this Subdivision Approval and issuance of a new or amended OSRD Special Permit. This condition is not intended to prevent the conveyance of Parcel M, as shown on the approved plans, to the abutting property owner, now or formerly McNeil at #48 Dunstable Road, for the purpose of allowing such property owner to access their property via St. James Way, from and to St. Paul Lane, provided that such access shall be restricted to just that one property.

**Conditions of Approval – St. Augustine Drive:**

Whether any portion of St. Augustine Drive is accepted as a public way either prior to, during or after completion of construction of the Spalding Hill Estates subdivision, to protect the owners of land fronting on St. Augustine Drive, and to ensure that adequate access to the Spalding Hill Estates subdivision is maintained throughout the entire construction process, the Board imposes the following conditions of approval:

32. Approval of the Spalding Hill Estates Definitive Subdivision application is subject to the Applicant making necessary offsite improvements to the portion of St. Augustine Drive which provides primary access to the Spalding Hill Estates development. Although the approved Plans depict proposed improvements to St. Augustine Drive as recommended by the Highway and Engineering Departments (refer to plan sheets 11, 14 and 21 of 30), this Certificate of Approval does not serve to modify the St. Augustine Drive Definitive Subdivision approval. The St. Augustine Drive Definitive Subdivision was not included as part of the tract of land covered by the Spalding Hill Estates Definitive Subdivision application. Modification of the St. Augustine Drive Definitive Subdivision, including any additional waivers from the Subdivision Rules and Regulations, will necessitate approval in accordance with MGL Chapter 41 Sections 81R and 81W, and Section 218-7 of the Town of Westford Subdivision Rules and Regulations prior to the sale of any individual lots in (excepting Lot 28), or commencement of construction in, the Spalding Hill Estates development.
33. Prior to issuance of any Building Permits for proposed Lots 1 through 27 in the Spalding Hill Estates Subdivision, the Applicant shall complete any improvements required for that portion of St. Augustine Drive providing access to or servicing part of the Spalding Hill Estates Subdivision.

*This condition is not intended to prevent securing the completion of required improvements that are not essential for safety purposes (landscaping such as street trees and shrubs) through an escrow or other surety. Neither is this condition intended to prevent construction on proposed Lots 28 and 29 which front on St. Augustine Drive.*

34. *Prior to the required Preconstruction Meeting for the St. Augustine Drive roadway improvements, the Applicant shall post a surety to the satisfaction of the Highway and Engineering Departments that is adequate for the purposes of guaranteeing completion of required improvements to St. Augustine Drive.*
35. *Prior to issuance of any Building Permit for proposed Lots 1 through 27 at Spalding Hill Estates, the Applicant shall secure a Street Opening Permit from the Highway Department for that portion of St. Augustine Drive intended to become public (whether public or private at the time of seeking Building Permits). The Applicant shall be required to provide photographic evidence to the satisfaction of the Highway Department to adequately document the condition of St. Augustine Drive prior to construction of the Spalding Hill Estates subdivision.*
36. *Prior to issuance of any Building Permits for proposed Lots 1 through 27 at Spalding Hill Estates, the Emergency Access Road providing access between St. Augustine Drive and St. Paul Lane via the 30-foot wide access and utility easement shall be completed (including all appurtenant drainage measures and the emergency access gates) to the satisfaction of the Engineering, Fire and Highway Departments.*
37. *Prior to any construction of improvements to St. Augustine Drive, the Applicant shall provide notification of the work to be conducted and any anticipated road closures or detours to affected St. Augustine Drive lot owners. The Applicant shall install any related signage as required by the Highway Superintendent.*
38. *During such times as access from Groton Road to St. Augustine Drive is prevented because of the reconstruction of St. Augustine Drive, the owners and residents of St. Augustine Drive and their invitees shall have temporary access through St. James Way and/or St. Paul Way, but not at any other times. At the direction of the Highway Superintendent, the Applicant (at their own expense) shall secure police details to ensure adequate safety during any time period that St. Augustine Drive is closed. Unless specifically authorized by the Highway Superintendent, St. Augustine Drive may be closed only between the hours of 7 a.m. and 5 p.m. Unless specifically authorized by the Highway Superintendent, St. Augustine Drive may not be closed for portions of more than five (5) days. For purposes of this condition, "closed" shall not be construed to include closure of only a single lane of traffic.*
39. *Handicap ramps and new curbing have been installed at the existing St. Augustine Drive entrance at Groton Road as part of the Groton and Dunstable Roads intersection improvement project which is currently underway. The Applicant shall be responsible for reconstructing the handicap ramps and modifying the curb radii, if necessary, to match the St. Augustine Drive widening required as part of the Spalding Hill Estates subdivision.*

**Conditions of Approval – Water System:**

*To ensure that adequate municipal water (both water quality and water pressure) will be provided to the development, the Planning Board imposes the following conditions of approval as recommended by the Town of Westford Water Department and as agreed to by the Applicant:*

40. *Prior to issuance of any certificates of occupancy for Lots 1 through 27, the Applicant shall secure a Water Service Connection Agreement from the Town of Westford Water Department.*
41. *Prior to issuance of certificates of occupancy for Lots 1, 2, 3, 4, 5, 6, 7, 25, 26 and 27, the Applicant shall provide and install approximately six hundred and twenty (620) feet of 12-inch diameter cement-lined ductile iron water main piping between the intersection of St. James Way*

- and Dunstable Road and the intersection of Dunstable and Groton Roads, including all bends and fittings, and connection to the Town's water main in Dunstable Road.
42. Prior to issuance of certificates of occupancy for Lots 1, 2, 3, 4, 5, 6, 7, 25, 26 and 27, the Applicant shall trench and backfill water services to each existing or potential building lot along the length of the new water line on Dunstable Road. The Applicant shall coordinate this work with the Town of Westford Water Department, which has volunteered to provide and install all service piping, service taps, fittings and curb stops for work either within or to within ten (10) feet of the Dunstable Road right-of-way.
  43. *The Applicant shall not perform any work in connection with the Dunstable Road water system extension and installation of appurtenant water services outside the Dunstable Road right-of-way without written permission from the affected property owners. In any case, such work shall be limited to not more than ten (10) feet beyond the limits of a Town right-of-way.*
  44. *The Applicant shall install fire hydrants in connection with the aforementioned water system extension project at locations along St. Paul Lane, St. James Way and Dunstable Road at locations approved by the Fire and Water Departments. The Applicant shall coordinate the fire hydrant installation with the Town of Westford Water Department, which has volunteered to provide fire hydrants, associated tees, valves, piping and fittings located either within or to within ten (10) feet of the Dunstable Road right-of-way.*
  45. *Upon completion of the aforementioned water system extension project in Dunstable Road and prior to issuance of certificates of occupancy for Lots 1, 2, 3, 4, 5, 6, 7, 25, 26 and 27, the Applicant shall restore the Dunstable Road pavement in accordance with the Town of Westford Standards for Street and Sidewalk Excavations, provided however that the Applicant shall not be required to pave beyond the limits of the water line and services trenches. The Applicant shall coordinate the paving work with the Westford Water Department, which has agreed to pave the final 1½ inch full width overlay of Dunstable Road as required by the standards.*
  46. *Pursuant to the Massachusetts Wetlands Protection Act (310 CMR 10.00) and the Town of Westford Non-Zoning Wetlands General Bylaw (Chapter 171: Wetlands), the Applicant is advised to submit applications and secure approvals for work as outlined above.*
  47. *Prior to conducting any work within the Dunstable Road right-of-way, the Applicant shall secure a Street Opening Permit from the Highway Department.*
  48. *The Applicant shall be responsible for arranging and coordinating with the Town of Westford Water Department for the traffic management and Police details required in connection with the Dunstable Road water system extension project. The Town of Westford Water Department has volunteered to secure such details at no expense to the Applicant,*
  49. *Water infrastructure on private property shall remain forever private, and the Town of Westford Water Department shall not have, now or ever, any legal responsibility for its operation, maintenance, repair or replacement. Accordingly, water mains and hydrants shall be maintained by the Owner(s) in accordance with the Rules and Regulations of the Westford Water Department. The Owner(s) shall allow the Water Department access to the Property for emergency maintenance and repair, if necessary, of said mains and hydrants at the rates specified in the Rules and Regulations of the Westford Water Department.*
  50. *The Applicant shall minimize nonessential water use for irrigation purposes during construction.*

**Conditions of Approval – Environmental Protection:**

*To address concerns relative to erosion, stormwater, preservation of groundwater quality and general protection of the environment, the Planning Board imposes the following conditions of approval:*

51. *Erosion controls shall be installed as shown on the approved Plans and as may be further required pursuant to the Stormwater Permit issued by the Board for this Subdivision.*

52. No tree stumps or other demolition or construction debris shall be buried on the subject property. All tree stumps shall be either ground or removed from the site. No burning of tree stumps or debris is allowed on the site.
53. If determined necessary by the Engineering Department, the Applicant shall install additional under-drains to address unanticipated groundwater break-out conditions that may result from the construction of the Subdivision.
54. Tree clearing and the limit of work shall be consistent with the clearing limits as shown on the final approved Plans. The clearing limits shall be reviewed in the field by the Planning and Engineering Departments prior to any tree clearing activities. This condition includes the clearing on each of the individual lots. The Applicant is encouraged to minimize the amount of clearing proposed on each individual lot to the extent practicable.
55. The Applicant shall provide the Engineering and Planning Departments with a report by the end of each calendar year documenting that the stormwater management system (including roof drywells) was inspected and maintained in accordance with the Stormwater Management Permit and the approved Operation & Maintenance Plan. Such annual report shall be prepared by a licensed Professional Engineer. Upon acceptance of St. Paul Lane as a public way, the OSRD Homeowners' Association shall become responsible for providing the required annual reports.
56. The berms and/or swales to be located along the rear of Lot 13 (approximately half), Lot 14 and a portion of Parcel B shall be installed and stabilized to the satisfaction of the Engineering Department or their agent prior to any lot-related clearing activities on Lots 13 and 14. The purpose of the berms and/or swales shall be to direct stormwater runoff away from abutting properties that are not part of this subdivision. The Applicant shall coordinate with the Engineering Department or its agent in the field prior to commencing installation of any of these berms or swales.
57. Recognizing that the greatest risk posed to properties adjacent to the development with respect to stormwater and/or erosion control issues occurs during the construction process, the Applicant shall provide an Interim As-Built and written progress report to the Board within two (2) years of plan endorsement, and every two (2) years thereafter, summarizing the status of roadway construction, installation of drainage and utilities, construction of offsite improvements, total number of building permits and certificates of occupancy issued for the project, and an updated timeframe for completion of the project. This two-year reporting requirement shall continue until the subdivision roads and associated infrastructure is completed to a standard acceptable to the Board, the site is permanently stabilized, and erosion controls are removed. Furthermore, the Applicant shall also provide updated information, including a revised Form G, to ensure that the Board has the benefit of an accurate cost estimation for guaranteeing the construction of ways and installation of municipal services. If applicable, the Board may then adjust (raise or lower) any retained surety accordingly. Failure by the Applicant to provide the required plans, information, updated Form G or additional surety (if needed) shall be grounds for the Board (or Planning Staff as applicable) to:
  - a. Rescind approvals not inconsistent with the provisions of M.G.L. Chapter 41, Section 81U;
  - b. Call any bond or retained surety to complete the project; or
  - c. Withhold sign-offs on any requests for building permits or certificates of occupancy.
58. To prevent unnecessary disturbance or encroachments onto adjoining properties during construction, the Applicant shall have the following staked and clearly demarcated in the field by a licensed Professional Land Surveyor where work is proposed to within ten (10) feet of any of the following:
  - a. The subdivision boundary;
  - b. No Clear Zones;
  - c. Wetland buffer zones;

- d. *The 30-foot Wide Access & Utility Easement between St. Paul Lane and St. Augustine Drive;*
- e. *Open Space Parcels A & D;*
- f. *Common Space Parcels B, E, F, G, H, J & M; and*
- g. *The southerly limits of the Temporary Grading Easement associated with the construction of St. James Way.*

**Conditions of Approval – Pre-Construction, Construction, Inspection and Notification Requirements:**

*To ensure an orderly construction process, to establish clear expectations, and to foster good communication between the Town, Applicant and affected neighbors throughout the construction process, the Planning Board imposes the following conditions of approval:*

59. *No site work shall begin prior to the required Pre-Construction Meeting. The Applicant shall request the Pre-Construction Meeting not less than fourteen (14) days prior to the planned commencement of each phase of construction. For the purposes of this decision, "commencement of construction" shall occur when the clearing and grubbing (removal of stumps and topsoil) has begun. The Applicant shall request such meeting by contacting the Town Planner in writing. The Town Planner shall be responsible for arranging such conference with applicable Town Departments within fourteen (14) days after receipt of the request. All relevant contractors and subcontractors involved with site preparation/site construction activities shall attend this meeting. This approval with conditions shall be reviewed by all parties involved. At the meeting, the Applicant shall provide an intended construction schedule and acknowledgment of all inspections as required by the Engineering, Conservation, Highway and Water Departments.*
60. *The Board intends to contract for third-party professional inspectional services throughout the construction of the subdivision and offsite improvements, which includes, but is not necessarily limited to, satisfying roadway inspection requirements, monitoring and reporting of erosion control measures, evaluation of wetland basin, monitoring compliance with conditions of approval, etc. Prior to any of the required Pre-Construction Meetings and prior to the start of any site work, the Applicant shall establish an escrow account in accordance with M.G.L. c.44 § 53(G) with an initial deposit of \$25,000.00, subject to replenishment when the account is at or below \$5,000.00. Failure by the Applicant to provide additional funds (to bring the balance up to not less than \$10,000.00) within fourteen (14) days of a request for replenishment shall be grounds for issuance of a Stop Work Order by the Building Commissioner.*
61. *Prior to the required Pre-Construction Meeting, the Applicant shall provide the Engineering Department with AutoCAD DWG and HydroCAD files (or equivalents) for the approved project, containing information for both the existing and proposed conditions.*
62. *Pursuant to Section 218-13(I)(4) of the Town of Westford Subdivision Rules and Regulations and prior to the required Pre-Construction Meeting, the Applicant shall provide proof of recording of all required easements and other legal documents including, but not necessarily limited to:*
  - a. *Drainage, Sight Distance and Temporary Grading easements over land of #48 Dunstable Road;*
  - b. *Proposed 30-Foot Wide Access & Utility Easement;*
  - c. *Proposed 1,266 SF Access & Utility Easement over proposed Lot 28;*
  - d. *Proposed 2,423 SF Access & Utility Easement over proposed Lot 27;*
  - e. *Proposed sidewalk easements along portions of Dunstable Road owned by the Applicant.*
63. *Unless explicitly waived by the Board, the Applicant and their contractors shall comply with all provisions of Article V "Construction Standards for Required Improvements" of the Town of Westford Subdivision Rules and Regulations, and all inspection requirements imposed under said Rules and Regulations.*

64. *Prior to commencement of construction, including any site work, the Applicant shall provide, and update as necessary, to the Building Commissioner and Town Planner:*
  - a. *The company affiliation, name, address, email and telephone number, including 24-hour contact information of the construction manager who shall have overall responsibility for all construction activities for the project;*
  - b. *Certification from the Applicant that all required federal, state and local licenses and permits have been obtained;*
  - c. *Proof that "Dig-Safe" has been notified at least 72 hours prior to the start of any site work (can be provided for each Phase);*
  - d. *Proof that street signage or other temporary signage is in place to ensure that emergency personnel can locate the site to provide emergency services to protect and secure the site and construction personnel (can be provided for each Phase); and*
  - e. *At least 48-hour written notice of commencement of construction activities. If construction activities cease for longer than thirty days, the Applicant shall again provide a 48-hour written notice prior to restarting work.*
65. *Not less than 14 days prior to commencement of construction activities in support of the anticipated modifications to St. Augustine Drive, the Applicant shall provide written notice of proposed construction activities with tentative schedule to all owners and lessees of lots (or portions thereof) which rely on St. Augustine Drive for practical access. The Applicant shall copy the Planning Department on said correspondence.*
66. *Not less than 14 days prior to commencement of construction activities associated with the emergency access road (identified on the plans as St. James Way), the Applicant shall provide written notice of proposed construction activities with tentative schedule to the owners of lots identified as #48 Dunstable Road and #58 Dunstable Road. The Applicant shall copy the Planning Department on said correspondence.*
67. *Pursuant to Section 218-11(F)(4) of the Subdivision Rules and Regulations, and prior to issuance of any building permits for Lots 1 through 27, the Applicant shall have completed the construction of St. Paul Lane and St. James Way at least through the binder pavement course, including full completion of all drainage control structures. This condition is not intended to interfere with constructing the subdivision in any planned development phases as may be approved by the Board.*
68. *Prior to installation of emergency access gates, the final locations of each gate (at St. James Way and the 30-Foot Wide Access & Utility Easement) shall be reviewed and approved in the field by the Engineering, Fire and Highway Departments.*
69. *Prior to issuance of any building permits for Lots 1 through 27 and 29, the Applicant shall secure Curb Cut/Driveway Permits from the Building Department.*
70. *Any proposed retaining wall greater than four (4) feet in height shall be designed by a structural engineer prior to construction. All retaining wall designs shall be stamped by the structural engineer prior to submission of the designs to the Building and Engineering Departments for review and approval prior to construction.*
71. *Throughout the construction process, the Applicant shall be responsible for securing and installing any signage or other temporary traffic controls deemed necessary by the Highway Department.*
72. *Prior to issuance of certificates of occupancy for Lots 10 through 21, the Applicant shall install the required 20 MPH advisory speed signs at St. Paul Lane.*
73. *Prior to issuance of certificates of occupancy for Lots 1 through 29 and pursuant to Section 218-13(C)(2) of the Town of Westford Subdivision Rules and Regulations, the Applicant shall install privately-owned, pole-mounted and residential-style light fixtures on each lot (Lots 1 through 29) to within ten (10) feet of the property line and adjacent to the driveway.*

74. *The binder course of pavement shall be kept clean and free of silt, sediment, debris, etc., throughout construction to protect the stormwater management system.*
75. *Immediately following the installation of any binder course of pavement, all catch basins shall be raised and the associated stormwater system shall be fully functional as designed.*
76. *All street signs and posts shall conform to the most recent edition of the Manual on Uniform Traffic Control Devices (MUTCD) and Town of Westford standards.*
77. *No new retaining walls shall be located within any street right-of-way (St. Paul Lane and St. Augustine Drive between STA 0+00 and approximately STA 13+90) that is intended to become accepted as a public way.*
78. *Retaining wall designs shall account for guardrails where a guard rail is proposed on, or adjacent to, retaining walls. Any walls proposed as part of a basin shall be designed to account for any hydrostatic loads and shall be designed to retain water within the basin as necessary.*
79. *The final type and location of each tree planted to satisfy Section 218-22 of the Subdivision Rules and Regulations, and the location of all plantings within Parcel C (common land), are subject to review and approval by the Tree Warden.*
80. *The Applicant shall consistently maintain vegetation along all subdivision roads and at all subdivision intersections to ensure adequate sight lines are maintained. There shall be no walls, fences or other physical obstructions installed in any location that obstructs or reduces sight distance below the required minimum.*
81. *The Applicant shall secure Street Opening Permits for all work within any public rights-of-way. All proposed pavement restoration work shall be in accordance with the Town of Westford Standards for Street and Sidewalk Excavations. The Applicant shall review the location of all signs, curbing and pavement markings with the Westford Highway Superintendent prior to installation.*
82. *Construction debris on each lot shall be removed entirely within thirty (30) days from the date of issuance of the certificate of occupancy for the dwelling on such lot.*
83. *All construction debris, whether contained within rights-of-way or offsite easements, shall be removed entirely within thirty (30) days from the date of the issuance of the last of the certificates of occupancy for Lots 1 through 28.*

**Condition of Approval – Construction Phasing:**

*To provide reasonable options for the orderly construction of the development in planned phases, the Board imposes the following condition of approval:*

84. *At the request of the Applicant, and by majority vote at a public meeting, the Board may approve and vary over time the division of remaining development into one or more logical construction phases. However, each distinct construction phase shall require its own Pre-Construction Meeting and each phase shall be organized such that no adverse impacts would likely occur if further development phases were not constructed for an extended period of time (or ever). For instance, adequate drainage must be installed for each phase to ensure there will be no adverse impacts with respect to stormwater management. Due to sight distance, traffic and other concerns associated with the St. James Way emergency access road entrance at Dunstable Road, no construction phase shall rely on access to the development through St. James Way, other than the construction phase to modify St. Augustine Drive.*

**Conditions of Approval – Stormwater:**

*To ensure the adequate provision of drainage, to minimize the risk of flooding and impairment of water quality, and to control the volume and rate of stormwater runoff resulting from land disturbance, the Planning Board imposes the following conditions of approval as recommended by the Town of Westford Engineering Department:*

85. *In accordance with Section 218-13(B)(5) of the Subdivision Rules and Regulations, the Applicant shall secure an easement over the property identified as #48 Dunstable Road (Assessor Map 040, Parcel 0016, Lot 0000) to allow a concentrated discharge to flow onto that private property. Proposed easement language shall be reviewed and approved by Westford Town Counsel and the Board prior to being recorded at the registry of deeds. Proof of recording shall be provided to the Board prior to the pre-construction meeting.*
86. *At the direction of the Engineering Department, additional soil testing shall be conducted within each stormwater BMP that currently does not have testing within the actual system footprint. All testing shall be in accordance with the Stormwater Handbook and must be completed prior to the PreConstruction Meeting. All testing must be witnessed by the Engineering Department or its agent. The Applicant shall provide minimum notice of forty-eight (48) hours prior to conducting any testing.*

**Conditions of Approval – St. James Way:**

*To ensure that the proposed emergency access road (identified on the plans as St. James Way) located between St. Paul Lane and Dunstable Road is principally restricted to the intended purpose of providing emergency access, that said emergency access will be adequately maintained year-round, and that the limited access to said way will be adequate with respect to sight distance and pedestrian purposes, the Planning Board imposes the following conditions of approval:*

87. *The emergency access roadway identified as St. James Way on the approved plan is intended to be a PRIVATE way in perpetuity. As such, the Applicant, owner or owners of Lots 1 through 28 (as shown on the Plan), and the executors, administrators, heirs, successors and assigns of such owners assume all ownership, responsibility and liability for said roadway, including, but not limited to, street maintenance, snow plowing, repairing and replacement.*
88. *Prior to issuing any Building Permits for proposed Lots 1 through 27 at Spalding Hill Estates, the Emergency Access Road identified as St. James Way with appurtenant gates shall be installed to the satisfaction of the Engineering, Fire and Highway Departments.*
89. *Except for purposes of constructing the emergency access road identified as St. James Way, direct construction vehicle access from Dunstable Road to the Property is strictly prohibited. In support of the water service extension project on Dunstable Road, and with benefit of Police detail, parking and/or staging of equipment may occur in the St. James Way emergency access road. Notwithstanding the foregoing restrictions on the use of St. James Way, the Applicant or its successors in interest may permit a portion of St. James Way to be used by the owners of #48 Dunstable Road as the principal access to that property provided that the potential access between St. James Way and the property at #48 Dunstable Road is shown on the final plans, and further provided that no access easement for use of St. James Way by the owners of #48 Dunstable Road shall be recorded until such easement has been submitted to the Planning Board for review as to its consistency with the terms and conditions of this Certificate of Approval relative to use of St. James Way.*
90. *Prior to issuance of building permits for Lots 1 through 28, the Applicant shall provide proof of recording to the Planning Department of all required sight distance easements along Dunstable Road in support of the St. James Way emergency access road.*
91. *Prior to issuance of building permits for Lots 1 through 28, the Applicant shall convey an easement to the Town of Westford for the purpose of constructing and maintaining a sidewalk (or meandering path) generally along the subject property's frontage along or near the Dunstable Road right-of-way.*

**Conditions of Approval – 30-Foot Wide Access & Utility Easement:**

To ensure that the proposed secondary means of emergency access for the Spalding Hill Estates subdivision (identified on the plans as a 30-foot wide access and utility easement) located between St. Augustine Drive and St. Paul Lane will be adequate for the intended purpose, available at an appropriate stage of the development of the subdivision, and maintained year-round, the Planning Board imposes the following conditions of approval:

92. Prior to issuing any Building Permits for proposed Lots 1 through 27, the paved secondary emergency access driveway and any appurtenant gates shall be installed to the satisfaction of the Engineering, Fire and Highway Departments.
93. The secondary emergency access shown on the approved plan is intended to be PRIVATE, in perpetuity. As such, the Applicant shall propose and execute an agreement to the satisfaction of Town Counsel, that all responsibility and liability for said secondary emergency access and utilities shall be assumed in perpetuity by the OSRD Homeowners' Association, including, but not necessarily limited to, maintenance of emergency access, snow plowing, repairing and replacement of gates, utilities or other features.

**Conditions of Approval – Legal:**

To ensure proper review of required easements and other legal documents in support of the Spalding Hill Estates development, the Planning Board imposes the following conditions of approval:

94. The Applicant shall provide the following draft documents or information, to be reviewed and approved by Town Counsel on behalf of the Planning Board, and at the expense of the Applicant, prior to execution and recording of said documents:
  - a. Confirmation that the existing Sight Distance and Drainage Easements over land of #58 Dunstable Road are adequate for proposed purposes in support of the Spalding Hill Estates Open Space Residential Development;
  - b. Proposed Sight Distance Easement over land of #48 Dunstable Road;
  - c. Proposed Drainage and Temporary Grading Easements over land of #48 Dunstable Road;
  - d. Proposed 30-Foot Wide Access & Utility Easement located between St. Augustine Drive and St. Paul Lane;
  - e. Proposed Deed for proposed Lot 29 fronting on St. Augustine Drive;
  - f. Confirmation that existing easements associated with St. Augustine Drive (such as existing drainage easements, existing access and utility easements, etc.) are either unaffected or adequate for proposed intended purposes. Alternatively, the Applicant shall provide additional easement documents as required.
  - g. Proposed 1,266 SF Access & Utility Easement over proposed Lot 28;
  - h. Proposed 2,423 SF Access & Utility Easement over proposed Lot 27;
  - i. Proposed restrictive language for "No Clear Zone" areas as shown on proposed Lots 2, 3, 4, 5 and 6.
  - j. Proposed easements for proposed improvements benefitting the Spalding Hill Estates subdivision over land along St. Augustine Drive identified as Assessor Map 040, Parcel 0017, Lot 0002 and Assessor Map 040, Parcel 0017, Lot 0003;
  - k. Proposed language for OSRD Homeowners' Association;
  - l. Proposed trail easement and any rights of either the public or St. Augustine Drive Lot Owners to use the proposed trail system at Spalding Hill Estates;
  - m. Proposed deeds for proposed Lots 1 through 28;
  - n. Stormwater Maintenance Agreement;
  - o. Proposed reconciliation of any overlapping ownership and/or maintenance responsibilities for improvements which benefit either both developments (St. Augustine Drive and Spalding Hill Estates) or which benefit one development over land of the other

*including, but not necessarily limited to, drainage improvements and related easements, applicability of the Amended and Restated Declaration of Road Covenants and Restrictions for St. Augustine Drive and the financial responsibility with respect to proposed Lots 1 through 28 for maintaining improvements within the St. Augustine Drive subdivision;*

- p. Proposed sidewalk easements (or for meandering paths) along Dunstable Road on property owned by the Applicant;*
  - q. Proposed Conservation Restriction for Open Space Parcels;*
  - r. Proposed easement for utilities and drainage outside of the 30' emergency access way on Lot 28;*
  - s. Proposed Deeds for Parcels A, B, C, D, E, F, G, H, J and M; and*
  - t. Proposed easements relating to what is currently identified as #48 Dunstable Road and St. James Way including, but not limited to, the following:*
    - a. If applicable, rights of the #48 Dunstable Road lot owner to use a portion of St. James Way for their principal access;*
    - b. If applicable, rights of the OSRD Homeowners' Association and their invitees to use the T-turnaround at the proposed St. James Way entrance to #48 Dunstable Road;*
    - c. If applicable, and to minimize potential future conflicts between the Association and the owner of #48 Dunstable Road, the financial obligations for each party to ensure the continuous long-term maintenance for that portion of St. James Way benefitting #48 Dunstable Road (including snow removal) shall be explicitly set forth in the applicable easement or other documents. The intent is for the owner of #48 Dunstable Road to pay their equitable share for maintaining St. James Way, while taking into account the following:*
      - i. As currently configured, the Spalding Hill Estates development would not have been possible without the cooperation of the owner of #48 Dunstable Road;*
      - ii. The owner of #48 Dunstable Road would benefit from having their principal access through St. James Way instead of Dunstable Road;*
      - iii. St. James Way benefits the OSRD Homeowners' Association by providing emergency secondary access to St. Paul Lane. For purposes of the OSRD Homeowners' Association, traffic would generally be limited to emergency, snow removal, and maintenance purposes;*
      - iv. A portion of St. James Way benefits #48 Dunstable Road by providing daily primary access to the lot, and the majority of wear and tear on said portion of St. James Way would be attributed to the owner of #48 Dunstable Road and their invitees.*
  - u. Proposed Declaration of Covenants and Restrictions for Spalding Hill Estates which may include one or more of the above documents.*
95. Contemporaneously with the recording of the endorsed Plan, the Applicant shall record the above-listed legal documents (excepting deeds for the individual lots), as approved by Town Counsel, at the Middlesex North Registry of Deeds and shall provide copies of said recorded documents to the Planning Board within ten (10) days of the recording of the Plan.
96. Prior to plan endorsement by the Board, the Applicant shall establish an escrow account with the Town in accordance with M.G.L. c. 44, §53G with an initial deposit of \$5,000 to cover the costs of legal review of the deeds, easements, restrictions and other documents listed under Condition 94.
97. No building permits may be issued for the Subdivision until the Applicant has paid the costs incurred for legal review by Town Counsel.

**Conditions of Approval – Sidewalks:**

98. *In consideration of sidewalk waivers granted by the Planning Board, and prior to issuance of any certificates of occupancy for proposed Lots 1 through 27, and pursuant to Section 218-19(C)(2) of the Town of Westford Subdivision Rules and Regulations, the Applicant shall either:*
- a. *In lieu of constructing onsite sidewalks, contribute \$49,149.57 (estimated 3,867 total linear feet of sidewalk construction waived [St. Paul Lane – 2,515 linear feet, St. James Way – 1,352 linear feet]) to the Town of Westford Sidewalk Gift Fund for the purposes of studying, designing, acquiring easement(s) and/or constructing sidewalks, pathways, walkways, bicycle paths and/or other offsite pedestrian access and safety measures; or*
  - b. *Construct or reconstruct approximately 3,867 linear feet of offsite sidewalks in locations and per specifications to be approved by the Town of Westford Engineering and Highway Departments; or*
  - c. *Some combination of (a) fee in lieu and (b) constructing offsite sidewalks.*
99. *As volunteered and agreed to by the Applicant, the Applicant shall either:*
- a. *In lieu of constructing sidewalks along Dunstable Road, contribute \$7,880.20 (estimated 620 total linear feet of sidewalk construction on Dunstable Road) to the Town of Westford Sidewalk Gift Fund for the purposes of studying, designing, acquiring easement(s) and/or constructing sidewalks, pathways, walkways, bicycle paths, and/or other offsite pedestrian access and safety measures; or*
  - b. *Construct or reconstruct approximately 620 linear feet of offsite sidewalks in locations and per specifications to be approved by the Town of Westford Engineering and Highway Departments; or*
  - c. *Some combination of (a) fee in lieu and (b) constructing offsite sidewalks.*

*While the Applicant proposes to install an “offsite” sidewalk along a portion of one side of St. Augustine Drive, such installation would necessitate modifications to the St. Augustine Definitive Subdivision Plan in accordance with MGL Chapter 41 Sections 81R and 81W, and with Section 218-7 of the Town of Westford Subdivision Rules and Regulations. The Board notes that condition of approval #2 from the 2002 St. Augustine Drive Definitive Subdivision approval states that “If additional subdivision of contiguous land is proposed in the future, the landowner/developer shall bring the applicable segments of the roadway up to current Planning Board standards”.*

**Condition of Approval – Interim As-Built:**

100. *As volunteered and agreed to by the Applicant, the Applicant shall submit an Interim As-Built Plan to the Engineering and Planning Departments at the approximate midpoint of project development. Unless otherwise agreed to in writing by the Engineering and Planning Departments, issuance of the fourteenth (14<sup>th</sup>) Building Permit (for Lots 1 through 27) shall be construed as the approximate midpoint of development. This condition does not relieve the Applicant from complying with any of the As-Built Plan and Certification requirements set forth in the Subdivision Rules and Regulations.*

**Conditions of Approval – Access for #48 Dunstable Road:**

101. *Unless the final plan set incorporates the proposed access from the St. James Way to the lot currently identified as #48 Dunstable Road (including any grading, utilities, easements, etc.), said access shall be prohibited.*
102. *Prior to incorporating the proposed access from St. James Way to #48 Dunstable Road in the final plan set, the Applicant shall secure approvals from the Engineering, Fire, Highway and Police Departments to ensure that access to and from #48 Dunstable Road through St. James Way shall be adequate for emergency vehicles, with due consideration for wintertime conditions.*

**RECORD OF PLANNING BOARD VOTE**

Definitive Subdivision  
PB 1707 DEF SUB

On May 4, 2020, on a motion made by O'Connor, seconded by Lavelle, the Board voted **4-0-0** to **APPROVE** the 29-Lot **Definitive Subdivision application** submitted under Section 218-11 of the Town of Westford Subdivision Rules and Regulations with the waivers expressly set forth herein, and subject to the foregoing conditions of approval.

Planning Board members voting to **APPROVE**:

Darrin Wizst, Chair  
Kate Hollister, Vice Chair  
Gary Lavelle  
Dylan O'Connor

Any appeals of this Decision shall be made pursuant to Massachusetts General Laws, Chapter 41, Section 81BB, and a copy of the appeal shall be filed with the Town Clerk's office within twenty (20) days after the date of filing this decision in the office of the Town Clerk.

**NOT VALID FOR RECORDING UNTIL CERTIFIED BY TOWN CLERK**

I hereby certify that this is a true copy of the decision rendered by the Planning Board and filed in the office of the Town Clerk on \_\_\_\_\_, \_\_\_\_\_; I further certify that twenty (20) days have elapsed after the within decision was filed in the office of the Town Clerk for the Town of Westford, and that no appeal has been filed, or that if such appeal has been filed, that it has been dismissed or denied.

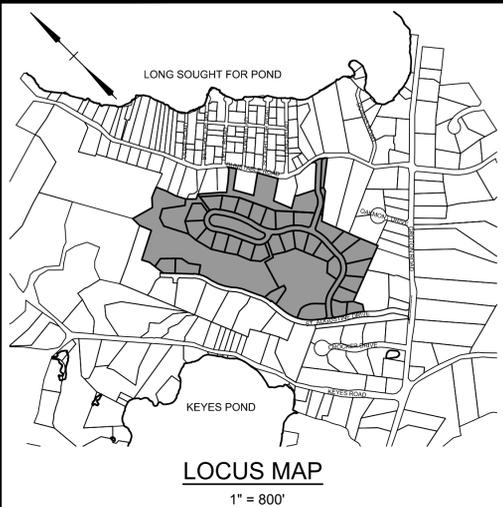
Date:

Attest: \_\_\_\_\_  
Patricia L. Dubey, Town Clerk

- cc:** Applicant  
Abutters to within 300 feet  
Planning Boards of Acton, Carlisle, Chelmsford, Groton, Littleton and Tyngsborough  
Building Commissioner  
Conservation Resource Planner  
Deputy Fire Chief  
Deputy Police Chief  
Director of Environmental Services  
Director of Public Works  
Fire Prevention Officer  
Health Director  
Highway Superintendent  
Principal Assessor  
Superintendent of Schools  
Town Engineer

# Definitive Subdivision Open Space Residential Development SPALDING HILL ESTATES Westford, Massachusetts

JULY 20, 2018  
REVISED: JANUARY 31, 2019  
May 10, 2019  
June 14, 2019  
December 9, 2019



## General Notes

- This subdivision is an Open Space Residential Development permitted under Section 7.1 of the Town of Westford Zoning Bylaws.
- Topography and surficial features were provided electronically by the Westford GIS Department and supplemented with field surveys by Goldsmith, Prest & Ringwall, Inc. (GPR), and ALAN Engineering, L.L.C..
- Wetland boundaries shown were flagged by Oxbow Associates and field located by GPR, and provided electronically to ALAN Engineering, L.L.C.
- The subject property does not lie within a Zone A flood hazard area as delineated on the FEMA Flood Insurance Rate Map, 25017C0227E, effective date June 4, 2010.
- The proposed development is to be served by town water, individual subsurface sewage disposal systems, natural gas and underground electric and telecommunications.
- St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
- The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.

## Open Space Development Summary

Zoning District: RA  
Design Criteria:  
Area: 20,000 s.f.  
Frontage: 50' (100' avg.)  
Front Yard: 20'  
Side Yard: 15'  
Rear Yard: 15'  
Lot width: 100' at front of building  
Minimum Common Land: 10,000 s.f. per lot (non-wetland) = 310,000 s.f. (7.116 Acres)  
Dry Common Land suitable for recreation:  
1 Acre for each 25 lots = 1.240 Acres

## Development Summary:

Total Parcel Area: 43.610 Acres  
Total Dry Area: 40.424 Acres  
Building lots: 29\*  
Average Lot Size: 23,489 s.f. \*\*  
Average Frontage: 151.66' \*\*

## Common Land Summary:

Parcel A (Open Space): 10.070 Acres (7.017 Acres Dry)  
Parcel B: 1.450 Acres (All Dry)  
Parcel C: (Suitable for Recreation): 1.247 Acres (All Dry)  
Parcel D: (Open Space): 2.367 Acres (2.229 Acres Dry)  
Parcel E: 0.919 Acres (0.860 Acres Dry)  
Parcel G: 0.348 Acres  
Parcel H: 0.803 Acres  
Parcel J: 0.368 Acres (0.363 Acres Dry)  
Parcel K: 0.602 Acres

TOTAL COMMON LAND: 18.174 Acres (14.919 Acres Dry)  
TOTAL OPEN SPACE: 12.437 Acres (9.246 Acres Dry)

Total Length of New Roadways: 3,500 ft

\*: Lot 28 is a single building lot and will be deed restricted such that it can not be further subdivided to create additional building lots.

\*\*: Lot 28 has been excluded from the average lot area and average frontage calculations.



ALAN Engineering, L.L.C.  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net



## SHEET INDEX

- Title Sheet
- Existing Conditions Index Plan
- Existing Conditions Plans
- Definitive Subdivision Index Plan
- Definitive Subdivision Plans
- Grading and Drainage Index Plan
- Grading and Drainage Plans
- Roadway Profiles
- Storm Water Pollution Prevention Plan
- Erosion Control Plans
- Landscape Plan
- Construction Details

## Record Owners & Applicants

Connell Real Estate Trust  
P.O. Box 1230  
Westford, MA 01886

## Plan References

Middlesex North Registry of Deeds  
Book 240 Plan 88  
Book 235 Plan 51  
Book 224 Plan 90

## Deed References

Middlesex North Registry of Deeds  
Book 19682, Page 258  
Book 21730, Page 263  
Book 21730, Page 266  
Book 21730, Page 267  
Book 21730, Page 269  
Book 23657, Page 195

## Assessor's References

Map 040, Parcel 0017 0000

## Waivers Requested

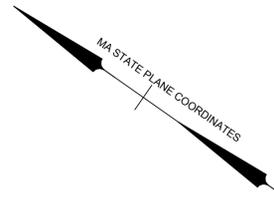
- The following waivers from the Westford Planning Board Subdivision Rules and Regulations have been requested.
- 218-11.B.(17)(d): To not show large trees in excess of 10 inches in diameter within the proposed roadway and necessary side slopes.
  - 218-12.D.(2), 218-13.A.(1), 218-13.F.(1): To construct a sidewalk on only one side of St. Paul Lane and no sidewalks on St. James Way.
  - 218-13.A.(1): To reduce the pavement width on St. James Way from the required 22 feet to 20 feet.
  - 218-13.B.(6): To allow the invert of the pipe discharging into Detention Basin 3A and the Wetland Basin to be set below the 25-year storm elevation.
  - 218-13.B.(6): To allow storm water detention basins within 30 feet of a lot line.
  - 218-13.E.(2): To allow St. James Way be constructed with cape cod berm curbing whereas sloped granite is required.
  - 218-17.E.: To allow the minimum cover of drain pipes to be reduced from 4 feet to 2.0 feet.
  - 218-17.E.: To allow the use of HDPE piping in drainage systems in St. James Way, the emergency access road, and off-road easement, whereas reinforced concrete pipe is required.



**LOT 9A**  
 1,899,661 S.F.  
 (43.610 Ac.)

**LEGEND**

EXISTING CONTOUR	-176-
EXISTING SPOT ELEVATION	x 192.7
WETLAND FLAG	▲
EDGE OF WETLAND	—
50' WETLAND BUFFER	----
75' WETLAND BUFFER	-----
100' WETLAND BUFFER	-----
EXISTING STONEWALL	=====
EXISTING TREELINE	~~~~~
EXISTING GRANITE CURB	=====
EXISTING CAPE COD BERM	=====
EXISTING EDGE OF PAVEMENT	=====
EXISTING HYDRANT	⊕
EXISTING GATE VALVE	⊕
EXISTING WATER SHUT-OFF	⊕
EXISTING WATER MAIN	—W—W—
EXISTING CATCH BASIN	⊕
EXISTING DRAIN MANHOLE	⊕
EXISTING DRAIN LINE	—D—D—
EXISTING GAS MAIN	—G—G—
EXISTING GUARD RAIL	=====
EXISTING RIPRAP	=====
TEST HOLE	⊕



**General Notes**

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
 OSRD Requirements:  
 Minimum Area: 20,000 s.f.  
 Minimum Frontage: 50' (100' average)  
 Yard Setbacks: Front: 20'  
 Side: 15'  
 Rear: 15'
- See sheets 21 and 22 for additional utility information within St. Augustine Drive.

**PLAN REFERENCES**  
 M.N.D.R.D. BOOK 240 PLAN 88  
 M.N.D.R.D. BOOK 235 PLAN 51  
 M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**  
 M.N.D.R.D. BOOK 19882 PAGE 258  
 M.N.D.R.D. BOOK 21730 PAGE 263  
 M.N.D.R.D. BOOK 21730 PAGE 266  
 M.N.D.R.D. BOOK 21730 PAGE 267  
 M.N.D.R.D. BOOK 21730 PAGE 269  
 M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**  
 CONNELL REAL ESTATE TRUST  
 P.O. BOX 1230  
 WESTFORD, MA 01886

**ASSESSORS REFERENCES**  
 MAP 040, PARCEL 0017 0000

0 100 200 300  
 SCALE IN FEET

MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**EXISTING CONDITIONS INDEX PLAN**  
 SPALDING HILL ESTATES  
 WESTFORD, MA

**ALAN ENGINEERING, L.L.C.**  
 110 WINN STREET, SUITE 209  
 WOBURN, MA 01801  
 (978) 577-6444  
 alan.eng@verizon.net

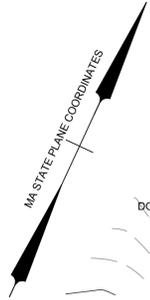
**PREPARED FOR:**  
 CONNELL REAL ESTATE TRUST  
 P.O. BOX 1230  
 WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	<b>2 of 30</b>
SCALE: 1" = 100'	

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**LEGEND**

- EXISTING CONTOUR -176-
- EXISTING SPOT ELEVATION ▲ 192.7
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- EXISTING HYDRANT
- EXISTING GATE VALVE
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- EXISTING CATCH BASIN
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- EXISTING DRAIN LINE
- EXISTING GAS MAIN
- EXISTING GUARD RAIL
- EXISTING RIPRAP
- TEST HOLE



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2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements:  
 Minimum Area: 20,000 s.f.  
 Minimum Frontage: 50' (100' average)  
 Yard Setbacks: Front: 20'  
 Side: 15'  
 Rear: 15'
4. See sheets 21 and 22 for additional utility information within St. Augustine Drive.

**PLAN REFERENCES**

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 M.N.D.R.D. BOOK 235 PLAN 51  
 M.N.D.R.D. BOOK 224 PLAN 90

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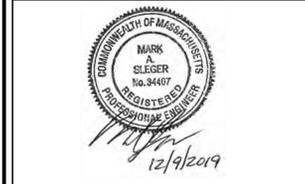
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 M.N.D.R.D. BOOK 23657 PAGE 195

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BY	REVISIONS	DATE

**EXISTING  
 CONDITIONS PLAN  
 SPALDING HILL  
 ESTATES  
 WESTFORD, MA**

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 WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	<b>3 of 30</b>
SCALE: 1" = 40'	

MATCHLINE SEE SHEET 4

MATCHLINE SEE SHEET 6

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LEGEND

- EXISTING CONTOUR -176-
- EXISTING SPOT ELEVATION \* 192.7
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
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- EXISTING TREELINE
- EXISTING GRANITE CURB
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- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- EXISTING GAS MAIN
- EXISTING GUARD RAIL
- EXISTING RIPRAP
- TEST HOLE



ARTHUR J. HEALY  
 5 CONNELL DRIVE  
 WESTFORD, MA 01886  
 071 0005 0000

NIF  
 JAMES A. BLAKE &  
 LISE R. CONNELL BLAKE  
 6 ST. AUGUSTINE DRIVE  
 WESTFORD, MA 01886  
 040 0017 0006

NIF  
 CONNELL REAL ESTATE  
 TRUST  
 P.O. BOX 1230  
 WESTFORD, MA 01886  
 041 0050 0000

NIF  
 CRAIG M. & STAVROULA  
 STOWELL  
 4 ST. AUGUSTINE DRIVE  
 WESTFORD, MA 01886  
 040 0017 0005

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2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
 OSRD Requirements:  
 Minimum Area: 20,000 s.f.  
 Minimum Frontage: 50' (100' average)  
 Front: 20'  
 Side: 15'  
 Rear: 15'
4. See sheets 21 and 22 for additional utility information within St. Augustine Drive.

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88  
 M.N.D.R.D. BOOK 235 PLAN 51  
 M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

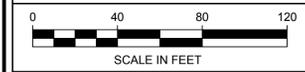
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RECORD OWNERS

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ASSESSORS REFERENCES

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MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

EXISTING  
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 WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	4 of 30
SCALE: 1" = 40'	



General Notes

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- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7-1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Front: 20'  
Side: 15'  
Rear: 15'
- See sheets 21 and 22 for additional utility information within St. Augustine Drive.

PLAN REFERENCES

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- M.N.D.R.D. BOOK 21730 PAGE 269
- M.N.D.R.D. BOOK 23657 PAGE 195

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BY	REVISIONS	DATE

EXISTING  
CONDITIONS PLAN  
SPALDING HILL  
ESTATES  
WESTFORD, MA

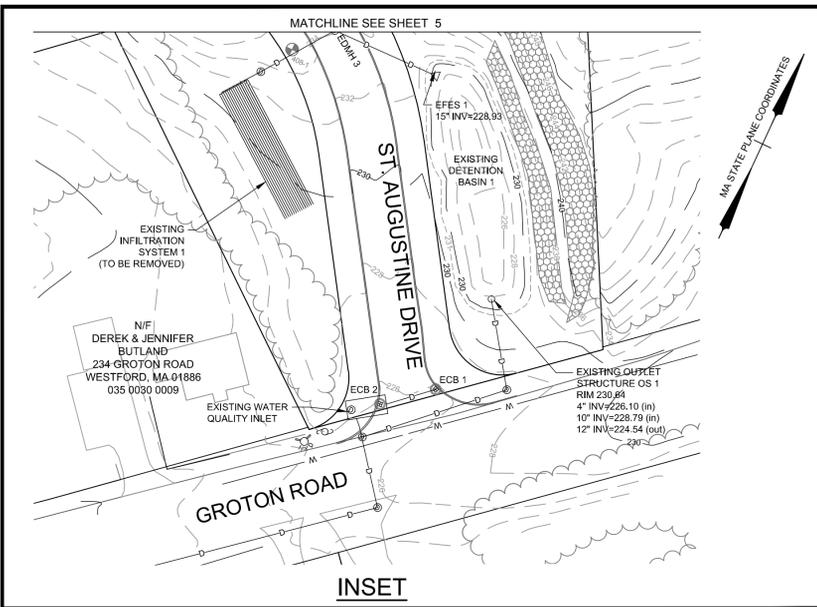
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JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	5 of 30
SCALE: 1" = 40'	

LEGEND

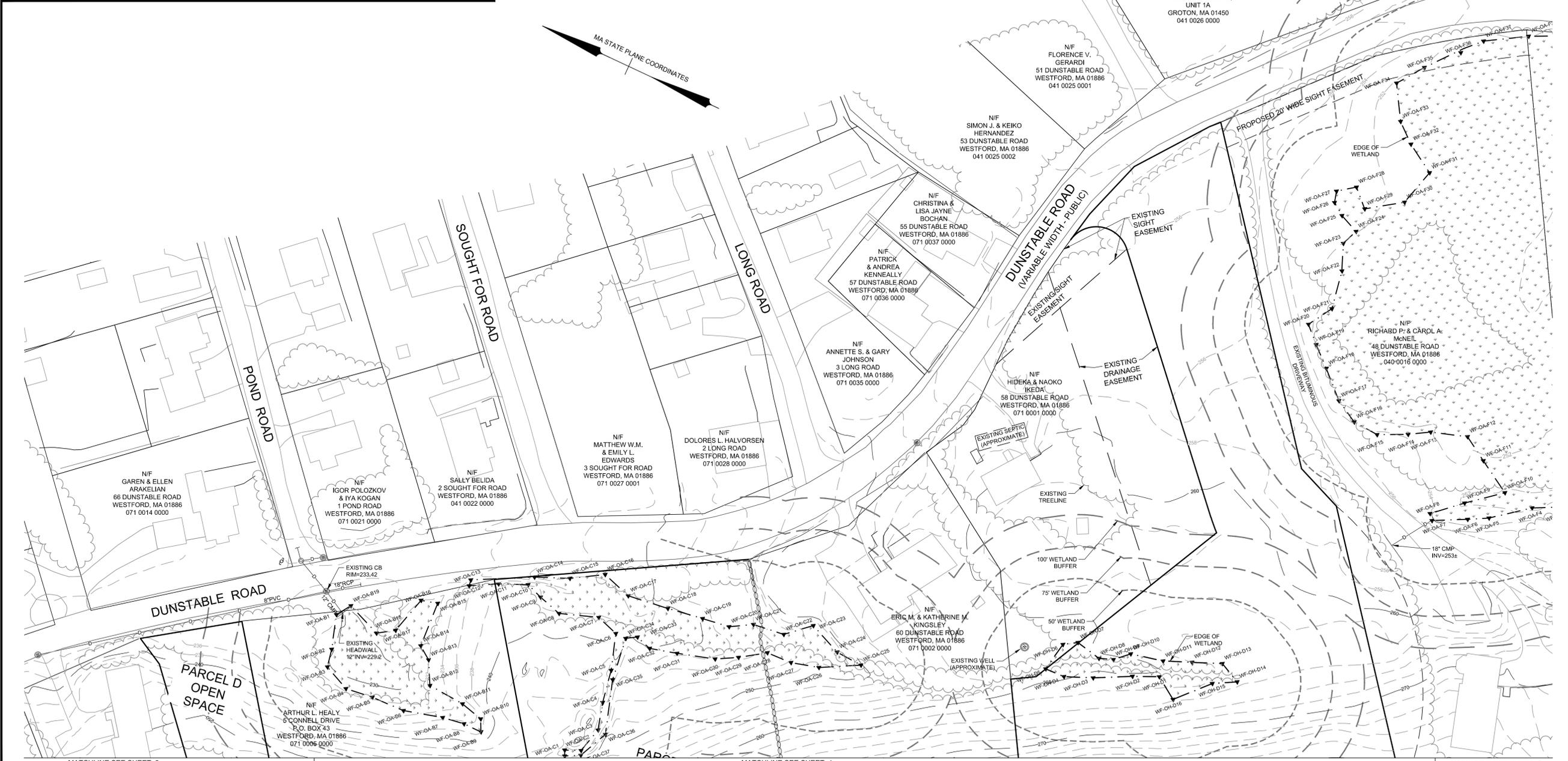
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- EXISTING SPOT ELEVATION
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- EXISTING HYDRANT
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- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- EXISTING GAS MAIN
- EXISTING GUARD RAIL
- EXISTING RIPRAP
- TEST HOLE



INSET

**LEGEND**

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
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- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- EXISTING HYDRANT
- EXISTING GATE VALVE
- EXISTING WATER SHUT-OFF
- EXISTING WATER MAIN
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- EXISTING GAS MAIN
- EXISTING GUARD RAIL
- EXISTING RIPRAP
- TEST HOLE



**General Notes**

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7-1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Yard Setbacks: Front: 20'  
Side: 15'  
Rear: 15'
4. See sheets 21 and 22 for additional utility information within St. Augustine Drive.

**PLAN REFERENCES**

- M.N.D.R.D. BOOK 240 PLAN 88
- M.N.D.R.D. BOOK 235 PLAN 51
- M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

- M.N.D.R.D. BOOK 19682 PAGE 258
- M.N.D.R.D. BOOK 21730 PAGE 263
- M.N.D.R.D. BOOK 21730 PAGE 266
- M.N.D.R.D. BOOK 21730 PAGE 267
- M.N.D.R.D. BOOK 21730 PAGE 269
- M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

**ASSESSORS REFERENCES**

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**EXISTING  
CONDITIONS PLAN  
SPALDING HILL  
ESTATES  
WESTFORD, MA**

**ALAN  
ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	6 of 30
SCALE: 1" = 40'	



**WAIVERS REQUESTED**  
 THE FOLLOWING WAIVERS FROM THE WESTFORD PLANNING BOARD SUBDIVISION RULES AND REGULATIONS HAVE BEEN REQUESTED.

218-11.B.(17)(D): TO NOT SHOW LARGE TREES IN EXCESS OF 10 INCHES IN DIAMETER WITHIN THE PROPOSED ROADWAY AND NECESSARY SIDE SLOPES.

218-12.D.(2), 218-13.A.(1), 218-13.F.(1): TO CONSTRUCT A SIDEWALK ON ONLY ONE SIDE OF ST. PAUL LANE AND NO SIDEWALKS ON ST. JAMES WAY.

218-13.A.(1): TO REDUCE THE PAVEMENT WIDTH ON ST. JAMES WAY FROM THE REQUIRED 22 FEET TO 20 FEET.

218-13.B.(6): TO ALLOW THE INVERT OF THE PIPE DISCHARGING INTO DETENTION BASIN 3A AND THE WETLAND BASIN TO BE SET BELOW THE 25-YEAR STORM ELEVATION.

218-13.B.(6): TO ALLOW STORM WATER DETENTION BASINS WITHIN 30 FEET OF A LOT LINE.

218-13.E.(2): TO ALLOW ST. JAMES WAY BE CONSTRUCTED WITH CAPE COD BERM CURBING WHEREAS SLOPED GRANITE IS REQUIRED.

218-17.E.: TO ALLOW THE MINIMUM COVER OF DRAIN PIPES TO BE REDUCED FROM 4 FEET TO 2.0 FEET.

218-17.E.: TO ALLOW THE USE OF HDPE PIPING IN DRAINAGE SYSTEMS IN ST. JAMES WAY, THE EMERGENCY ACCESS ROAD, AND OFF-ROAD EASEMENT, WHEREAS REINFORCED CONCRETE PIPE IS REQUIRED.

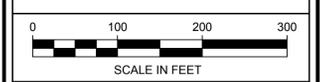
- General Notes**
- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
  - The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
  - The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements:  
 Minimum Area: 20,000 s.f.  
 Minimum Frontage: 50' (100' average)  
 Front: 20'  
 Side: 15'  
 Rear: 15'
  - Parcels F and M are not building lots.
  - St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
  - The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.
  - Lot 28 is a single building lot which will be deed restricted such that it can not be further subdivided to create additional building lots.
  - A 20' wide temporary construction easement is to be reserved along the frontage of each lot within the subdivision and shall remain in effect until the street is accepted as a public way by the Town of Westford.
  - The boundary between the Open Space and the lots is to be delineated with 4" x 4" wood posts with 2" reveal and a sign describing the boundary. Posts shall be spaced 50' apart.

**PLAN REFERENCES**  
 M.N.D.R.D. BOOK 240 PLAN 88  
 M.N.D.R.D. BOOK 235 PLAN 51  
 M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**  
 M.N.D.R.D. BOOK 19882 PAGE 258  
 M.N.D.R.D. BOOK 21730 PAGE 263  
 M.N.D.R.D. BOOK 21730 PAGE 266  
 M.N.D.R.D. BOOK 21730 PAGE 267  
 M.N.D.R.D. BOOK 21730 PAGE 269  
 M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**  
 CONNELL REAL ESTATE TRUST  
 P.O. BOX 1230  
 WESTFORD, MA 01886

**ASSESSORS REFERENCES**  
 MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	DATE
MAS	TOWN ENG. COMMENTS	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

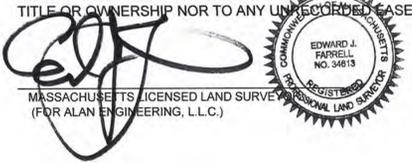
**DEFINITIVE SUBDIVISION INDEX PLAN**  
**SPALDING HILL ESTATES**  
**WESTFORD, MA**

**ALAN ENGINEERING, L.L.C.**  
 110 WINN STREET, SUITE 209  
 WOBURN, MA 01801  
 (978) 577-6444  
 alan.eng@verizon.net

**PREPARED FOR:**  
 CONNELL REAL ESTATE TRUST  
 P.O. BOX 1230  
 WESTFORD, MA 01886

JOB NO: 1174      DWG NO: 1637  
 JULY 20, 2018      **7 of 30**  
 SCALE: 1" = 100'

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS. THIS IS NOT A CERTIFICATION OF TITLE OR OWNERSHIP NOR TO ANY UNRECORDED EASEMENTS.



**12-17-19**  
 DATE

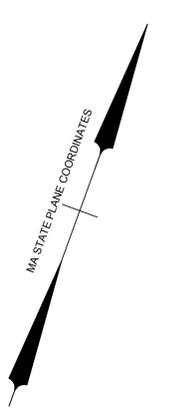
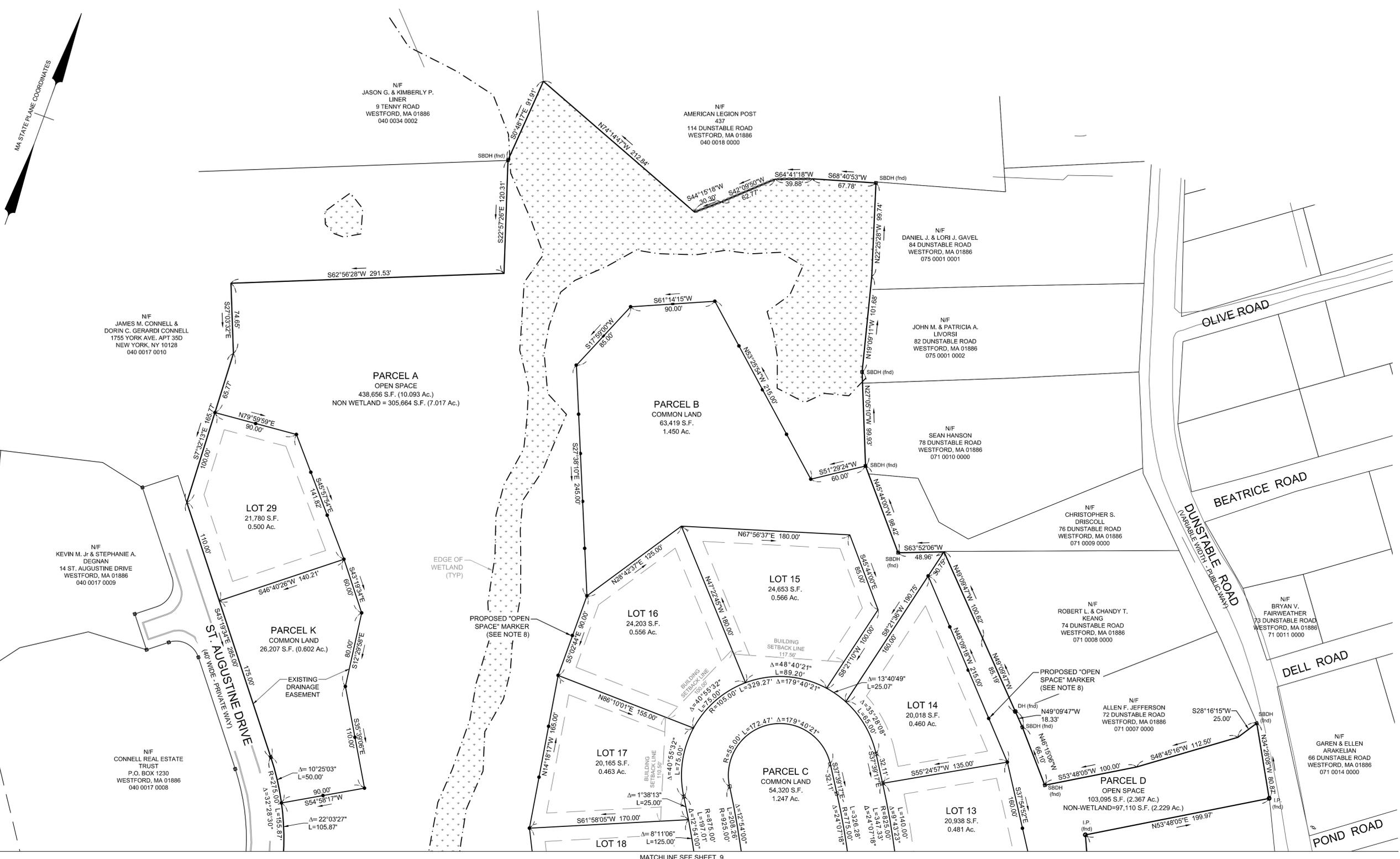
TOWN OF WESTFORD  
 PLANNING BOARD APPROVAL

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 DATE: \_\_\_\_\_

THIS PLAN IS APPROVED SUBJECT TO A CERTIFICATE OF APPROVAL OF A DEFINITIVE SUBDIVISION PLAN AND A SPECIAL PERMIT FOR AN OPEN SPACE RESIDENTIAL DEVELOPMENT PURSUANT TO SECTION 7.1 OF THE TOWN OF WESTFORD ZONING BYLAWS, BOTH RECORDED HERewith.

THIS PLAN IS APPROVED SUBJECT TO COVENANT CONDITIONS SET FORTH IN A COVENANT EXECUTED BY \_\_\_\_\_, DATED \_\_\_\_\_, AND TO BE RECORDED HERewith.

I, \_\_\_\_\_, CLERK OF THE TOWN OF WESTFORD HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN HAS BEEN RECEIVED AND RECORDED WITH THIS OFFICE ON \_\_\_\_\_ AND THAT NO APPEAL OF SUCH HAS BEEN RECEIVED DURING THE 20 DAYS NEXT.



**General Notes**

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements: Minimum Area: 20,000 s.f. Minimum Frontage: 50' (100' average) Yard Setbacks: Front: 20' Side: 15' Rear: 15'
- Parcels F and M are not building lots.
- St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
- The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.
- Lot 28 is a single building lot which will be deed restricted such that it can not be further subdivided to create additional building lots.
- A 20' wide temporary construction easement is to be reserved along the frontage of each lot within the subdivision and shall remain in effect until the street is accepted as a public way by the Town of Westford.
- The boundary between the Open Space and the lots and between the "No Clear Zone" and the lots is to be delineated with 4" x 4" wood posts with 2" reveal and a sign describing the boundary. Posts shall be spaced 50' apart.

**PLAN REFERENCES**

- M.N.D.R.D. BOOK 240 PLAN 88
- M.N.D.R.D. BOOK 235 PLAN 51
- M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

- M.N.D.R.D. BOOK 19682 PAGE 258
- M.N.D.R.D. BOOK 21730 PAGE 263
- M.N.D.R.D. BOOK 21730 PAGE 266
- M.N.D.R.D. BOOK 21730 PAGE 267
- M.N.D.R.D. BOOK 21730 PAGE 269
- M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

**ASSESSORS REFERENCES**

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**DEFINITIVE SUBDIVISION PLAN OF LAND  
SPALDING HILL ESTATES  
WESTFORD, MA**

**ALAN ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	8 of 30
SCALE: 1" = 50'	

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS. THIS IS NOT A CERTIFICATION OF TITLE OR OWNERSHIP NOR TO ANY UNRECORDED EASEMENTS.

*[Signature]*  
EDWARD J. PARRELL  
NO. 34613  
MASSACHUSETTS LICENSED LAND SURVEYOR  
(FOR ALAN ENGINEERING, L.L.C.)

12-17-19  
DATE

TOWN OF WESTFORD  
PLANNING BOARD APPROVAL

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
DATE: \_\_\_\_\_

THIS PLAN IS APPROVED SUBJECT TO A CERTIFICATE OF APPROVAL OF A DEFINITIVE SUBDIVISION PLAN AND A SPECIAL PERMIT FOR AN OPEN SPACE RESIDENTIAL DEVELOPMENT PURSUANT TO SECTION 7.1 OF THE TOWN OF WESTFORD ZONING BYLAWS, BOTH RECORDED HERewith.

THIS PLAN IS APPROVED SUBJECT TO COVENANT CONDITIONS SET FORTH IN A COVENANT EXECUTED BY \_\_\_\_\_, DATED \_\_\_\_\_, AND TO BE RECORDED HERewith.

I, \_\_\_\_\_, CLERK OF THE TOWN OF WESTFORD HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN HAS BEEN RECEIVED AND RECORDED WITH THIS OFFICE ON \_\_\_\_\_ AND THAT NO APPEAL OF SUCH HAS BEEN RECEIVED DURING THE 20 DAYS NEXT.

□ DENOTES STONE BOUND WITH A DRILL HOLE (TO BE SET) STONE BOUNDS ARE TO BE 6 INCHES SQUARE BY 4 FEET LONG WITH A 1/8 INCH DRILL HOLE IN THE TOP CENTER. THE TOP OF THE BOUND IS TO BE SET FLUSH WITH THE FINISHED GRADE.

MATCHLINE SEE SHEET 8

General Notes

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Yard Setbacks: Front: 20'  
Side: 15'  
Rear: 15'
- Parcels F and M are not building lots.
- St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
- The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.
- Lot 28 is a single building lot which will be deed restricted such that it can not be further subdivided to create additional building lots.
- A 20' wide temporary construction easement is to be reserved along the frontage of each lot within the subdivision and shall remain in effect until the street is accepted as a public way by the Town of Westford.
- The boundary between the Open Space and the lots and between the "No Clear Zone" and the lots is to be delineated with 4" x 4" wood posts with 2" reveal and a sign describing the boundary. Posts shall be spaced 50' apart.

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88  
M.N.D.R.D. BOOK 235 PLAN 51  
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

M.N.D.R.D. BOOK 19882 PAGE 258  
M.N.D.R.D. BOOK 21730 PAGE 263  
M.N.D.R.D. BOOK 21730 PAGE 266  
M.N.D.R.D. BOOK 21730 PAGE 267  
M.N.D.R.D. BOOK 21730 PAGE 269  
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

DEFINITIVE SUBDIVISION  
PLAN OF LAND  
SPALDING HILL  
ESTATES  
WESTFORD, MA

**ALAN  
ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174 DWG NO: 1637  
JULY 20, 2018  
SCALE: 1" = 50'

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS. THIS IS NOT A CERTIFICATION OF TITLE OR OWNERSHIP NOR TO ANY UNRECORDED EASEMENTS.

*[Signature]*  
EDWARD J. FARRELL  
NO. 34613  
MASSACHUSETTS LICENSED LAND SURVEYOR  
(FOR ALAN ENGINEERING, L.L.C.)

12-17-19  
DATE

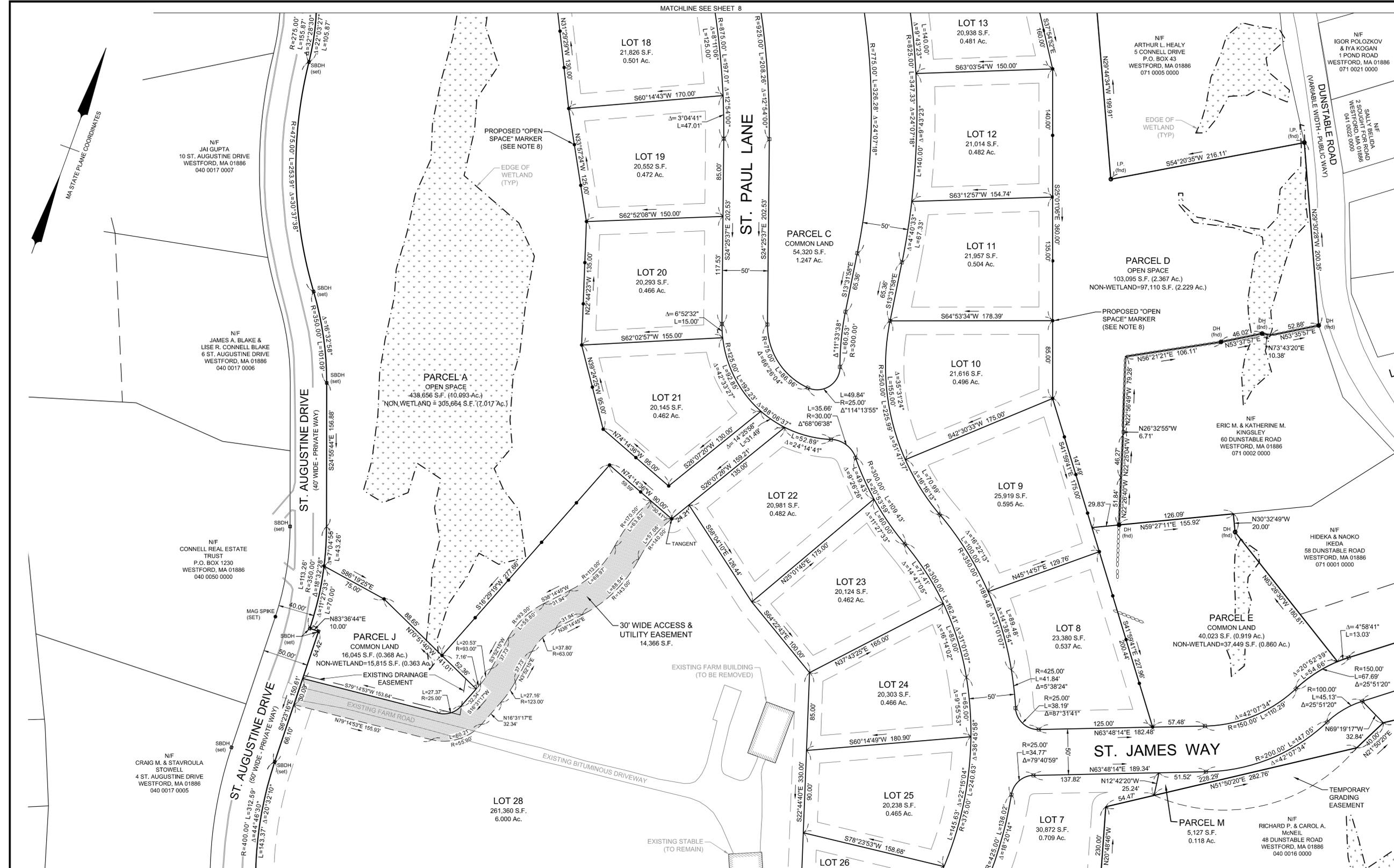
TOWN OF WESTFORD  
PLANNING BOARD APPROVAL

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
DATE: \_\_\_\_\_

THIS PLAN IS APPROVED SUBJECT TO A CERTIFICATE OF APPROVAL OF A DEFINITIVE SUBDIVISION PLAN AND A SPECIAL PERMIT FOR AN OPEN SPACE RESIDENTIAL DEVELOPMENT PURSUANT TO SECTION 7.1 OF THE TOWN OF WESTFORD ZONING BYLAWS, BOTH RECORDED HERewith.

THIS PLAN IS APPROVED SUBJECT TO COVENANT CONDITIONS SET FORTH IN A COVENANT EXECUTED BY \_\_\_\_\_, DATED \_\_\_\_\_, AND TO BE RECORDED HERewith.

I, \_\_\_\_\_, CLERK OF THE TOWN OF WESTFORD HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN HAS BEEN RECEIVED AND RECORDED WITH THIS OFFICE ON \_\_\_\_\_ AND THAT NO APPEAL OF SUCH HAS BEEN RECEIVED DURING THE 20 DAYS NEXT.



MATCHLINE SEE SHEET 10

MATCHLINE SEE INSET ON SHEET 10

MATCHLINE SEE SHEET 5



**General Notes**

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements: Minimum Area: 20,000 s.f. Minimum Frontage: 50' (100' average) Yard Setbacks: Front: 20' Side: 15' Rear: 15'
- Parcels F and M are not building lots.
- St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
- The Access and Utility Easement through Lot 28 is to be maintained by a homeowner's association.
- Lot 28 is a single building lot which will be deed restricted such that it can not be further subdivided to create additional building lots.
- A 20' wide temporary construction easement is to be reserved along the frontage of each lot within the subdivision and shall remain in effect until the street is accepted as a public way by the Town of Westford.
- The boundary between the Open Space and the lots and between the "No Clear Zone" and the lots is to be delineated with 4" x 4" wood posts with 2" reveal and a sign describing the boundary. Posts shall be spaced 50' apart.

**PLAN REFERENCES**

M.N.D.R.D. BOOK 240 PLAN 88  
 M.N.D.R.D. BOOK 235 PLAN 51  
 M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

M.N.D.R.D. BOOK 19882 PAGE 258  
 M.N.D.R.D. BOOK 21730 PAGE 263  
 M.N.D.R.D. BOOK 21730 PAGE 266  
 M.N.D.R.D. BOOK 21730 PAGE 267  
 M.N.D.R.D. BOOK 21730 PAGE 269  
 M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**

CONNELL REAL ESTATE TRUST  
 P.O. BOX 1230  
 WESTFORD, MA 01886

**ASSESSORS REFERENCES**

MAP 040, PARCEL 0017 0000

□ DENOTES STONE BOUND WITH A DRILL HOLE (TO BE SET) STONE BOUNDS ARE TO BE 6 INCHES SQUARE BY 4 FEET LONG WITH A 3/8 INCH DRILL HOLE IN THE TOP CENTER. THE TOP OF THE BOUND IS TO BE SET FLUSH WITH THE FINISHED GRADE.



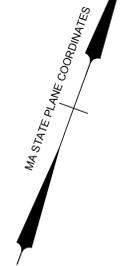
MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**DEFINITIVE SUBDIVISION  
 PLAN OF LAND  
 SPALDING HILL  
 ESTATES  
 WESTFORD, MA**

**ALAN  
 ENGINEERING, L.L.C.**  
 110 WINN STREET, SUITE 209  
 WOBURN, MA 01801  
 (978) 577-6444  
 alan.eng@verizon.net

**PREPARED FOR:**  
 CONNELL REAL ESTATE TRUST  
 P.O. BOX 1230  
 WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	10 of 30
SCALE: 1" = 50'	



TOWN OF WESTFORD  
 PLANNING BOARD APPROVAL

DATE: \_\_\_\_\_

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS. THIS IS NOT A CERTIFICATION OF TITLE OR OWNERSHIP NOR TO ANY UNRECORDED EASEMENTS.

*[Signature]*  
 EDWARD J. FARRELL  
 NO. 34813  
 MASSACHUSETTS LICENSED LAND SURVEYOR  
 (FOR ALAN ENGINEERING, L.L.C.)

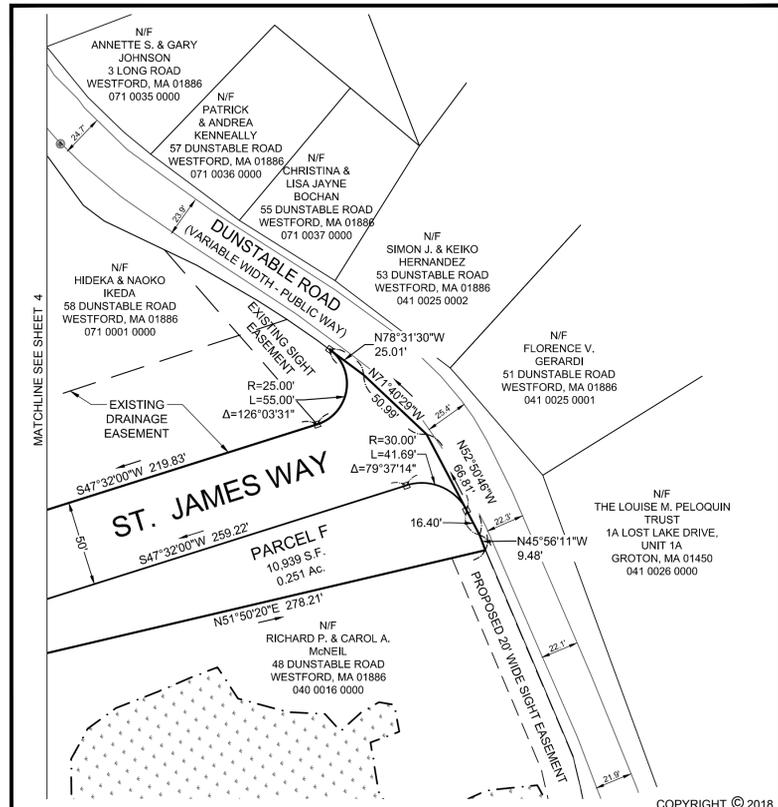


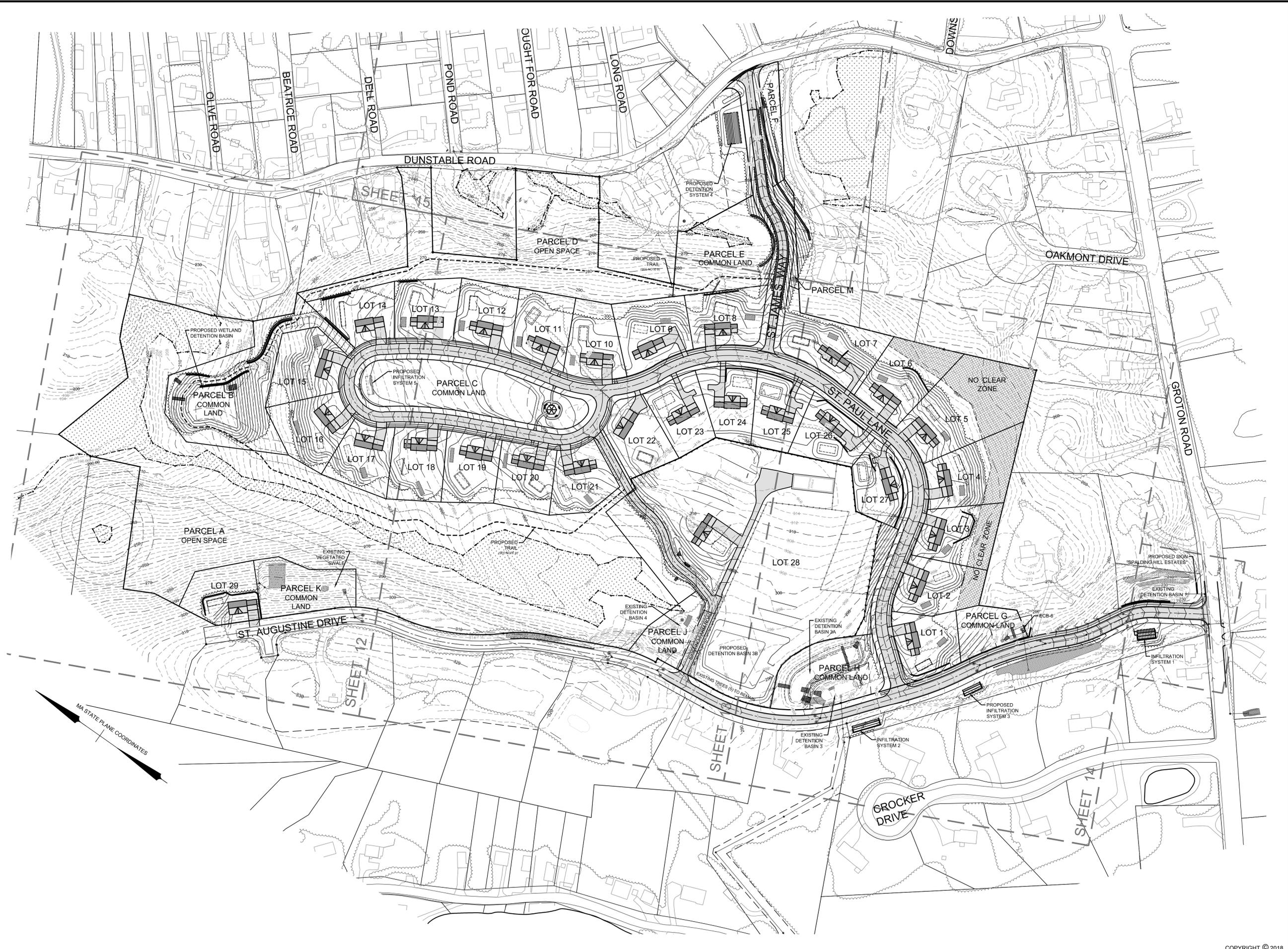
**12-17-19**  
 DATE

THIS PLAN IS APPROVED SUBJECT TO A CERTIFICATE OF APPROVAL OF A DEFINITIVE SUBDIVISION PLAN AND A SPECIAL PERMIT FOR AN OPEN SPACE RESIDENTIAL DEVELOPMENT PURSUANT TO SECTION 7.1 OF THE TOWN OF WESTFORD ZONING BYLAWS, BOTH RECORDED HERewith.

THIS PLAN IS APPROVED SUBJECT TO COVENANT CONDITIONS SET FORTH IN A COVENANT EXECUTED BY \_\_\_\_\_, DATED \_\_\_\_\_, AND TO BE RECORDED HERewith.

I, \_\_\_\_\_, CLERK OF THE TOWN OF WESTFORD HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN HAS BEEN RECEIVED AND RECORDED WITH THIS OFFICE ON \_\_\_\_\_ AND THAT NO APPEAL OF SUCH HAS BEEN RECEIVED DURING THE 20 DAYS NEXT.





**General Notes**

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Yard Setbacks: Front: 20'  
Side: 15'  
Rear: 15'
- Parcels F and M are not building lots.
- Houses and lot grading shown is for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
- Retaining walls shown are for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer.
- Detention Basin 3B is to be constructed prior to performing any modifications to Detention Basin 3A. Detention Basin 3B is to detain and treat runoff for the farm (Lot 28) only. It is to be owned and maintained by the owner of Lot 28. The basin is to be graded with shallow side slopes to facilitate grazing.
- The boundary between the Open Space and the lots and along the "No Clear Zone" is to be delineated with 4" x 4" wood posts with 2' reveal and a sign describing the boundary. Posts shall be spaced approximately 50' apart.
- The proposed trail is to be constructed by pruning existing vegetation only and painted tree markings. No disturbance to the existing ground surface is to occur.

**PLAN REFERENCES**

M.N.D.R.D. BOOK 240 PLAN 88  
M.N.D.R.D. BOOK 235 PLAN 51  
M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

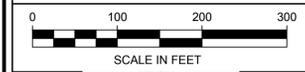
M.N.D.R.D. BOOK 19882 PAGE 258  
M.N.D.R.D. BOOK 21730 PAGE 263  
M.N.D.R.D. BOOK 21730 PAGE 266  
M.N.D.R.D. BOOK 21730 PAGE 267  
M.N.D.R.D. BOOK 21730 PAGE 269  
M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

**ASSESSORS REFERENCES**

MAP 040, PARCEL 0017 0000



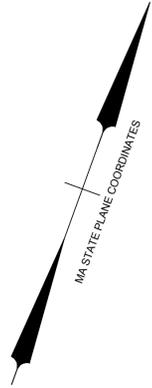
MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**GRADING & DRAINAGE INDEX PLAN**  
**SPALDING HILL ESTATES**  
**WESTFORD, MA**

**ALAN ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

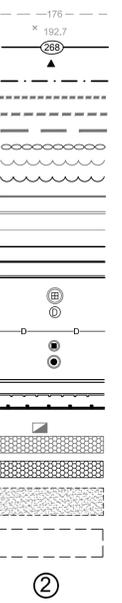
PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	11 of 30
SCALE: 1" = 100'	



**LEGEND**

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED CONTOUR
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CAPECOD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED DRAIN LINE
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- TEST HOLE
- EXISTING RIPRAP
- PROPOSED RIPRAP
- PROPOSED ROOF DRAIN RECHARGE SYSTEM
- PROPOSED SEPTIC SYSTEM LEACH FIELD LOCATION
- PROPOSED HOUSE NUMBER



**General Notes**

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Yard Setbacks: Front: 20'  
Side: 15'  
Rear: 15'
4. Parcels F and M are not building lots.
5. Houses and lot grading shown is for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
6. Retaining walls shown are for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer.
7. Detention Basin 3B is to be constructed prior to performing any modifications to Detention Basin 3A. Detention Basin 3B is to detain and treat runoff for the farm (Lot 28) only. It is to be owned and maintained by the owner of Lot 28. The basin is to be graded with shallow side slopes to facilitate grazing.
8. The boundary between the Open Space and the lots and along the "No Clear Zone" is to be delineated with 4" x 4" wood posts with 2' reveal and a sign describing the boundary. Posts shall be spaced approximately 50' apart.
9. The proposed trail is to be constructed by pruning existing vegetation only and painted tree markings. No disturbance to the existing ground surface is to occur.

**PLAN REFERENCES**

- M.N.D.R.D. BOOK 240 PLAN 88
- M.N.D.R.D. BOOK 235 PLAN 51
- M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

- M.N.D.R.D. BOOK 19682 PAGE 258
- M.N.D.R.D. BOOK 21730 PAGE 263
- M.N.D.R.D. BOOK 21730 PAGE 266
- M.N.D.R.D. BOOK 21730 PAGE 267
- M.N.D.R.D. BOOK 21730 PAGE 269
- M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

**ASSESSORS REFERENCES**

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**GRADING AND DRAINAGE PLAN  
SPALDING HILL ESTATES  
WESTFORD, MA**

**ALAN ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	12 of 30
SCALE: 1" = 40'	



MATCHLINE SEE SHEET 13

MATCHLINE SEE SHEET 15  
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MATCHLINE SEE SHEET 12

LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED CONTOUR
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED CAPECOD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- PROPOSED CATCH BASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED DRAIN LINE
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- TEST HOLE
- EXISTING RIPRAP
- PROPOSED RIPRAP
- PROPOSED ROOF DRAIN
- RECHARGE SYSTEM
- PROPOSED SEPTIC SYSTEM
- LEACH FIELD LOCATION
- PROPOSED HOUSE NUMBER

②

N/F  
JAMES A. BLAKE &  
LISE R. CONNELL BLAKE  
TRUST  
6 ST. AUGUSTINE DRIVE  
WESTFORD, MA 01886  
040 0017 0006

N/F  
CONNELL REAL ESTATE  
TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886  
040 0050 0000

N/F  
CRAIG M. & STAVROULA  
STOWELL  
4 ST. AUGUSTINE DRIVE  
WESTFORD, MA 01886  
040 0017 0005



MATCHLINE SEE SHEET 14

N/F  
ARTHUR L. HEALY  
5 CONNELL DRIVE  
P.O. BOX 43  
WESTFORD, MA 01886  
071 0005 0000

PROPOSED TRAIL  
(SEE NOTE 9)

OPEN SPACE  
MARKER  
(TYPICAL)  
SEE NOTE 8

PARCEL D  
OPEN SPACE

MATCHLINE SEE SHEET 15

General Notes

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Yard Setbacks: Front: 20'  
Side: 15'  
Rear: 15'
4. Parcels F and M are not building lots.
5. Houses and lot grading shown is for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
6. Retaining walls shown are for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer.
7. Detention Basin 3B is to be constructed prior to performing any modifications to Detention Basin 3A. Detention Basin 3B is to detain and treat runoff for the farm (Lot 28) only. It is to be owned and maintained by the owner of Lot 28. The basin is to be graded with shallow side slopes to facilitate grazing.
8. The boundary between the Open Space and the lots and along the "No Clear Zone" is to be delineated with 4" x 4" wood posts with 2' reveal and a sign describing the boundary. Posts shall be spaced approximately 50' apart.
9. The proposed trail is to be constructed by pruning existing vegetation only and painted tree markings. No disturbance to the existing ground surface is to occur.

PLAN REFERENCES

- M.N.D.R.D. BOOK 240 PLAN 88
- M.N.D.R.D. BOOK 235 PLAN 51
- M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

- M.N.D.R.D. BOOK 19682 PAGE 258
- M.N.D.R.D. BOOK 21730 PAGE 263
- M.N.D.R.D. BOOK 21730 PAGE 266
- M.N.D.R.D. BOOK 21730 PAGE 267
- M.N.D.R.D. BOOK 21730 PAGE 269
- M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

GRADING AND  
DRAINAGE PLAN  
SPALDING HILL  
ESTATES  
WESTFORD, MA

**ALAN  
ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	13 of 30
SCALE: 1" = 40'	

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General Notes

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements: Minimum Area: 20,000 s.f. Minimum Frontage: 50' (100' average) Yard setbacks: Front: 20' Side: 15' Rear: 15'
- Parcels F and M are not building lots.
- Houses and lot grading shown is for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
- Retaining walls shown are for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer.
- Detention Basin 3B is to be constructed prior to performing any modifications to Detention Basin 3A. Detention Basin 3B is to detain and treat runoff for the farm (Lot 28) only. It is to be owned and maintained by the owner of Lot 28. The basin is to be graded with shallow side slopes to facilitate grazing.
- The boundary between the Open Space and the lots and along the "No Clear Zone" is to be delineated with 4" x 4" wood posts with 2' reveal and a sign describing the boundary. Posts shall be spaced approximately 50' apart. The proposed trail is to be constructed by pruning existing vegetation only and painted tree markings. No disturbance to the existing ground surface is to occur.

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88  
 M.N.D.R.D. BOOK 235 PLAN 51  
 M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

M.N.D.R.D. BOOK 19682 PAGE 258  
 M.N.D.R.D. BOOK 21730 PAGE 263  
 M.N.D.R.D. BOOK 21730 PAGE 266  
 M.N.D.R.D. BOOK 21730 PAGE 267  
 M.N.D.R.D. BOOK 21730 PAGE 269  
 M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST  
 P.O. BOX 1230  
 WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

GRADING AND DRAINAGE PLAN  
 SPALDING HILL ESTATES  
 WESTFORD, MA

**ALAN ENGINEERING, L.L.C.**  
 110 WINN STREET, SUITE 209  
 WOBURN, MA 01801  
 (978) 577-6444  
 alan.eng@verizon.net

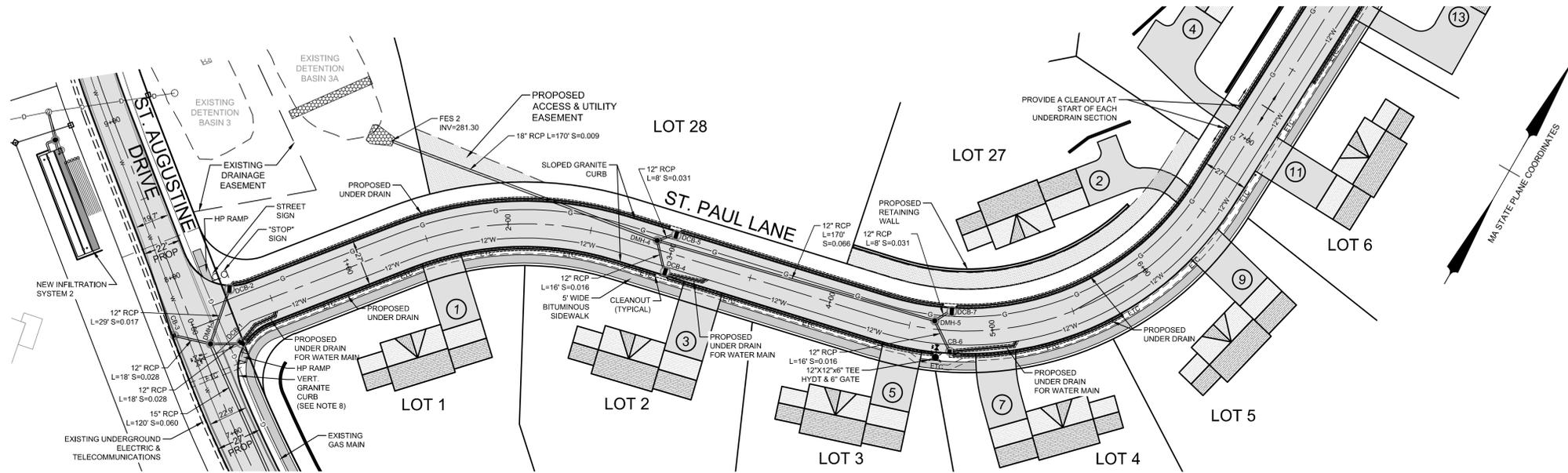
PREPARED FOR:  
 CONNELL REAL ESTATE TRUST  
 P.O. BOX 1230  
 WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	14 of 30
SCALE: 1" = 40'	

LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED CONTOUR
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED CAPECOD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- PROPOSED CATCH BASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED DRAIN LINE
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- TEST HOLE
- EXISTING RIPRAP
- PROPOSED RIPRAP
- PROPOSED ROOF DRAIN RECHARGE SYSTEM
- PROPOSED SEPTIC SYSTEM
- LEACH FIELD LOCATION
- PROPOSED HOUSE NUMBER





PLAN VIEW  
SCALE: 1" = 40'

LEGEND

- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED CAPECOD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN LINE
- PROPOSED DRAIN LINE
- PROPOSED DRAIN MANHOLE
- PROPOSED CATCH BASIN
- EXISTING WATER MAIN
- EXISTING HYDRANT
- EXISTING GATE VALVE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED U/G CONDUITS
- PROPOSED GAS MAIN
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- PROPOSED HOUSE NUMBER

General Notes

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Yard Setbacks: Front: 20'  
Side: 15'  
Rear: 15'
4. Parcels F and M are not building lots.
5. Houses and lot grading is shown for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
6. Retaining walls are shown for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer and will require a building permit. No retaining walls are to be constructed within the right of way for St. Augustine Drive or St. Paul Lane.
7. Vertical granite curbing is to be provided at all intersection roundings except as otherwise noted. Transition sections are to be provided to between sloped and vertical curbing.

PLAN REFERENCES

- M.N.D.R.D. BOOK 240 PLAN 88
- M.N.D.R.D. BOOK 235 PLAN 51
- M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

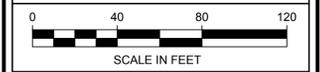
- M.N.D.R.D. BOOK 19682 PAGE 258
- M.N.D.R.D. BOOK 21730 PAGE 263
- M.N.D.R.D. BOOK 21730 PAGE 266
- M.N.D.R.D. BOOK 21730 PAGE 267
- M.N.D.R.D. BOOK 21730 PAGE 269
- M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



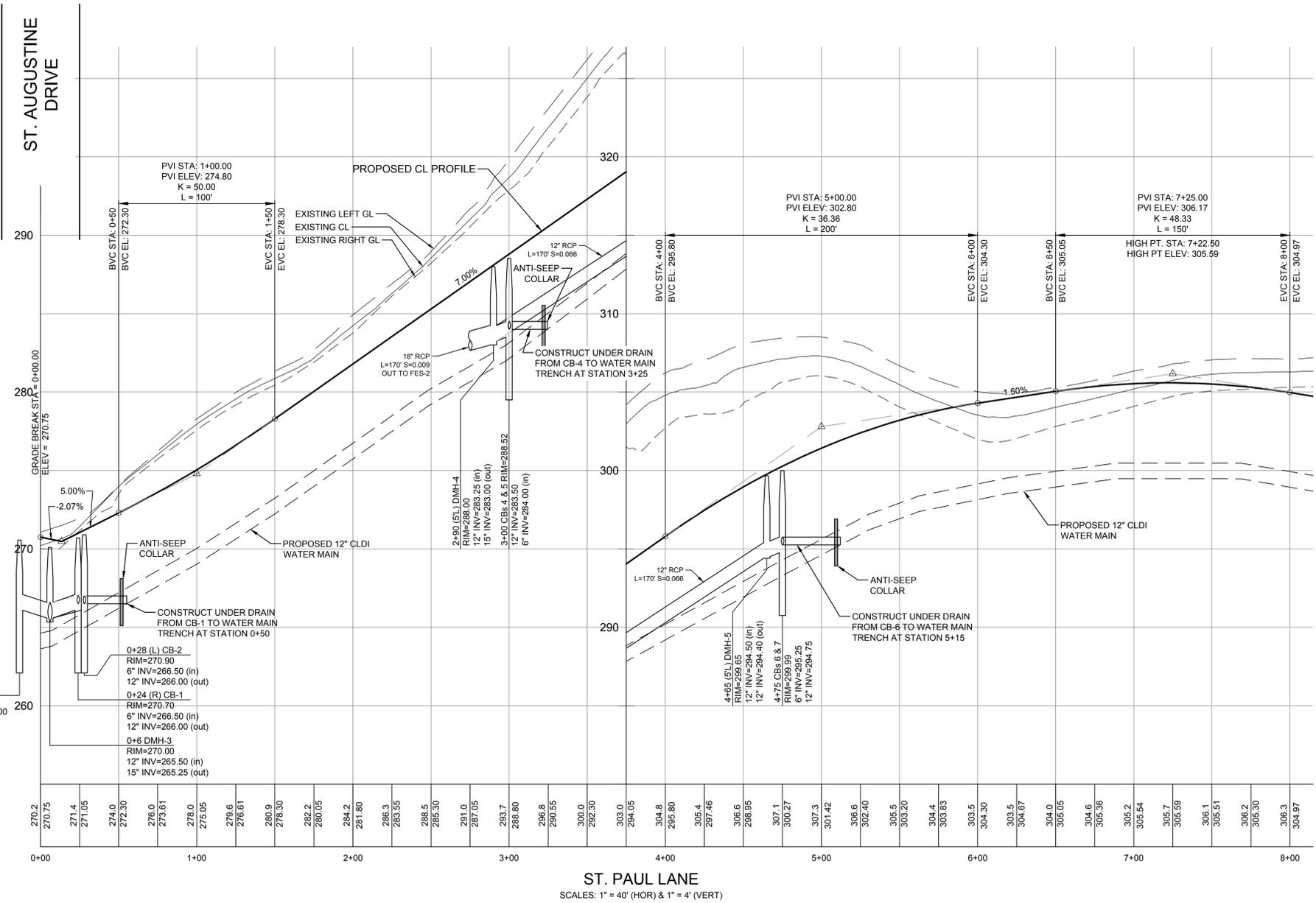
MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

PLAN & PROFILE  
ST. PAUL LANE  
SPALDING HILL  
ESTATES  
WESTFORD, MA

**ALAN  
ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	16 of 30
SCALE: 1" = 40'	

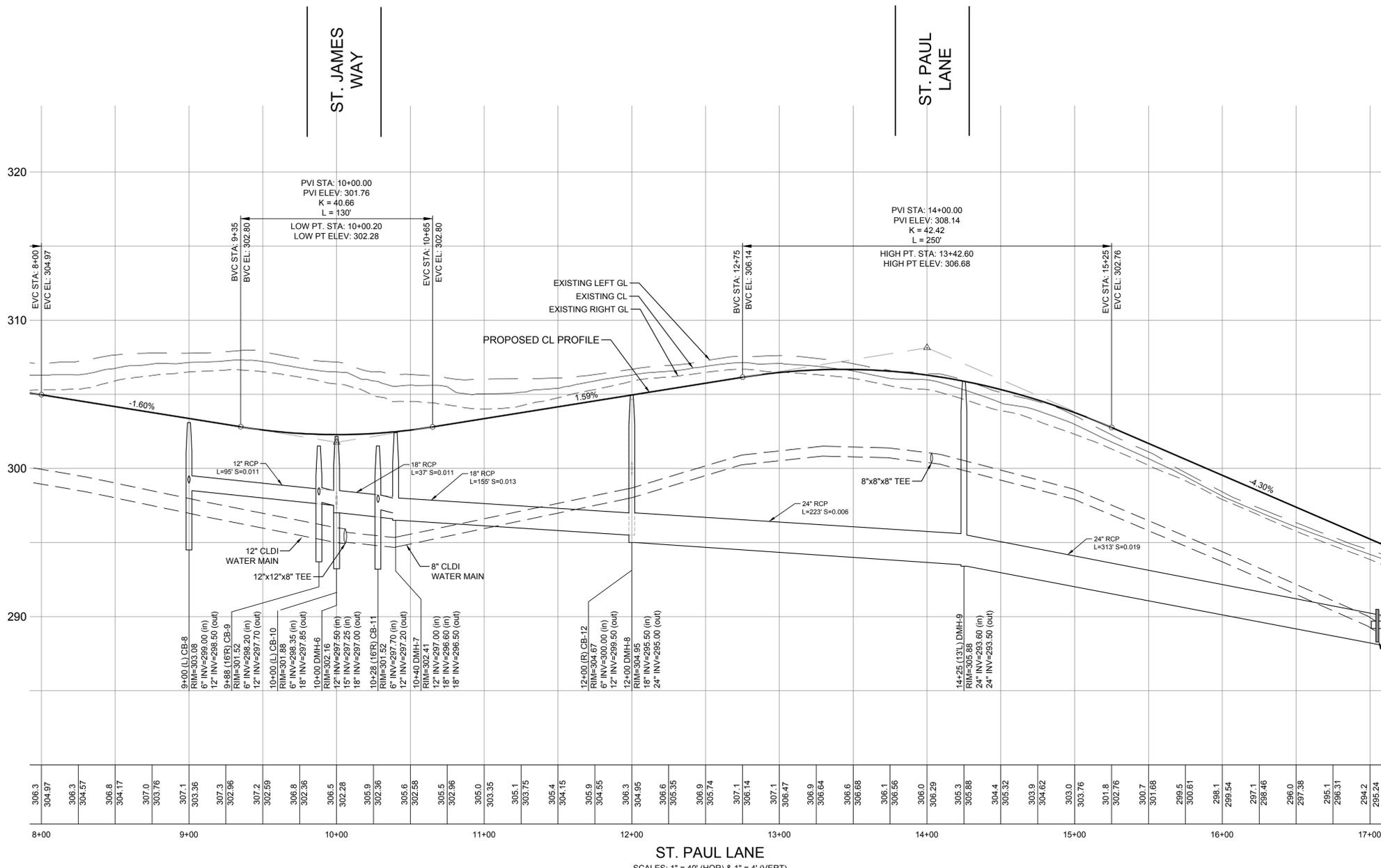
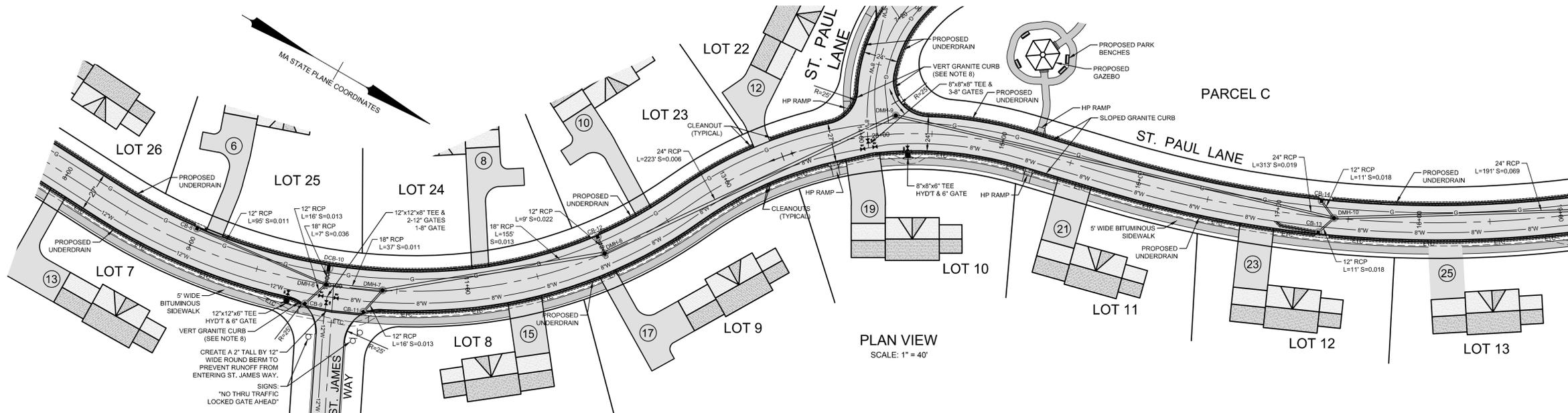


ST. PAUL LANE  
SCALES: 1" = 40' (HOR) & 1" = 4' (VERT)

DRAINAGE PIPING SCHEDULE

BEGIN STRUCTURE	BEGIN INVERT	END INVERT	END STRUCTURE	PIPE LENGTH	PIPE SLOPE	PIPE SIZE	PIPE TYPE
CB 1	266.00	265.50	DMH 3	18'	0.028	12"	RCP
CB 2	266.00	265.50	DMH 3	29'	0.017	12"	RCP
CB 3	266.00	265.50	DMH 3	18'	0.028	12"	RCP
DMH 3	265.25	258.00	DMH 2	120'	0.060	15"	RCP
DMH 2	258.00	257.25	DMH 1	33'	0.023	15"	RCP
DMH 1	257.00	256.70	DMH 2A	33'	0.009	12"	RCP
DMH 2A	256.60	256.50	INF 3	5'	0.020	12"	N-12
DMH 1	257.15	255.00	FES 1	119'	0.018	15"	N-12
CB 4	283.50	283.25	DMH 4	16'	0.016	12"	RCP
CB 5	283.50	283.25	DMH 4	8'	0.031	12"	RCP
DMH 4	282.75	281.30	FES 2	170'	0.009	18"	RCP
CB 6	294.75	294.50	DMH 5	16'	0.016	12"	RCP
CB 7	294.75	294.50	DMH 5	8'	0.031	12"	RCP
DMH 5	294.40	283.25	DMH 4	170'	0.066	12"	RCP
CB 8	288.50	287.50	DMH 6	95'	0.011	12"	RCP
CB 9	288.20	288.00	DMH 6	16'	0.013	12"	RCP
CB 10	297.60	297.35	DMH 6	7'	0.036	18"	RCP
DMH 6	297.00	296.60	DMH 7	37'	0.011	18"	RCP
CB 11	297.20	297.00	DMH 7	16'	0.013	12"	RCP
DMH 7	296.50	294.50	DMH 8	155'	0.013	18"	RCP
CB 12	299.50	299.30	DMH 8	9'	0.022	12"	RCP
DMH 8	295.00	293.60	DMH 9	223'	0.006	24"	RCP
DMH 9	293.50	287.50	DMH 10	313'	0.019	24"	RCP
CB 13	288.70	288.50	DMH 10	11'	0.018	12"	RCP
CB 14	288.70	288.50	DMH 10	11'	0.018	12"	RCP
DMH 10	287.40	274.30	DMH 11	191'	0.069	24"	RCP
CB 15	275.50	275.30	DMH 11	11'	0.018	12"	RCP
CB 16	275.50	275.50	DMH 11	11'	0.018	12"	RCP
DMH 11	274.50	273.50	DMH 13	67'	0.010	24"	RCP
DMH 12	274.10	274.00	DMH 13	5'	0.020	18"	N-12
DMH 13	273.60	273.50	INF 5	5'	0.020	12"	N-12
DMH 13	269.00	267.50	DMH 14	41'	0.037	24"	N-12
CB 17	268.20	267.90	DMH 15	9'	0.033	12"	RCP
CB 18	268.20	267.90	DMH 15	17'	0.018	12"	RCP
DMH 15	267.80	266.50	DMH 14	87'	0.015	12"	RCP
DMH 14	265.50	255.00	DMH 16	123'	0.085	24"	N-12
DMH 16	249.50	241.50	DMH 17	91'	0.088	24"	N-12
DMH 17	237.00	228.50	DMH 18	121'	0.070	24"	N-12
DMH 18	221.50	218.50	FES 5	60'	0.050	24"	N-12
OS 1	214.74	214.50	FES 6	29'	0.009	18"	N-12
DMH 19	275.50	274.20	DMH 12	134'	0.010	18"	RCP
CB 19	276.20	276.00	DMH 19	13'	0.015	12"	RCP
CB 20	276.20	276.00	DMH 19	8'	0.025	12"	RCP
DMH 20	288.70	276.00	DMH 19	211'	0.060	12"	RCP
CB 21	289.00	288.80	DMH 20	14'	0.014	12"	RCP
CB 22	289.00	288.80	DMH 20	9'	0.022	12"	RCP
HDWL 1	296.00	295.50	FES 7	40'	0.013	12"	N-12
CB 23	265.25	265.00	DMH 21	13'	0.019	12"	N-12
CB 24	265.25	265.00	DMH 21	7'	0.036	12"	N-12
DMH 21	262.00	258.80	DMH 22	122'	0.026	12"	N-12
CB 25	259.00	258.80	DMH 22	13'	0.015	12"	N-12
CB 26	259.00	258.80	DMH 22	7'	0.029	12"	N-12
DMH 22	258.70	258.40	DMH 23	30'	0.010	12"	N-12
DMH 23	258.30	258.20	DET 4	5'	0.020	12"	N-12
DMH 24	257.00	255.75	FES 3	75'	0.017	12"	N-12
CULV 2	256.00	255.75	FES 4	48'	0.005	12"	N-12
YD-1	288.00	286.00	OUTLET	73'	0.027	4"	PVC
OS-3A	278.30	278.00	FES 8	15'	0.020	12"	N-12
INF-1	230.00	223.00	ECB-2	111'	0.063	3"	PVC

N-12: ADS-N12 CORRUGATED HDPE PIPE WITH SMOOTH INTERIOR  
RCP: REINFORCED CONCRETE PIPE  
PVC: SCH-40 PVC



**LEGEND**

- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED CAPECOD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- PROPOSED DRAIN LINE
- PROPOSED DRAIN MANHOLE
- PROPOSED CATCH BASIN
- EXISTING WATER MAIN
- EXISTING HYDRANT
- EXISTING GATE VALVE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED UG CONDUITS
- PROPOSED GAS MAIN
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- PROPOSED HOUSE NUMBER

- General Notes**
- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
  - The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
  - The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Front: 20'  
Yard Setbacks: Side: 15'  
Rear: 15'
  - Parcels F and M are not building lots.
  - Houses and lot grading is shown for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
  - Retaining walls are shown for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer and will require a building permit. No retaining walls are to be constructed within the right of way for St. Augustine Drive or St. Paul Lane.
  - Vertical granite curbing is to be provided at all intersection roundings except as otherwise noted. Transition sections are to be provided to between sloped and vertical curbing.

- PLAN REFERENCES**
- M.N.D.R.D. BOOK 240 PLAN 88
  - M.N.D.R.D. BOOK 235 PLAN 51
  - M.N.D.R.D. BOOK 224 PLAN 90
- DEED REFERENCE**
- M.N.D.R.D. BOOK 19682 PAGE 258
  - M.N.D.R.D. BOOK 21730 PAGE 263
  - M.N.D.R.D. BOOK 21730 PAGE 266
  - M.N.D.R.D. BOOK 21730 PAGE 267
  - M.N.D.R.D. BOOK 21730 PAGE 269
  - M.N.D.R.D. BOOK 23657 PAGE 195
- RECORD OWNERS**
- CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886
- ASSESSORS REFERENCES**
- MAP 040, PARCEL 0017 0000



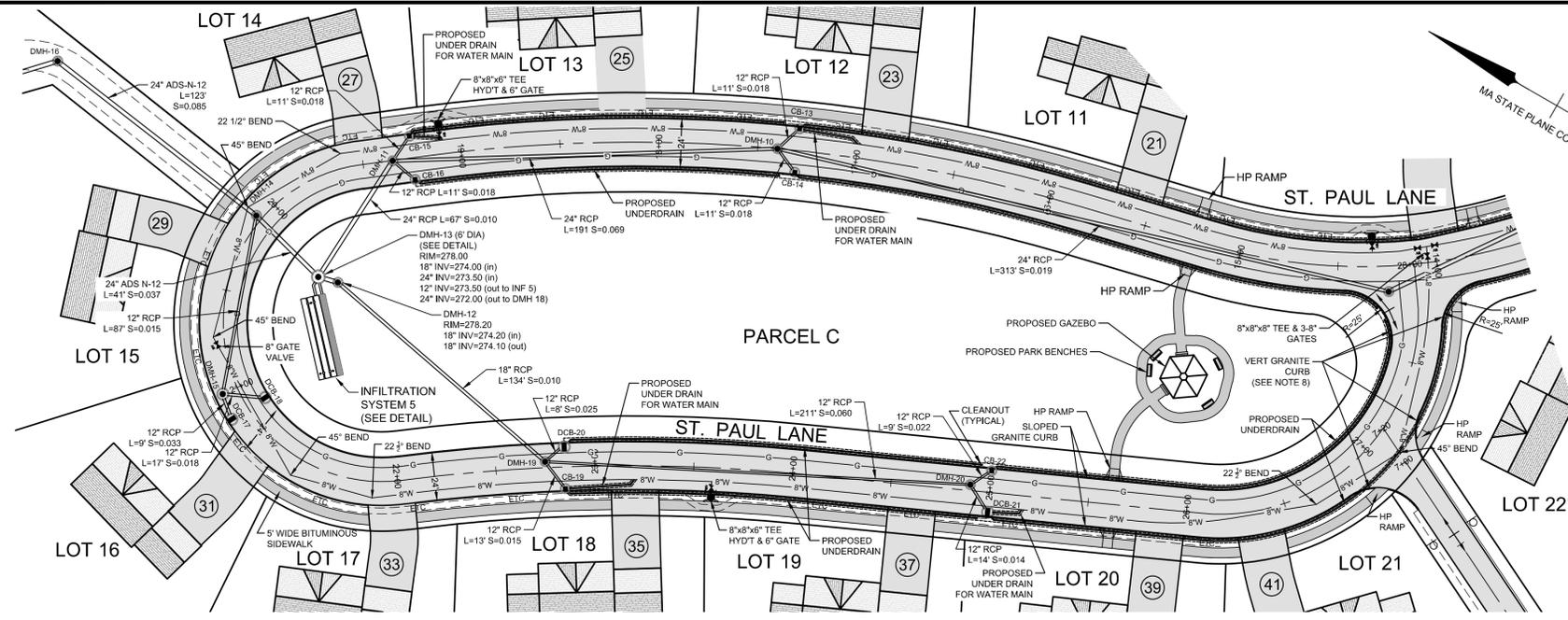
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MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**PLAN & PROFILE  
ST. PAUL LANE  
SPALDING HILL  
ESTATES  
WESTFORD, MA**

**ALAN  
ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
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(978) 577-6444  
alan.eng@verizon.net

PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

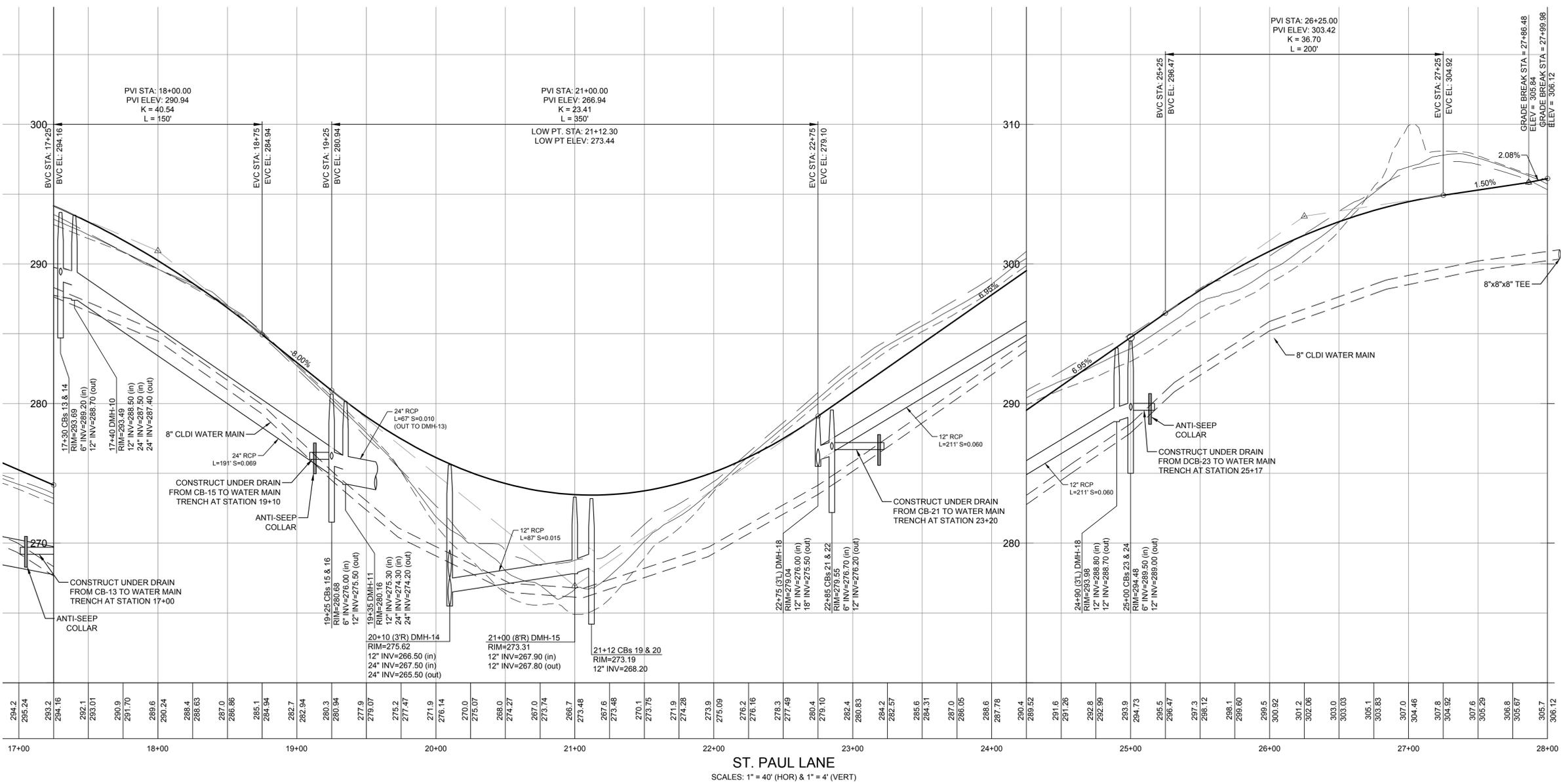
JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	17 of 30
SCALES: 1"=40'	



**LEGEND**

- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED CAPE COD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- PROPOSED DRAIN LINE
- PROPOSED DRAIN MANHOLE
- PROPOSED CATCH BASIN
- EXISTING WATER MAIN
- EXISTING HYDRANT
- EXISTING GATE VALVE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED U/G CONDUITS
- EXISTING GAS MAIN
- PROPOSED GUARD RAIL
- PROPOSED HOUSE NUMBER

ST. PAUL LANE



**General Notes**

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Yard Setbacks: Front: 20'  
Side: 15'  
Rear: 15'
4. Parcels F and M are not building lots.
5. Houses and lot grading is shown for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
6. Retaining walls are shown for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer and will require a building permit. No retaining walls are to be constructed within the right of way for St. Augustine Drive or St. Paul Lane.
7. Vertical granite curbing is to be provided at all intersection roundings except as otherwise noted. Transition sections are to be provided to between sloped and vertical curbing.

**PLAN REFERENCES**

- M.N.D.R.D. BOOK 240 PLAN 88
- M.N.D.R.D. BOOK 235 PLAN 51
- M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

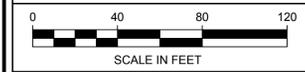
- M.N.D.R.D. BOOK 19682 PAGE 258
- M.N.D.R.D. BOOK 21730 PAGE 263
- M.N.D.R.D. BOOK 21730 PAGE 266
- M.N.D.R.D. BOOK 21730 PAGE 267
- M.N.D.R.D. BOOK 21730 PAGE 269
- M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

**ASSESSORS REFERENCES**

MAP 040, PARCEL 0017 0000



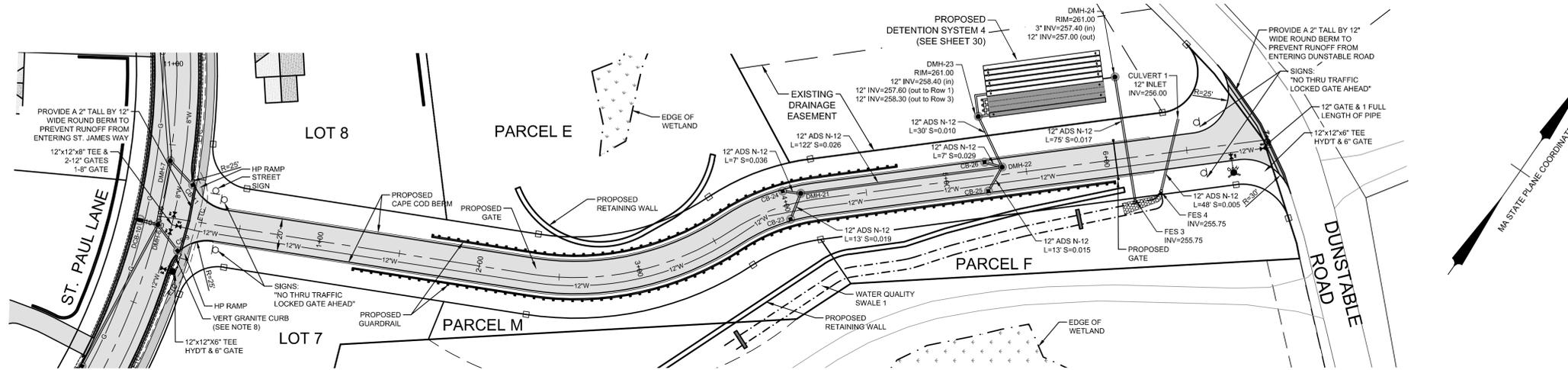
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MAS	TOWN ENG. COMMENTS	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**PLAN & PROFILE  
ST. PAUL LANE  
SPALDING HILL  
ESTATES  
WESTFORD, MA**

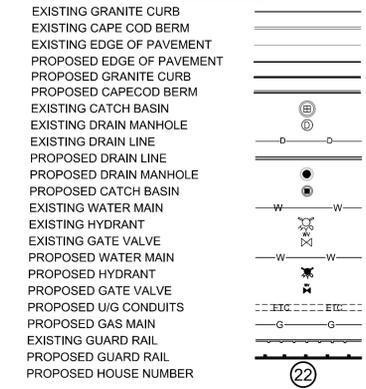
**ALAN  
ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	18 of 30
SCALE: 1" = 40'	



**LEGEND**



**General Notes**

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Yard Setbacks: Front: 20'  
Side: 15'  
Rear: 15'
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**PLAN REFERENCES**

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M.N.D.R.D. BOOK 235 PLAN 51  
M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

M.N.D.R.D. BOOK 19682 PAGE 258  
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M.N.D.R.D. BOOK 21730 PAGE 266  
M.N.D.R.D. BOOK 21730 PAGE 267  
M.N.D.R.D. BOOK 21730 PAGE 269  
M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

**ASSESSORS REFERENCES**

MAP 040, PARCEL 0017 0000



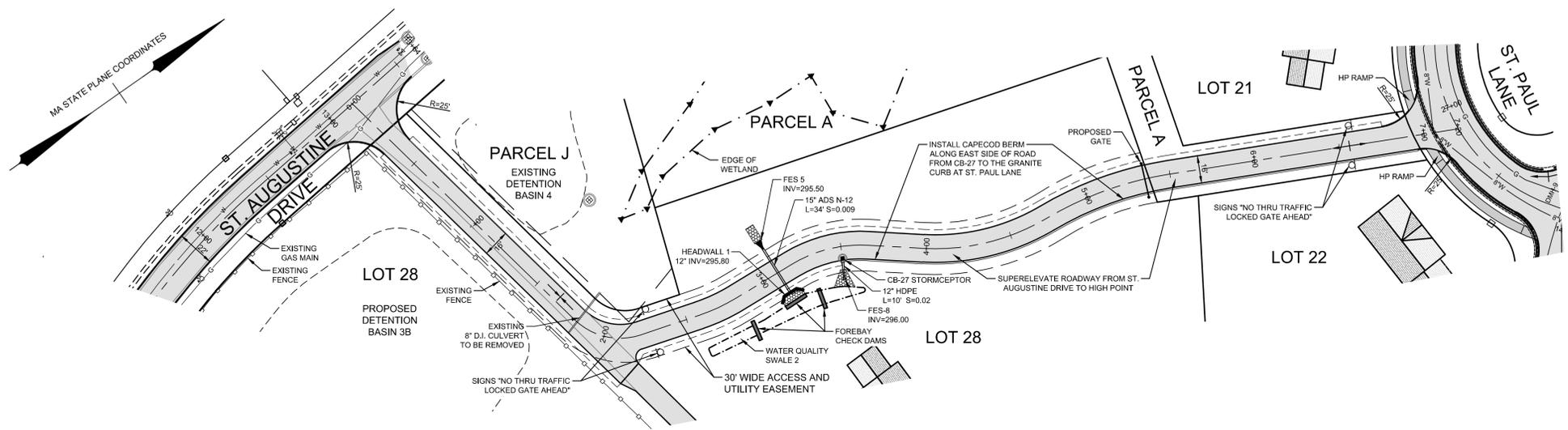
MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**PLAN & PROFILE**  
**ST. JAMES WAY**  
**SPALDING HILL**  
**ESTATES**  
**WESTFORD, MA**

**ALAN**  
**ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	19 of 30
SCALES: 1"=40'	



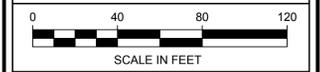
PLAN VIEW  
SCALE: 1" = 40'

**LEGEND**

EXISTING GRANITE CURB	---
EXISTING CAPE COD BERM	---
EXISTING EDGE OF PAVEMENT	---
PROPOSED GRANITE CURB	---
PROPOSED CAPECOD BERM	---
EXISTING CATCH BASIN	⊕
EXISTING DRAIN MANHOLE	⊕
EXISTING DRAIN LINE	---
PROPOSED DRAIN LINE	---
PROPOSED DRAIN MANHOLE	⊕
PROPOSED CATCH BASIN	⊕
EXISTING WATER MAIN	W
EXISTING HYDRANT	W
EXISTING GATE VALVE	W
PROPOSED WATER MAIN	W
PROPOSED HYDRANT	W
PROPOSED GATE VALVE	W
PROPOSED U/G CONDUITS	---
PROPOSED GAS MAIN	G
EXISTING GUARD RAIL	---
PROPOSED GUARD RAIL	---
PROPOSED HOUSE NUMBER	22

- General Notes**
- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
  - The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
  - The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
From: 20'  
Side: 15'  
Rear: 15'
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- M.N.D.R.D. BOOK 240 PLAN 88
  - M.N.D.R.D. BOOK 235 PLAN 51
  - M.N.D.R.D. BOOK 224 PLAN 90
- DEED REFERENCE**
- M.N.D.R.D. BOOK 19682 PAGE 258
  - M.N.D.R.D. BOOK 21730 PAGE 263
  - M.N.D.R.D. BOOK 21730 PAGE 266
  - M.N.D.R.D. BOOK 21730 PAGE 267
  - M.N.D.R.D. BOOK 21730 PAGE 269
  - M.N.D.R.D. BOOK 23657 PAGE 195
- RECORD OWNERS**
- CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886
- ASSESSORS REFERENCES**
- MAP 040, PARCEL 0017 0000



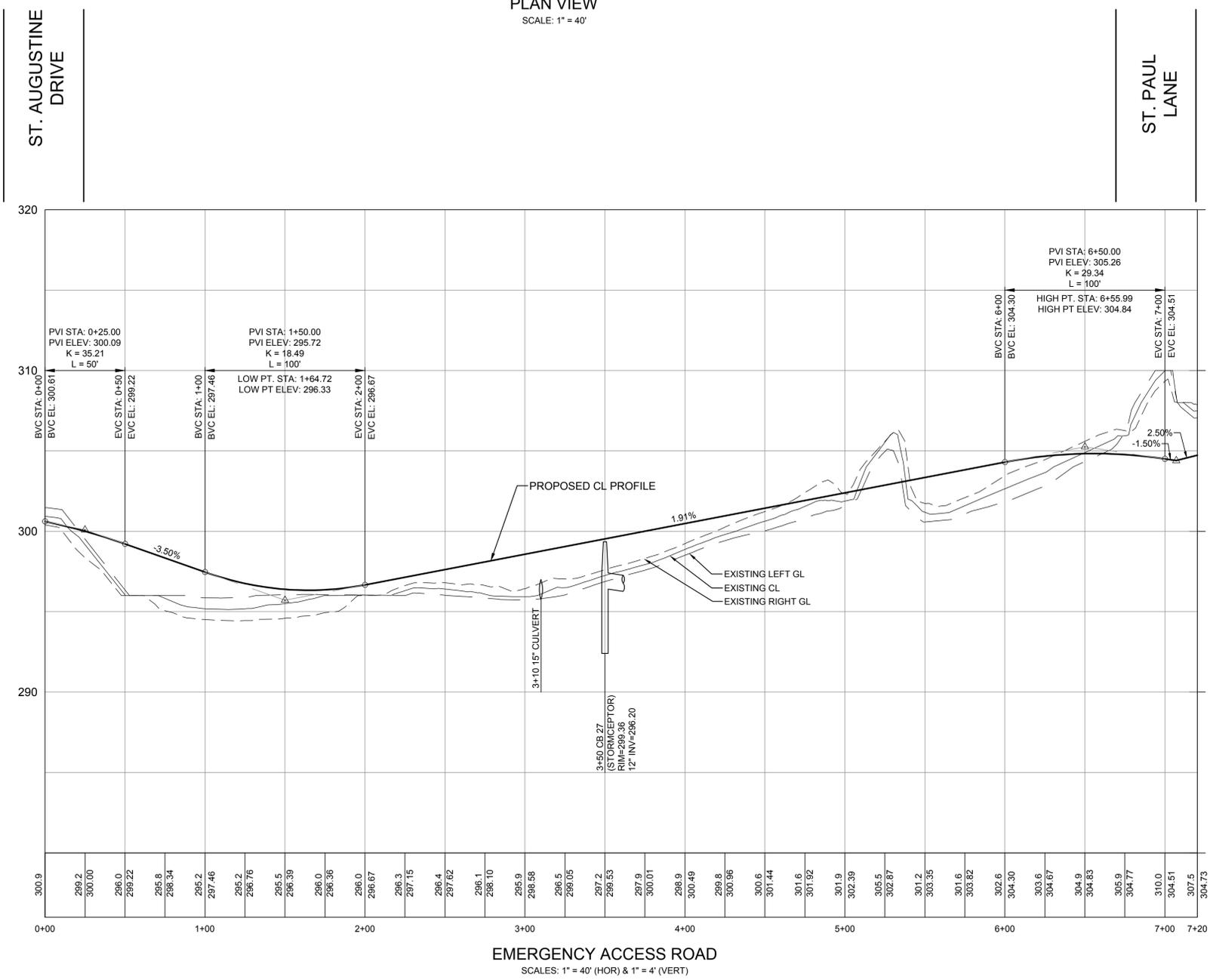
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MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019

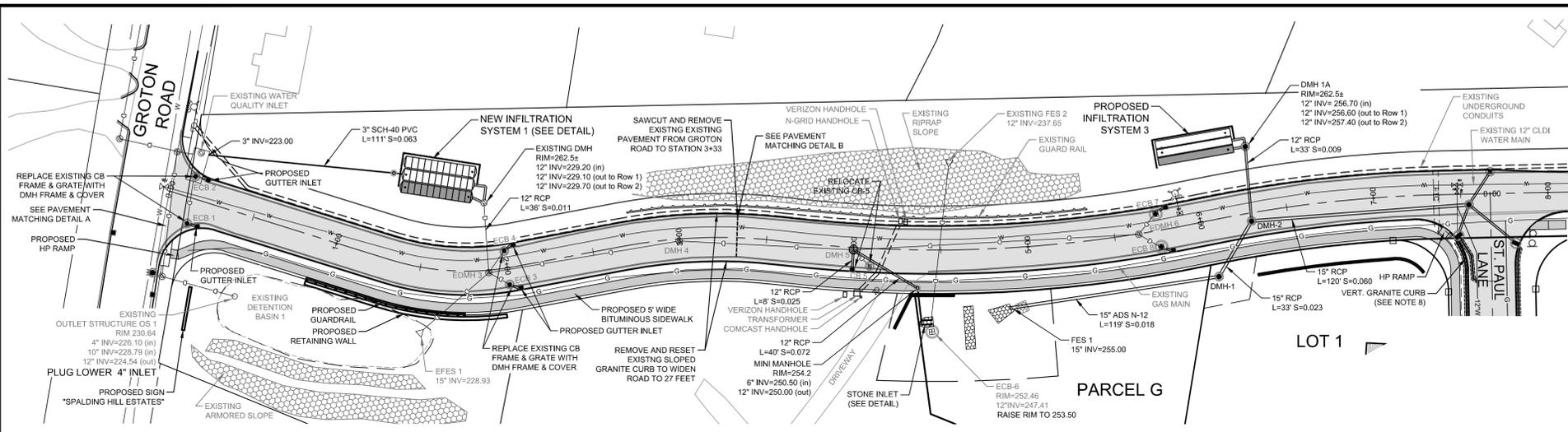
**PLAN & PROFILE**  
**EMERGENCY ACCESS ROAD**  
**SPALDING HILL**  
**ESTATES**  
**WESTFORD, MA**

**ALAN**  
**ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
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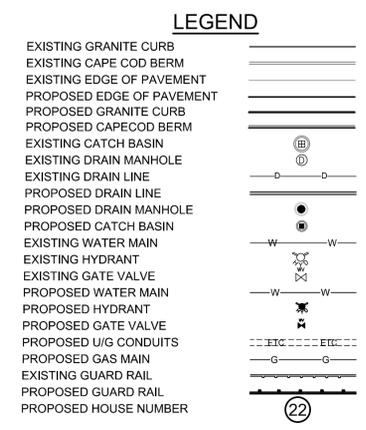
PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	20 of 30
SCALE: 1" = 40'	



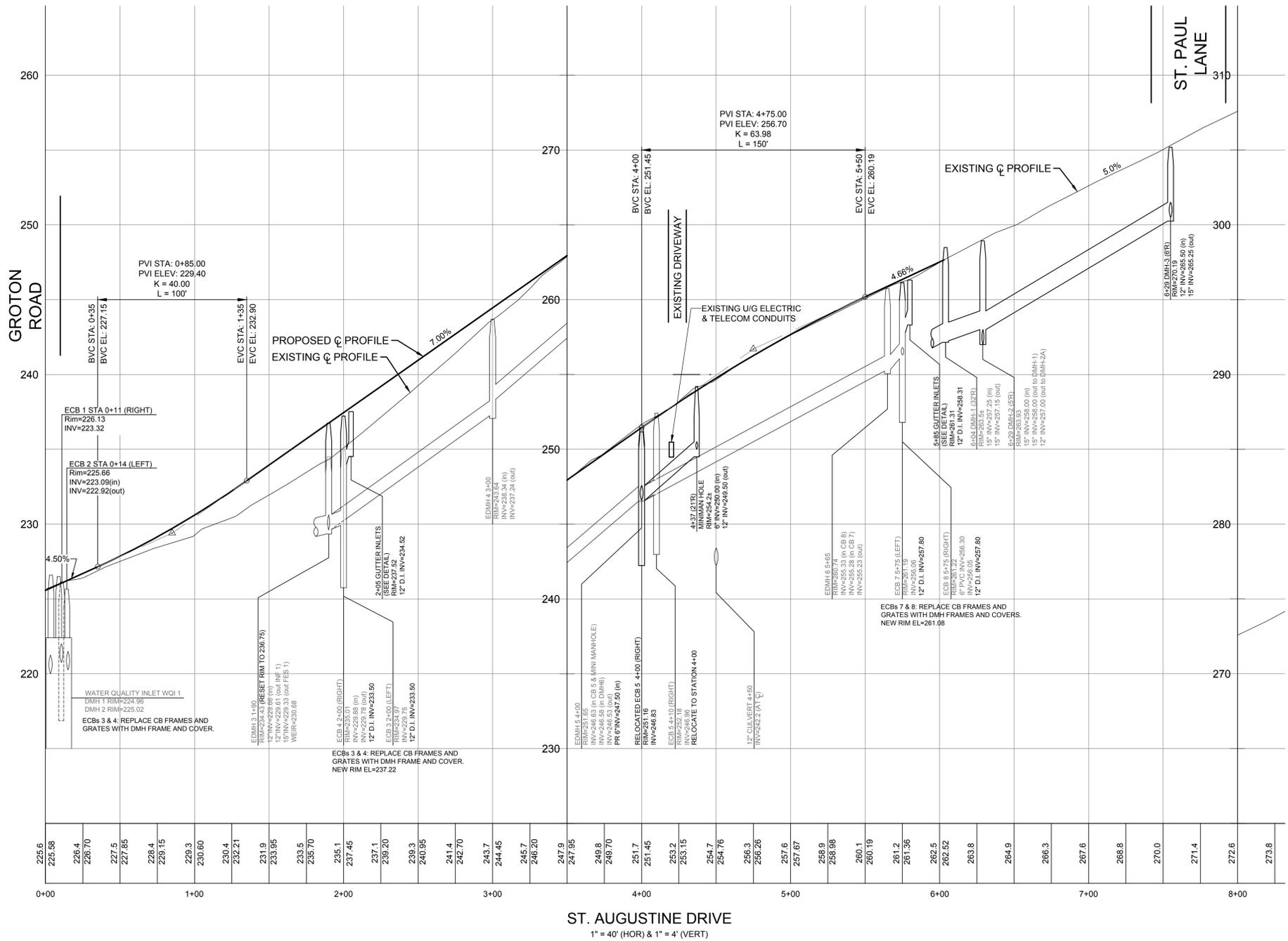


PLAN VIEW  
SCALE: 1" = 40'



**General Notes**

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- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Yard Setbacks: Front: 20'  
Side: 15'  
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- Vertical granite curbing is to be provided at all intersection roundings except as otherwise noted. Transition sections are to be provided to between sloped and vertical curbing.



**ST. AUGUSTINE CONSTRUCTION NOTES**

- ST. AUGUSTINE DRIVE IS TO BE WIDENED FROM 22 FEET TO 27 FEET FROM GROTON ROAD TO THE CENTERLINE OF ST. PAUL LANE; AND FROM 20 FEET TO 22 FEET FROM THE CENTERLINE OF ST. PAUL LANE TO THE EMERGENCY ACCESS ROAD.
- FROM GROTON ROAD TO ST. PAUL LANE**
  - SAW CUT AND REMOVE EXISTING PAVEMENT FROM GROTON ROAD TO STATION 3+33
  - REMOVE EXISTING GRANITE CURB
  - REMOVE EXISTING LOAM FROM PROPOSED SIDEWALK AND GRASS STRIP AREA ON EAST SIDE OF ST. AUGUSTINE DRIVE FROM GROTON ROAD TO ST. PAUL LANE
  - PLACE NEW GRAVEL BASE TO RAISE GRADE TO CONFORM TO NEW PROFILE
  - INSTALL GUTTER INLETS AND REPLACE EXISTING CATCH BASIN GRATES WITH MANHOLE FRAMES AND RIMS
  - INSTALL NEW 2 1/2" BINDER COURSE FROM GROTON ROAD TO STATION 3+33. USE PAVEMENT MATCHING DETAIL A AT GROTON ROAD AND PAVEMENT MATCHING DETAIL B AT STATION 3+33.
  - REINSTALL GRANITE CURBING
  - CONSTRUCT SIDEWALK
- FROM ST. PAUL LANE TO EMERGENCY ACCESS ROAD AT STATION 13+50±**
  - REMOVE CAPE COD BERM
  - ADJUST CATCH BASIN FRAMES AND GRATES TO WIDEN ROADWAY TO 22 FEET.
  - INSTALL NEW SLOPED GRANITE CURB. GRANITE CURB INLETS AND TRANSITION SECTIONS ARE TO BE PROVIDED AT CATCH BASINS ECB-9 AND ECB-10
- FROM GROTON ROAD TO EMERGENCY ACCESS ROAD AT STATION 13+50±**
  - AFTER THE ROADWAY IS WIDENED AND THE BINDER COURSE HAS BEEN IN PLACE FOR 1 WINTER SEASON INSTALL A NEW 1 1/2" WEARING COURSE FROM GROTON ROAD TO THE EMERGENCY ACCESS ROAD AT STATION 13+50±

**PLAN REFERENCES**

M.N.D.R.D. BOOK 240 PLAN 88  
M.N.D.R.D. BOOK 235 PLAN 51  
M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

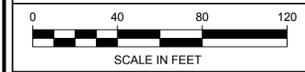
M.N.D.R.D. BOOK 19682 PAGE 258  
M.N.D.R.D. BOOK 21730 PAGE 263  
M.N.D.R.D. BOOK 21730 PAGE 266  
M.N.D.R.D. BOOK 21730 PAGE 267  
M.N.D.R.D. BOOK 21730 PAGE 269  
M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01866

**ASSESSORS REFERENCES**

MAP 040, PARCEL 0017 0000



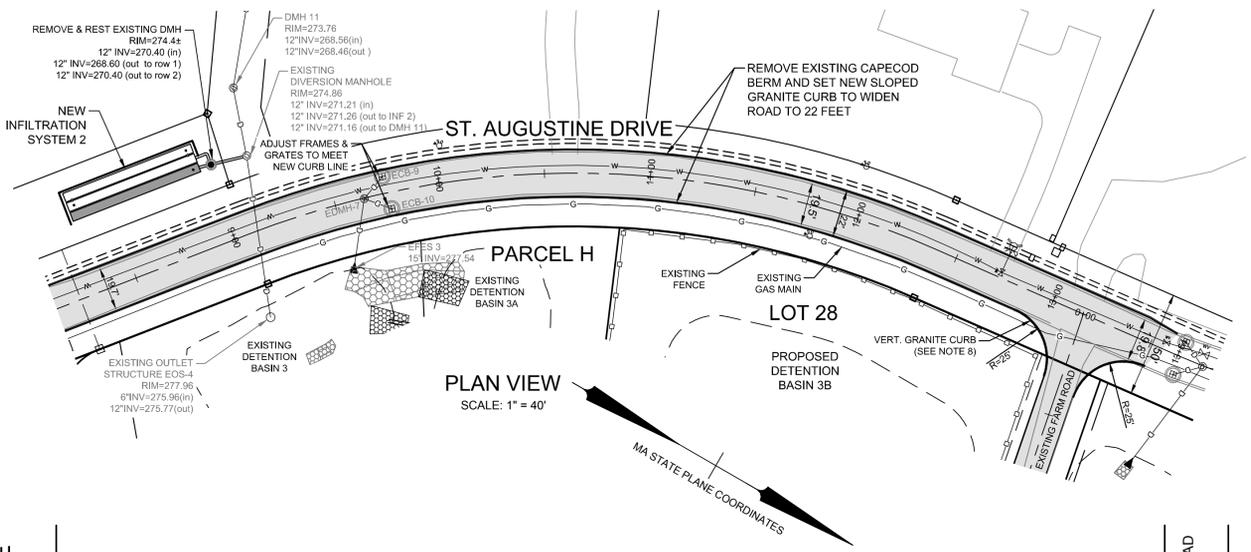
MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**PLAN & PROFILE**  
**ST. AUGUSTINE DRIVE**  
**SPALDING HILL**  
**ESTATES**  
**WESTFORD, MA**

**ALAN**  
**ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
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PREPARED FOR:  
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WESTFORD, MA 01866

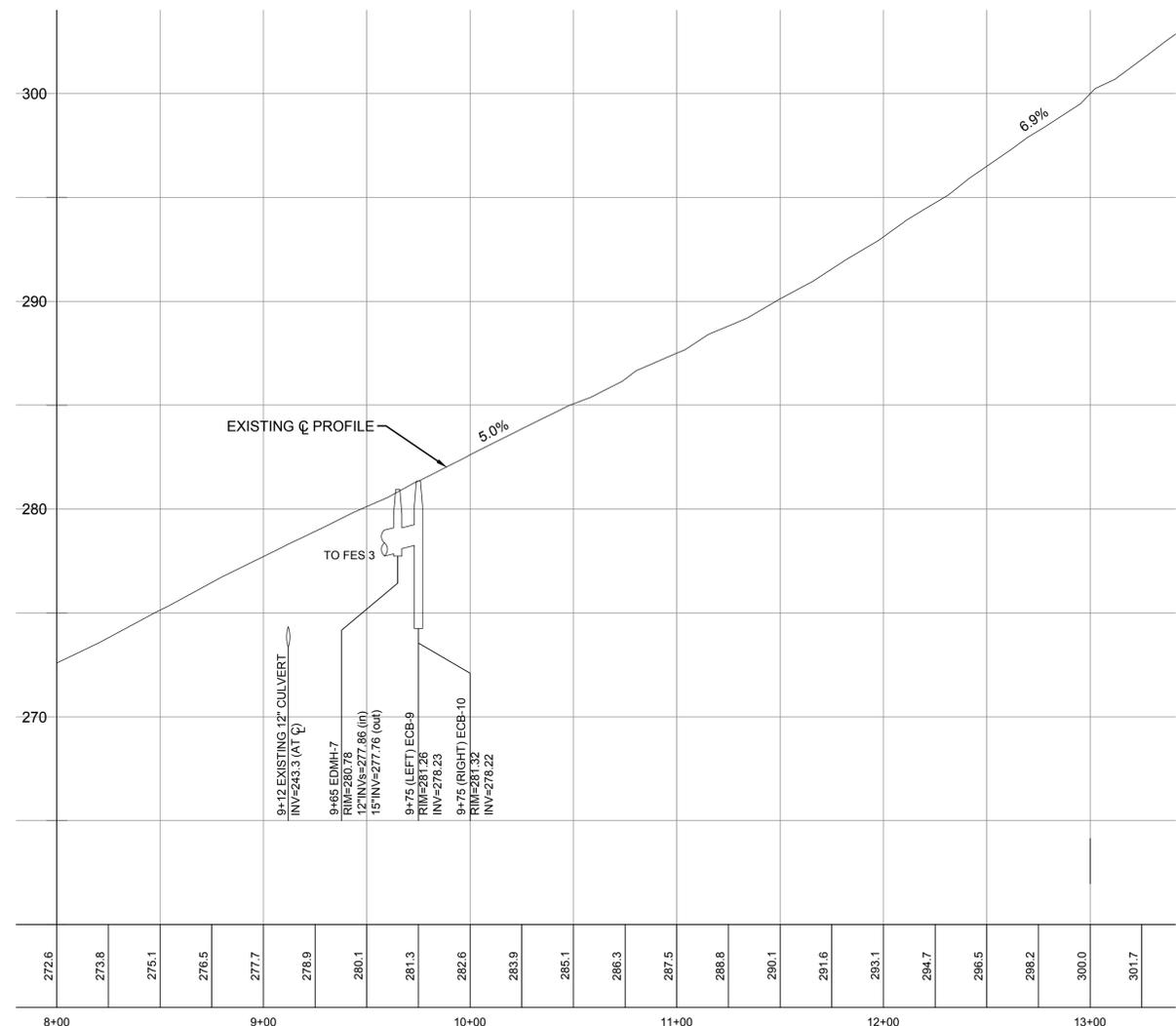
JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	21 of 30
SCALES: 1"=40'	



PLAN VIEW  
SCALE: 1" = 40'

ST. PAUL LANE

EMERGENCY ACCESS ROAD  
(EXISTING FARM ROAD)

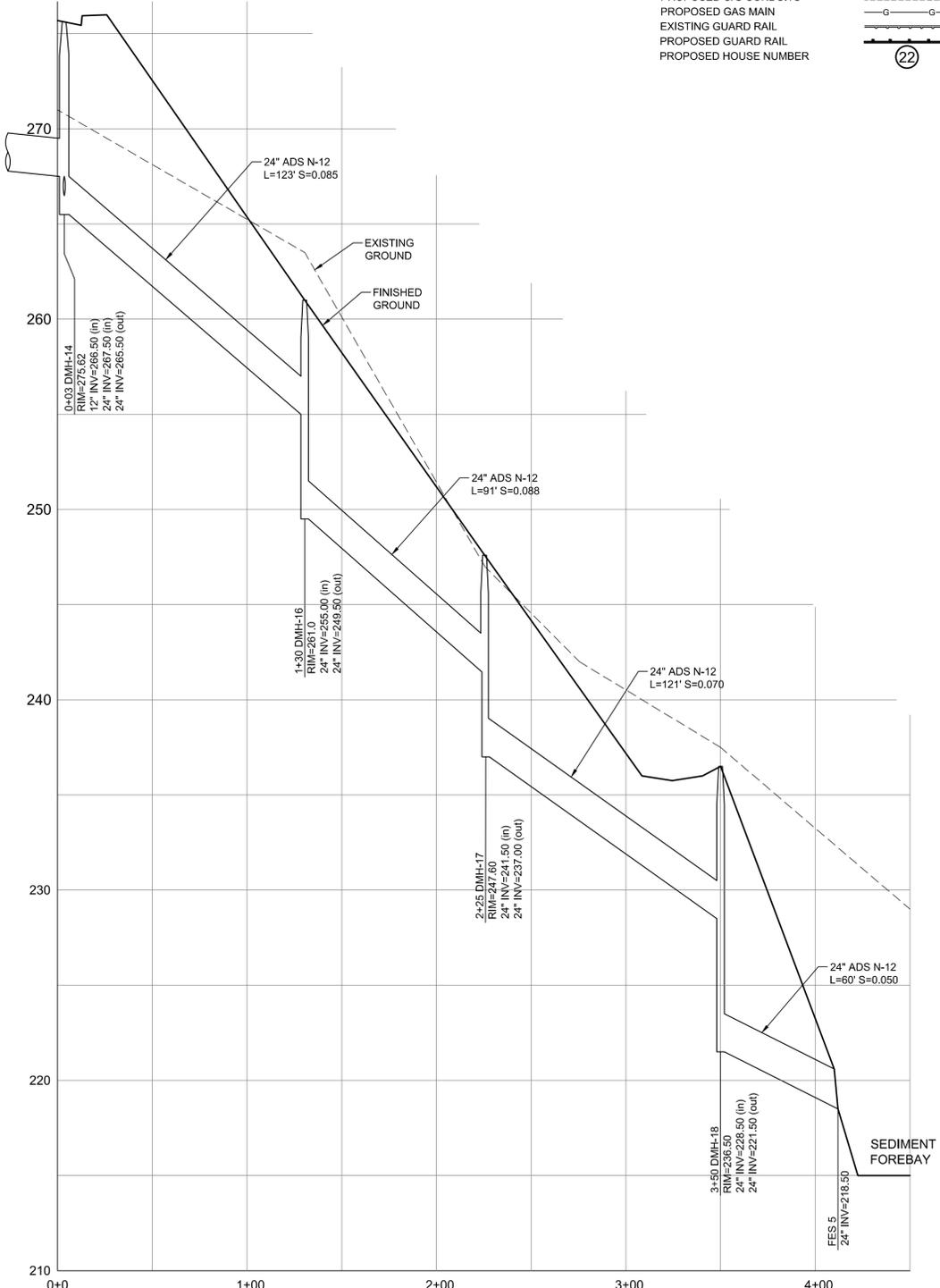


ST. AUGUSTINE DRIVE  
1" = 40' (HOR) & 1" = 4' (VERT)

LEGEND

- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED CAPE COD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- PROPOSED DRAIN LINE
- PROPOSED DRAIN MANHOLE
- PROPOSED CATCH BASIN
- EXISTING WATER MAIN
- EXISTING HYDRANT
- EXISTING GATE VALVE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED UG CONDUITS
- PROPOSED GAS MAIN
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- PROPOSED HOUSE NUMBER

ST. PAUL LANE



DRAIN PROFILE AT WETLAND BASIN  
1" = 40' (HOR) & 1" = 4' (VERT)

**General Notes**

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- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Front: 20'  
Side: 15'  
Rear: 15'
- Parcels F and M are not building lots.
- Houses and lot grading is shown for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
- Retaining walls are shown for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer and will require a building permit. No retaining walls are to be constructed within the right of way for St. Augustine Drive or St. Paul Lane.
- Vertical granite curbing is to be provided at all intersection roundings except as otherwise noted. Transition sections are to be provided to between sloped and vertical curbing.

**PLAN REFERENCES**  
M.N.D.R.D. BOOK 240 PLAN 88  
M.N.D.R.D. BOOK 235 PLAN 51  
M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**  
M.N.D.R.D. BOOK 19682 PAGE 258  
M.N.D.R.D. BOOK 21730 PAGE 263  
M.N.D.R.D. BOOK 21730 PAGE 266  
M.N.D.R.D. BOOK 21730 PAGE 267  
M.N.D.R.D. BOOK 21730 PAGE 269  
M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

**ASSESSORS REFERENCES**  
MAP 040, PARCEL 0017 0000

0 40 80 120  
SCALE IN FEET

SEAL: COMMONWEALTH OF MASSACHUSETTS, MARK SLEGER, No. 94407, REGISTERED PROFESSIONAL ENGINEER, 12/9/2019

MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**PLAN & PROFILE**  
ST. AUGUSTINE DRIVE  
SPALDING HILL ESTATES  
WESTFORD, MA

**ALAN ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	22 of 30
SCALES: 1"=40'	

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**GENERAL**

THIS STORM WATER POLLUTION PREVENTION PLAN HAS BEEN PREPARED FOR COMPLIANCE WITH THE EPA 2017 CONSTRUCTION GENERAL PERMIT.

THE CONTRACTOR SHALL SUBMIT A STORM WATER NOTICE OF INTENT TO THE EPA AT LEAST 14 DAYS PRIOR TO ANY GROUND DISTURBING ACTIVITIES TO OBTAIN COVERAGE UNDER THE CONSTRUCTION GENERAL PERMIT.

CONSTRUCTION ACTIVITIES PERFORMED AT THIS SITE ARE SUBJECT TO A STORM WATER PERMIT ISSUED BY THE WESTFORD PLANNING BOARD AND AN ORDER OF CONDITIONS ISSUED BY THE WESTFORD CONSERVATION COMMISSION.

**SITE DESCRIPTION**

THE PROJECT SITE IS A 43.61 ACRE PARCEL OF LAND LOCATED BETWEEN ST. AUGUSTINE DRIVE AND DUNSTABLE ROAD. LONG SOUGHT FOR POND LIES APPROXIMATELY 1,000 FEET TO THE NORTHEAST OF THE SITE AND KEYES POND LIES APPROXIMATELY 650 FEET TO THE SOUTHWEST OF THE SITE. THE SITE HAS FRONTAGE ON ST. AUGUSTINE DRIVE AND DUNSTABLE ROAD.

APPROXIMATELY 10 ACRES OF THE SITE IS USED AS A FARM, A PORTION OF WHICH IS UNDISTURBED WOODLAND. THE FARM WAS FORMERLY USED TO RAISE PIGS AND BOARD HORSES, BUT NOW ONLY BOARDS HORSES. A TOTAL OF 35.81 ACRES OF LAND IS UNDISTURBED WOODLAND. THE SITE CONTAINS A HORSE STABLE AND A FARM BUILDING FORMERLY USED TO HOUSE THE PIGS. ACCESS TO THE FARM IS FROM ST. AUGUSTINE DRIVE.

STORM RUNOFF FROM THE SITE FLOWS OFF THE SITE IN ALL DIRECTIONS WITH ULTIMATE DISCHARGES INTO KEYES POND TO THE WEST. LONG SOUGHT FOR POND TO THE EAST, A LARGE WETLAND ASSOCIATED WITH SPALDING BROOK TO THE NORTH, AND TO THE SOUTHWEST ACROSS GROTON ROAD TO A WETLAND ASSOCIATED WITH KEYES BROOK. THE EXISTING SITE HAS A RUNOFF CURVE NUMBER OF 70.

THE PROPOSED DEVELOPMENT IS A 29-10T OPEN SPACE RESIDENTIAL DEVELOPMENT. THE DEVELOPMENT WILL HAVE ITS PRIMARY ACCESS OFF ST. AUGUSTINE DRIVE AND A SECOND "EMERGENCY ACCESS" OFF DUNSTABLE ROAD. IN TOTAL, THE PROJECT WILL CREATE 3,500 FEET OF NEW ROADWAY. THE FARM LOT WILL CONTAIN A NEW SINGLE FAMILY HOME AND WILL CONTINUE TO OPERATE AS A FARM. ALONG WITH THE 29 BUILDING LOTS, APPROXIMATELY 17.6 ACRES OF THE SITE WILL BE DESIGNATED AS COMMON LAND, OF WHICH APPROXIMATELY 12.5 ACRES WILL BE PRESERVED AS OPEN SPACE. THE PROPOSED DEVELOPMENT WILL HAVE A RUNOFF CURVE NUMBER OF 74.

**OWNERSHIP OF THE STORM WATER MANAGEMENT SYSTEM**

DURING CONSTRUCTION ALL NEW DRAINAGE SYSTEM COMPONENTS ARE TO BE OWNED AND MAINTAINED BY THE DEVELOPER. UPON COMPLETION OF THE PROJECT, AND THE TOWN'S ACCEPTANCE OF ST. PAUL LANE AS A PUBLIC WAY, ALL DRAIN MANHOLES, CATCH BASINS AND ASSOCIATED PIPING WITHIN THE LAYOUT OF ST. PAUL LANE WILL BE OWNED AND MAINTAINED BY THE TOWN OF WESTFORD. ALL OTHER DRAINAGE SYSTEM COMPONENTS, INCLUDING THOSE WITHIN ST. JAMES WAY, WILL BE OWNED AND MAINTAINED BY A HOMEOWNERS' ASSOCIATION.

**EROSION AND SEDIMENT CONTROL**

THE OWNER/DEVELOPER AND THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING EROSION AND SEDIMENT DURING THE CONSTRUCTION PROCESS AND UNTIL THE SITE HAS STABILIZED. A QUALIFIED PROFESSIONAL SHALL BE APPOINTED TO OVERSEE AND MONITOR THE STORM WATER MANAGEMENT PROVISIONS OF THE SITE DEVELOPMENT TO ENSURE COMPLIANCE WITH THE EPA CONSTRUCTION GENERAL PERMIT.

IN ORDER TO MINIMIZE EROSION AND SEDIMENT RUNOFF FROM THE SITE, THE FOLLOWING PRINCIPLES SHALL BE EMPLOYED:

- MAINTAIN EXISTING VEGETATION WHEREVER POSSIBLE;
- MINIMIZE THE AMOUNT OF SITE DISTURBANCE BY PHASING THE PROJECT WHEN FEASIBLE;
- STABILIZE DISTURBED AREAS AS SOON AS FEASIBLE;
- DIRECT ALL RUNOFF TO STORM WATER CONTROL DEVICES TO ALLOW SEDIMENT REMOVAL;
- MINIMIZE RUNOFF FLOW VELOCITIES IN DRAINAGE CHANNELS;
- PROTECT STORM DRAIN INLETS;

THE FOLLOWING SHALL OCCUR PRIOR TO PERFORMING ANY CONSTRUCTION ACTIVITIES ON THE SITE:

- ALL SILT FENCE AND STRAW WATTLE BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS;
- INSTALL A STONE CONSTRUCTION ENTRANCE AT EACH ACCESS POINT TO THE SITE TO PREVENT SEDIMENT FROM BEING TRACKED OFF THE SITE;
- THE OWNER / DEVELOPER AND CONTRACTOR SHALL CONDUCT AN ON-SITE PRE-CONSTRUCTION MEETING TO:
  - REVIEW THIS STORM WATER POLLUTION PREVENTION PLAN;
  - TO DESIGNATE THE PERSON RESPONSIBLE FOR COMPLIANCE WITH THE EPA CONSTRUCTION GENERAL PERMIT;
  - IDENTIFY WETLAND RESOURCE AREAS AND STORM WATER DISCHARGE LOCATIONS;
  - DESIGNATE A MATERIAL AND EQUIPMENT STAGING AREA WHICH SHALL BE AS FAR AWAY AS POSSIBLE FROM ANY WETLAND RESOURCE AREAS;

THE FOLLOWING MINIMUM GUIDELINES SHALL BE COMPLIED WITH:

- ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 14 DAYS AFTER CONSTRUCTION IN THE SPECIFIC AREA THAT HAS BEEN COMPLETED;
- ANY DISTURBED AREAS THAT WILL REMAIN INACTIVE FOR 14 OR MORE DAYS SHALL BE TEMPORARILY STABILIZED;
- DURING SITE CONSTRUCTION, ALL EROSION CONTROL DEVICES SHALL BE INSPECTED WEEKLY AND BEFORE AND AFTER EACH RAINFALL EVENT CONSISTING OF AT LEAST 1 INCH OF RAIN IN A 24 HOUR PERIOD OR HAVING A PEAK INTENSITY OF AT LEAST 1/2 INCH OF RAIN PER HOUR;
- ALL EROSION CONTROL DEVICES ARE TO BE MAINTAINED IN PROPER WORKING CONDITION AT ALL TIMES;
- ANY ACCUMULATED SEDIMENT SHALL BE REMOVED IMMEDIATELY;

**CONSTRUCTION PERIOD POLLUTION PREVENTION PLAN**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING POLLUTION THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL THE SITE HAS FULLY STABILIZED.

- ALL EROSION CONTROL MEASURES MUST BE MAINTAINED IN GOOD WORKING ORDER AT ALL TIMES;
- THE STONE CONSTRUCTION ENTRANCES MUST BE INSPECTED DAILY AND MAINTAINED TO PREVENT SEDIMENT FROM BEING TRACKED OFF THE SITE;
- ALL VEHICLES SHALL BE MAINTAINED IN GOOD WORKING ORDER AND INSPECTED DAILY FOR FLUID LEAKS;
- VEHICLE REFUELING SHALL OCCUR AS FAR AS POSSIBLE FROM WETLAND RESOURCE AREAS;
- ADEQUATE ON SITE SANITARY FACILITIES SHALL BE PROVIDED;
- A COMPLETE SET OF PLANS AND PERMITS SHALL BE AVAILABLE ON SITE AT ALL TIMES;
- ALL CONSTRUCTION TRENCHES ARE TO BE BACKFILLED OR COVERED AT THE END OF EACH DAY TO PREVENT RUNOFF FROM BEING DIRECTED AWAY FROM STORM WATER MANAGEMENT FACILITIES;
- STOCKPILED MATERIALS SHALL BE SECURED WITH EITHER A RING OF SILT FENCE OR STRAW WATTLES, OR AN IMPERMEABLE COVER.

**CONSTRUCTION DEWATERING**

FLOW FROM CONSTRUCTION DEWATERING SHALL BE DIRECTED TOWARD A TEMPORARY SEDIMENT BASIN OR DEWATERING FILTER BAG LOCATED AS FAR AWAY FROM WETLAND RESOURCE AREAS AS IS FEASIBLE. DISCHARGES ENTERING AND EXITING THE TEMPORARY SEDIMENT BASIN SHALL BE DIRECTED INTO A STONE-LINED SWALE OF SUFFICIENT SIZE TO CONTAIN THE FLOW AND WITH A MINIMUM LENGTH OF 25 FEET. THE SWALE SHALL CONTAIN A MINIMUM OF 2 FILTER CHECK DAMS CONSISTING OF 12" FILTREXX SILT SOXX SPACED 10 FEET APART. DISCHARGES OUT OF THE BASIN SHALL BE DIRECTED TOWARD UNDISTURBED AREAS OF THE SITE AS FAR AWAY FROM WETLAND RESOURCES AS FEASIBLE. DEWATERING DISCHARGES SHALL NOT BE DIRECTED TOWARD PERMANENT BMPs OR ANY EXISTING DRAINAGE STRUCTURES.

**FINAL STABILIZATION:**

ALL DISTURBED AREAS ARE TO BE STABILIZED WITH LOAM AND SEED AS SOON AS POSSIBLE AFTER THEIR COMPLETION.

STABILIZATION PRACTICES SHALL INCLUDE LOAMING AND SEEDING, STRAW MULCHING, HYDRO-SEEDING, GEOTEXTILES OR SOD STABILIZATION AS NEEDED.

A MINIMUM OF 4 INCHES OF TOPSOIL SHALL BE INSTALLED ON ALL DISTURBED AREAS AND SEEDED (OR HYDROSEEDED) IMMEDIATELY.

THE USE OF PESTICIDES AND HERBICIDES IS PROHIBITED WITHIN 100 FEET OF WETLANDS.

TREE AND SHRUB PLANTINGS SHOULD BE INSTALLED IN ACCORDANCE WITH THE SUPPLIERS SPECIFICATIONS AND GOOD LANDSCAPE PRACTICE.

FINAL STABILIZATION OF THE SITE IS DEFINED AS AT LEAST 75 PERCENT COVERAGE ON GRASSSED AREAS, OR PROPERLY MULCHED AND STABILIZED LANDSCAPE AREAS.

**CONSTRUCTION SEQUENCE:**

THE PROJECT WILL BE CONSTRUCTED IN THREE (3) PHASES AS SHOWN ON THE APPROVED PLANS. PHASE 1 WILL BE TO CONSTRUCT THE TWO ACCESSSES INTO THE DEVELOPMENT ALONG WITH THEIR ASSOCIATED STORM WATER MANAGEMENT FEATURES. PHASE 2 WILL BE TO CONSTRUCT ALL UPGRADE IMPROVEMENTS IN ST. AUGUSTINE DRIVE. PHASE 2 MAY NOT BEGIN UNTIL THE ROADWAYS IN PHASE 1 ARE PAVED WITH THE BINDER COURSE OF PAVEMENT. PHASE 3 (SEE SHEET 25) SHALL NOT BEGIN UNTIL ST. AUGUSTINE DRIVE HAS BEEN REPAVED WITH THE BINDER COURSE OF PAVEMENT. THE PHASES OF CONSTRUCTION ARE TO BE DEVELOPED IN A CONTROLLED MANNER USING THE FOLLOWING SEQUENCE OF CONSTRUCTION TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE ESTABLISHED, AND THAT STORM WATER RUNOFF IS MANAGED APPROPRIATELY.

1. INSTALL SILT FENCE AND FILTREXX SILT SOXX, AND DELINEATE LIMITS OF CLEARING AS SHOWN ON THE APPROVED PLANS.
2. CLEAR AND GRUB WORK AREA. NOTE, ONLY WOODED AREAS NECESSARY FOR ROADWAY CONSTRUCTION AND THE CONSTRUCTION OF THE STORM WATER MANAGEMENT FACILITIES ARE TO BE CLEARED.
3. ROUGH GRADE ROADWAYS AND INSTALL TEMPORARY SEDIMENT BASINS AS SHOWN ON THE APPROVED PLANS.
4. INSTALL STORM WATER MANAGEMENT BMPs.
5. INSTALL ROADWAY DRAINAGE SYSTEM, AND UNDERGROUND UTILITIES.
6. CATCH BASINS AND DRAIN MANHOLES WITHIN THE ROADWAY ARE TO BE COVERED WITH FILTER FABRIC AND STEEL PLATES AFTER INSTALLATION AND SHALL REMAIN IN PLACE UNTIL AFTER THE BINDER COURSE IS INSTALLED.
7. PLACE AND COMPACT ROADWAY BASE MATERIAL.
8. INSTALL BINDER COURSE OF PAVEMENT IN ROADWAY AND RAISE CATCH BASINS GRATES TO BINDER GRADE AND INSTALL SILT SACKS IN ALL CATCH BASINS.
9. PLACE FILTREXX SILT SOXX ALONG EDGE OF PAVEMENT TO CONTAIN RUNOFF WITH THE ROADWAY.
10. HOUSE CONSTRUCTION MAY BEGIN AFTER BINDER COURSE IS INSTALLED.
11. AFTER HOUSE CONSTRUCTION IS COMPLETED INSTALL GRANITE CURBING AND CONSTRUCT SIDEWALKS. THIS MAY BE DONE IN SECTIONS AS HOUSES ARE COMPLETED.
12. LOAM AND SEED ALL DISTURBED AREAS.
13. INSTALL THE FINAL WEARING COURSE OF PAVEMENT.

**SITE SPECIFIC INSPECTION, OPERATION AND MAINTENANCE:**

THE FOLLOWING INSPECTION AND MAINTENANCE SCHEDULE SHALL BE EMPLOYED TO ENSURE THAT THE STORM WATER MANAGEMENT SYSTEMS FUNCTION AS DESIGNED:

- **STORMWATER DISCHARGE LOCATIONS**  
ALL DISCHARGE LOCATIONS ARE TO BE INSPECTED MONTHLY AND AFTER ALL STORM EVENTS EXCEEDING 1 INCH OF RAIN IN A 24-HOUR PERIOD OR HAVING A PEAK INTENSITY OF 1/2 OF RAIN PER HOUR. DISCHARGE LOCATIONS ARE TO BE INSPECTED FOR EROSION AND SEDIMENT BUILD-UP, EXCESSIVE VEGETATION, AND DEBRIS ACCUMULATION. EROSION REPAIRS ARE TO BE MADE IMMEDIATELY AND THE AREA IS TO BE RE-STABILIZED. SEDIMENT BUILD-UP SHALL BE REMOVED TO PREVENT IT FROM BEING TRANSPORTED TO OTHER BMPs OR WETLAND RESOURCE AREAS.

- **PAVED ROADWAYS**  
DURING CONSTRUCTION ALL PAVED ROADWAYS ARE TO BE SWEPT MONTHLY OR AS NEEDED TO REMOVED SEDIMENT, TRASH, AND FALL FOLIAGE. THIS REQUIREMENT SHALL NOT APPLY WHEN COVERED WITH SNOW OR ICE. FOLLOWING THE COMPLETION OF THE PROJECT ALL PAVED ROADWAYS ARE TO BE SWEPT AT LEAST FOUR (4) TIMES PER YEAR OR AS NECESSARY TO REMOVE SEDIMENT BUILD-UP, TRASH, AND FALL FOLIAGE.

- **DEEP SUMP CATCH BASINS**  
SUMPS ARE TO BE INSPECTED 4 TIMES PER YEAR AND AFTER EACH TIME THE ROADWAY IS SWEPT. CATCH BASIN SUMPS ARE TO BE CLEANED WHEN THE SEDIMENT IS WITHIN 24 INCHES OF THE BOTTOM LIP OF THE OIL/TRASH HOOD.

- **STORMCEPTOR CATCH BASINS**  
SUMPS ARE TO BE INSPECTED 4 TIMES PER YEAR AND AFTER EACH TIME THE ROADWAY IS SWEPT. SUMPS ARE TO BE VACUUM CLEANED WHEN THE SEDIMENT DEPTH REACHES 8 INCHES.

- **STONE INLETS**  
FOR THE FIRST YEAR AFTER CONSTRUCTION, THE STONE INLETS ARE TO BE INSPECTED QUARTERLY DURING OR IMMEDIATELY AFTER A RAINFALL EVENT. THE SYSTEM SHALL BE INSPECTED AT DISCHARGE DRAIN MANHOLES TO CONFIRM THAT THE STORM WATER RUNOFF IS FREE OF SEDIMENT AND THAT THERE IS NO EVIDENCE OF DIMINISHED COLLECTION CAPACITY. THE STONE INLET SHALL BE KEPT FREE OF DEBRIS, YARD WASTE, FALL FOLIAGE AND VEGETATION. FOLLOWING THE FIRST YEAR AFTER CONSTRUCTION THE SYSTEM SHALL BE INSPECTED EACH SPRING AND FALL.

- **SUBSURFACE INFILTRATION / DETENTION SYSTEMS**  
DURING CONSTRUCTION AND THROUGH THE FIRST YEAR AFTER CONSTRUCTION IS COMPLETED, THE SUBSURFACE DETENTION SYSTEM IS TO BE INSPECTED QUARTERLY AND AFTER EACH RAINFALL EVENT OF 2.5 INCHES OR MORE TO ENSURE THE SYSTEM DRAINS PROPERLY. INSPECTIONS SHALL BE MADE AT THE INSPECTION PORTS. AFTER THE FIRST YEAR AFTER COMPLETION, THE SYSTEM SHALL BE INSPECTED ANNUALLY, PREFERABLY AFTER A SIGNIFICANT RAINFALL EVENT. THE GROUND SURFACE ABOVE THE SYSTEM IS TO KEPT FREE OF TREE GROWTH TO ENSURE THAT ROOT GROWTH DOESN'T JEOPARDIZE THE SUBSURFACE CHAMBERS.

- **SUBSURFACE SEPARATOR ROWS**  
SEPARATOR ROWS ARE TO BE INSPECTED EVERY 6 MONTHS TO MONITOR SEDIMENT ACCUMULATION. THE ROWS SHOULD BE INSPECTED DURING A RAINFALL EVENT TO ENSURE STORM WATER IS BEING CONVEYED TO THE STANDARD ROWS. THE SEPARATOR ROW IS TO BE CLEANED USING A JETVAC PROCESS WHEN SEDIMENT ACCUMULATION EXCEEDS 3 INCHES.

- **WETLAND DETENTION BASIN**  
THE WETLAND DETENTION AREA IS TO BE INSPECTED BY A QUALIFIED WETLAND PROFESSIONAL TWICE PER YEAR IN THE GROWING AND NON-GROWING SEASONS FOR THE FIRST 3 YEARS AFTER CONSTRUCTION (AND ONCE PER YEAR THEREAFTER) TO DOCUMENT THE FOLLOWING: TYPE AND DISTRIBUTION OF DOMINANT WETLAND PLANTS IN THE MARSH; PRESENCE AND DISTRIBUTION OF PLANTED WETLAND SPECIES; PRESENCE AND DISTRIBUTION OF INVASIVE WETLAND SPECIES; INDICATIONS THAT OTHER SPECIES ARE REPLACING THE PLANTED WETLAND SPECIES; PERCENTAGE OF STANDING WATER THAT IS UNVEGETATED (EXCLUDING DEEP WATER CELLS); MAXIMUM WATER ELEVATION IN COMPARISON TO DESIGN ELEVATION AND CONDITION OF THE VEGETATION IN THIS AREA; OVERALL STABILITY OF THE BASIN; INTEGRITY OF THE BERM AND INDICATIONS OF EROSION OR SLUMPING. THE FOREBAY IS TO BE CLEANED ONCE PER YEAR OR AS NEEDED TO REMOVE ACCUMULATED SEDIMENT. THE BERM IS TO BE MOWED TWICE PER YEAR AND KEPT FREE OF WOODY VEGETATION.

- **DETENTION BASINS**  
DETENTION BASINS ARE TO BE INSPECTED MONTHLY AND DURING SIGNIFICANT RAINFALL EVENTS FOR THE FIRST YEAR AFTER CONSTRUCTION. FOLLOWING THE FIRST YEAR AFTER CONSTRUCTION THE BASIN SHALL BE INSPECTED TWICE PER YEAR. INSPECTIONS SHALL CONFIRM THAT THE BASIN DRAINS WITHIN 72 HOURS AFTER THE END OF A RAINFALL EVENT. THE BASIN SIDE SLOPES SHALL BE INSPECTED FOR SUBSIDENCE. ADDITIONAL SEEDING MAY BE REQUIRED TO ENSURE ADEQUATE VEGETATIVE COVER ON THE BASIN BOTTOM AND SIDE SLOPES. THE BASIN BOTTOM AND INTERIOR SIDE SLOPES ARE TO BE MOWED TWICE PER YEAR. GRASS CLIPPINGS SHALL BE REMOVED FROM THE BASIN AFTER MOWING. TRASH, DEBRIS AND FALL FOLIAGE SHALL BE REMOVED AS NECESSARY.

- **ROOF DRAIN NFILTRATION SYSTEMS**  
ROOF DRAIN SYSTEMS ARE TO BE INSPECTED ANNUALLY VIA THE INSPECTION PORTS. INSPECTIONS SHALL OCCUR 72 HOURS AFTER A RAINFALL EVENT TO ENSURE THE SYSTEM HAS COMPLETELY DRAINED. ROOF GUTTERS AND DOWNSPOUTS SHALL BE CLEANED TWICE PER YEAR. DOWNSPOUTS ARE TO BE DISCONNECTED FROM THE SUBSURFACE PIPING PRIOR TO CLEANING TO PREVENT DEBRIS AND LEAF LITTER FROM BEING FLUSHED INTO THE SUBSURFACE CHAMBERS.

- **WATER QUALITY SWALES (WET)**  
INSPECT MONTHLY FOR THE FIRST YEAR AFTER CONSTRUCTION THEN TWICE PER YEAR. INSPECT FOR ADEQUATE VEGETATION COVER, EROSION, AND SUBSIDENCE. THE SWALE IS TO BE KEPT FREE OF YARD WASTE, FALL FOLIAGE, TRASH & DEBRIS. SEDIMENT IS TO BE REMOVED AT LEAST ONCE PER YEAR. SWALES ARE TO BE MOWED ONCE PER YEAR AND VEGETATION SHOULD NOT BE CUT SHORTER THAN 3 INCHES.

**PLANTING SCHEDULE**

LOAM SHALL HAVE A MAINTAINED pH LEVEL OF APPROXIMATELY 6.5 AND SHOULD BE CHECKED PRIOR TO THE APPLICATION OF SEED. LIME SHOULD BE APPLIED AS NECESSARY TO ACHIEVE AND MAINTAIN A PROPER pH LEVEL.

A MINIMUM 4-INCH THICK LOAM LAYER IS REQUIRED IN ALL AREAS TO BE SEEDED. THE LOAM SHALL BE RAKED AND FREE OF CLUMPS, TWIGS, STICKS AND DEBRIS, AND ROCKS GRATER THAN 2 INCHES. THE TOP 2 INCHES OF LOAM SHALL BE RAKED LOOSE TO RECEIVE THE SEED. SEEDING MAY BE APPLIED EITHER BY HAND SPREADING OR MECHANICAL SPREADER, OR BY HYDROSEEDING.

**HAND SEEDING**

- APPLY SEED UNIFORMLY BY HAND OR BY BROADCAST SPREADER.
- RAKE SEED LIGHTLY INTO THE TOP 1/2 TO 1 INCH OF THE LOAM.
- LIGHTLY ROLL SEEDED AREA, BUT DO NOT COMPACT THE LOAM.
- SEEDING SHALL NOT OCCUR BETWEEN NOVEMBER 15 AND MARCH 1.
- IF SEEDING OCCURS BETWEEN JUNE 30 AND AUGUST 30 STRAW MULCH SHALL BE APPLIED IN ACCORDANCE WITH SUPPLIERS SPECIFICATIONS.
- IF SEEDING OCCURS AFTER OCTOBER 1 THE SEEDING RATE SHALL BE INCREASED BY 50 PERCENT AND THE AREA SHALL BE STRAW MULCHED.
- ALL SEEDED AREAS ARE TO BE ADEQUATELY WATERED TO ENSURE RAPID AND UNIFORM GROWTH.
- ON SLOPES GREATER THAN 3:1 THE LOAM LAYER SHALL BE STABILIZED WITH JUTE NETTING AND THE SEED APPLICATION RATE SHALL BE INCREASED BY 50 PERCENT.
- ALL SLOPES GREATER THAN 3:1 SHALL BE STRAW MULCHED IMMEDIATELY AFTER SEEDING.

**HYDROSEEDING**

- HYDROSEEDING SHALL BE APPLIED UNIFORMLY.
- HYDROSEEDING SHALL NOT OCCUR BETWEEN NOVEMBER 15 AND MARCH 1.
- IF HYDROSEEDING OCCURS BETWEEN JUNE 30 AND AUGUST 30 STRAW MULCH SHALL BE APPLIED IN ACCORDANCE WITH SUPPLIERS SPECIFICATIONS.
- IF HYDROSEEDING OCCURS AFTER OCTOBER 1 THE SEEDING RATE SHALL BE INCREASED BY 50 PERCENT AND THE AREA SHALL BE STRAW MULCHED.
- ALL HYDROSEEDED AREAS ARE TO BE ADEQUATELY WATERED TO ENSURE RAPID AND UNIFORM GROWTH.
- ON SLOPES GREATER THAN 3:1 THE LOAM LAYER SHALL BE STABILIZED WITH JUTE NETTING. THE SEED APPLICATION RATE SHALL BE INCREASED BY 50 PERCENT, AND A LAYTEX OR FIBER TACKIFIER SHALL BE ADDED TO THE HYDROSEED MIX.
- ALL SLOPES GREATER THAN 3:1 SHALL BE STRAW MULCHED IMMEDIATELY AFTER HYDROSEEDING SEEDING.

**RECOMMENDED SEED MIXTURES**

<b>NON-LAWN AREAS</b>	<b>LAWN AREAS</b>
40% ANNUAL RYE	20% ANNUAL RYE
30% RED TOP FESCUE	30% KENTUCKY BLUEGRASS
20% WHITE CLOVER	25% UTAH GOLD
5% LADINA CLOVER	25% CANADIAN NORTHSLOPE
5% CROWNVETCH	

**GENERAL HOUSEKEEPING PRACTICES**

IN ORDER TO MAINTAIN WATER QUALITY IN THE NEARBY WETLAND RESOURCE AREAS, THE FOLLOWING GOOD HOUSEKEEPING PRACTICES SHALL BE OBSERVED:

ABSOLUTELY NO WASTE PRODUCTS SHALL BE DISPOSED OF INTO ANY STORM DRAINS, WETLAND RESOURCE AREAS, SWALES, OR ANY OTHER AREA THAT COULD RESULT IN THE WASTE BEING CONVEYED TO WETLAND RESOURCE AREAS.

ALL CHEMICALS SHALL BE STORED INSIDE THE HOMES IN THE MANUFACTURER'S CONTAINERS AND IN SUCH A MANNER AS TO PREVENT DAMAGE AND SPILLAGE.

**ILLICIT DISCHARGES:** THE STORM DRAIN SYSTEM DISCHARGES TO NEARBY WETLAND RESOURCES AREAS. IN ORDER TO PRESERVE WATER QUALITY IN THESE AREAS IT IS ESSENTIAL THAT NOTHING IS DISCHARGED TO THE SYSTEM OTHER THAN ORDINARY STORM RUNOFF. THE FOLLOWING ARE STRICTLY PROHIBITED FROM BEING DISCHARGED INTO ANY OF THE COMPONENTS OF THE STORM DRAIN SYSTEM: OIL OR HAZARDOUS MATERIALS, CLEANING AGENTS, USED OR UNUSED CHEMICALS ASSOCIATED WITH THE OPERATION OF THE FACILITY, SANITARY WASTE, YARD WASTE, RUNOFF FROM VEHICLE WASHING, BACKWASH FROM WATER PURIFICATION SYSTEMS, OR ANY OTHER MATERIAL THAT MAY BE HARMFUL TO HUMAN HEALTH OR TO THE ENVIRONMENT.

**INSPECTION REQUIREMENTS:**

ALL INSPECTIONS SHALL BE PERFORMED BY QUALIFIED PERSONNEL IN ACCORDANCE WITH THE FOLLOWING MINIMUM REQUIREMENTS:

1. DISTURBED AREAS NOT STABILIZED - ONCE EVERY FOURTEEN (14) DAYS.
2. STORM EVENTS - WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 1" IN 24 HOURS OR 0.5" WITHIN 1 HOUR.
3. WINTER (FROZEN CONDITIONS) - INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH.
4. FINAL STABILIZATION - FOLLOWING FINAL STABILIZATION OF THE SITE, A FINAL REPORT CONTAINING THE FOLLOWING INFORMATION SHALL BE PREPARED:
  - NAME AND QUALIFICATIONS OF PERSON PREPARING THE REPORT;
  - INSPECTIONS PERFORMED INCLUDING THE DATE AND PERSON PERFORMING THE INSPECTION;
  - FINDINGS AND RECOMMENDATIONS (IF ANY);
  - REPAIRS TO THE STORM WATER MANAGEMENT SYSTEM INCLUDING THE REASON FOR THE REPAIRS;
  - INSPECTIONS AND MAINTENANCE RECORDS;
  - MODIFICATIONS MADE DURING CONSTRUCTION AND THE REASONS FOR MAKING THEM;

**RETENTION OF RECORDS:**

THE OWNER/DEVELOPER SHALL RETAIN COPIES OF THE STORM WATER POLLUTION PREVENTION PLAN AND ALL SUPPLEMENTAL INFORMATION, AND ALL INSPECTION AND MONITORING REPORTS FOR A PERIOD OF AT LEAST THREE (3) YEARS FROM THE DATE THAT THE SITE IS FINALLY STABILIZED.

A COPY OF THIS STORM WATER POLLUTION PREVENTION PLAN MUST BE KEPT ON-SITE FROM THE DATE OF PROJECT INITIATION TO THE DATE OF FINAL STABILIZATION.

**General Notes**

**PLAN REFERENCES**

M.N.D.R.D. BOOK 240 PLAN 88  
M.N.D.R.D. BOOK 235 PLAN 51  
M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

M.N.D.R.D. BOOK 19682 PAGE 258  
M.N.D.R.D. BOOK 21730 PAGE 263  
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M.N.D.R.D. BOOK 21730 PAGE 269  
M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

**ASSESSORS REFERENCES**

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**STORM WATER POLLUTION PREVENTION PLAN**  
**SPALDING HILL ESTATES**  
**WESTFORD, MA**

**ALAN ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

**PREPARED FOR:**  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	<b>23 of 30</b>
SCALE: AS SHOWN	

**CONSTRUCTION SEQUENCE:**

THE PROJECT WILL BE CONSTRUCTED IN THREE (3) PHASES AS SHOWN ON THE APPROVED PLANS. PHASE 1 WILL BE TO CONSTRUCT THE TWO ACCESSES INTO THE DEVELOPMENT ALONG WITH THEIR ASSOCIATED STORM WATER MANAGEMENT FEATURES. PHASE 2 WILL BE TO CONSTRUCT THE UPGRADE IMPROVEMENTS IN ST. AUGUSTINE DRIVE. PHASE 3 MAY NOT BEGIN UNTIL THE ROADWAYS IN PHASE 1 HAVE BEEN PAVED WITH THE BINDER COURSE OF PAVEMENT. PHASE 3 MAY NOT BEGIN UNTIL ST. AUGUSTINE DRIVE HAS BEEN REPAVED WITH THE BINDER COURSE OF PAVEMENT. THE PHASES OF CONSTRUCTION ARE TO BE DEVELOPED IN A CONTROLLED MANNER USING THE FOLLOWING SEQUENCE OF CONSTRUCTION TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE ESTABLISHED, AND THAT STORM WATER RUNOFF IS MANAGED APPROPRIATELY.

1. INSTALL SILT FENCE AND FILTREXX SILT SOXX, AND DELINEATE LIMITS OF CLEARING AS SHOWN ON THE APPROVED PLANS.
2. CLEAR AND GRUB WORK AREA. NOTE, ONLY WOODED AREAS NECESSARY FOR ROADWAY CONSTRUCTION AND THE CONSTRUCTION OF THE STORM WATER MANAGEMENT FACILITIES ARE TO BE CLEARED.
3. ROUGH GRADE ROADWAYS AND INSTALL TEMPORARY SEDIMENT BASINS AS SHOWN ON THE APPROVED PLANS.
4. INSTALL STORM WATER MANAGEMENT BMPs.
5. INSTALL ROADWAY DRAINAGE SYSTEM, AND UNDERGROUND UTILITIES.
6. CATCH BASINS AND DRAIN MANHOLES WITHIN THE ROADWAY ARE TO BE COVERED WITH FILTER FABRIC AND STEEL PLATES AFTER INSTALLATION AND SHALL REMAIN IN PLACE UNTIL AFTER THE BINDER COURSE IS INSTALLED.
7. PLACE AND COMPACT ROADWAY BASE MATERIAL.
8. INSTALL BINDER COURSE OF PAVEMENT IN ROADWAY AND RAISE CATCH BASINS GRATES TO BINDER GRADE AND INSTALL SILT SACKS IN ALL CATCH BASINS.
9. PLACE FILTREXX SILT SOXX ALONG EDGE OF PAVEMENT TO CONTAIN RUNOFF WITH THE ROADWAY.
10. HOUSE CONSTRUCTION MAY BEGIN AFTER BINDER COURSE IS INSTALLED.
11. AFTER HOUSE CONSTRUCTION IS COMPLETED INSTALL GRANITE CURBING AND CONSTRUCT SIDEWALKS. THIS MAY BE DONE IN SECTIONS AS HOUSES ARE COMPLETED.
12. LOAM AND SEED ALL DISTURBED AREAS.
13. INSTALL THE FINAL WEARING COURSE OF PAVEMENT.

**PHASING SEQUENCE:**

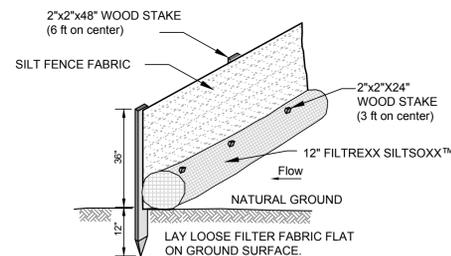
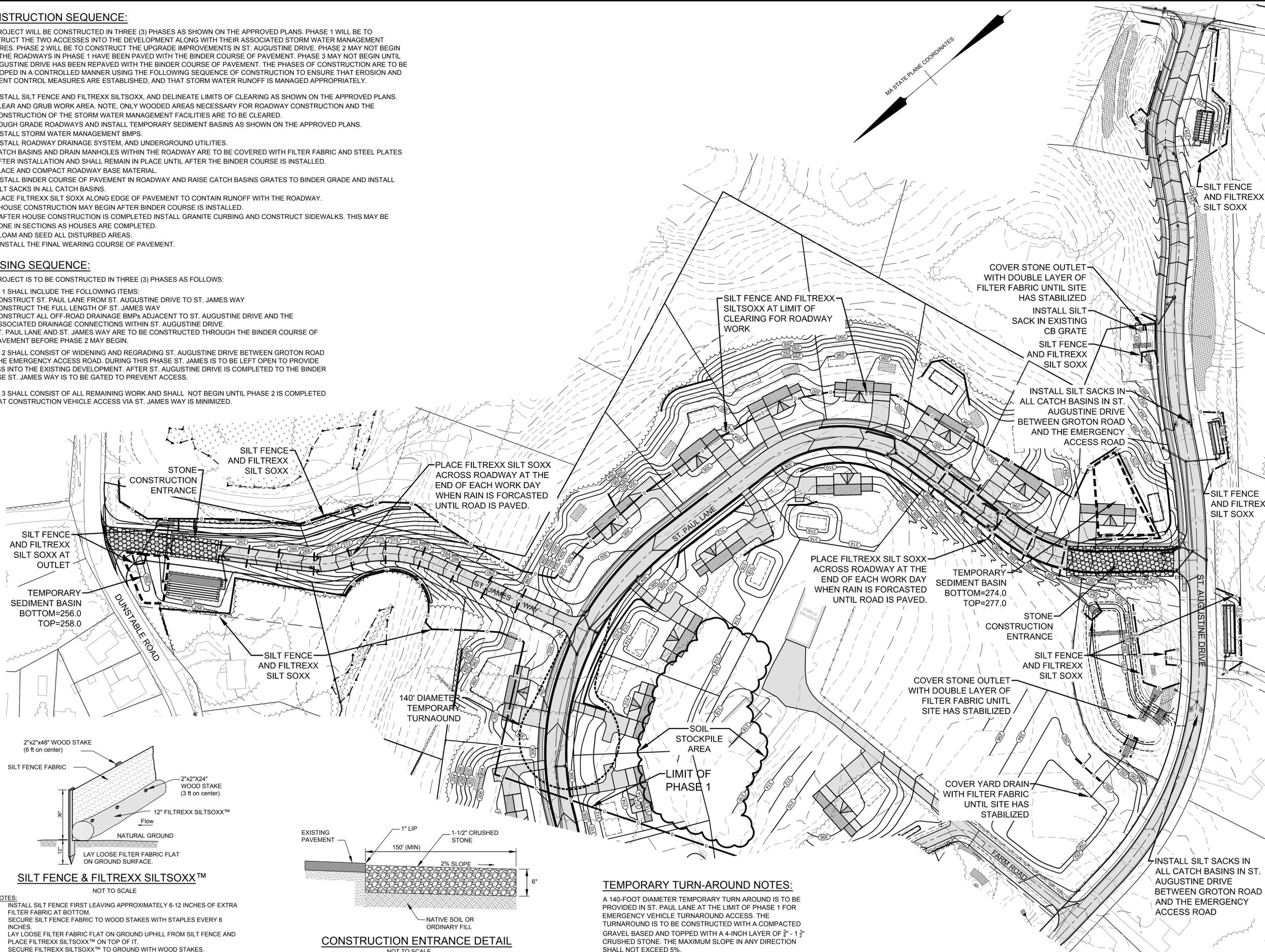
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- CONSTRUCT THE FULL LENGTH OF ST. JAMES WAY
- CONSTRUCT ALL OFF-ROAD DRAINAGE BMPs ADJACENT TO ST. AUGUSTINE DRIVE AND THE ASSOCIATED DRAINAGE CONNECTIONS WITHIN ST. AUGUSTINE DRIVE.
- ST. PAUL LANE AND ST. JAMES WAY ARE TO BE CONSTRUCTED THROUGH THE BINDER COURSE OF PAVEMENT BEFORE PHASE 2 MAY BEGIN.

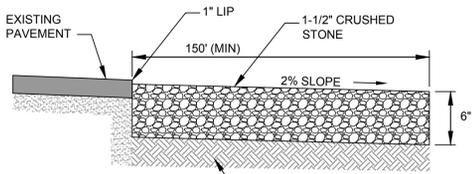
PHASE 2 SHALL CONSIST OF WIDENING AND REGRADING ST. AUGUSTINE DRIVE BETWEEN GROTON ROAD AND THE EMERGENCY ACCESS ROAD. DURING THIS PHASE ST. JAMES IS TO BE LEFT OPEN TO PROVIDE ACCESS INTO THE EXISTING DEVELOPMENT. AFTER ST. AUGUSTINE DRIVE IS COMPLETED TO THE BINDER COURSE ST. JAMES WAY IS TO BE GATED TO PREVENT ACCESS.

PHASE 3 SHALL CONSIST OF ALL REMAINING WORK AND SHALL NOT BEGIN UNTIL PHASE 2 IS COMPLETED SO THAT CONSTRUCTION VEHICLE ACCESS VIA ST. JAMES WAY IS MINIMIZED.



**SILT FENCE & FILTREXX SILT SOXX™**  
NOT TO SCALE

- NOTES:
1. INSTALL SILT FENCE FIRST LEAVING APPROXIMATELY 6-12 INCHES OF EXTRA FILTER FABRIC AT BOTTOM.
  2. SECURE SILT FENCE FABRIC TO WOOD STAKES WITH STAPLES EVERY 6 INCHES.
  3. LAY LOOSE FILTER FABRIC FLAT ON GROUND UPHILL FROM SILT FENCE AND PLACE FILTREXX SILT SOXX™ ON TOP OF IT.
  4. SECURE FILTREXX SILT SOXX™ TO GROUND WITH WOOD STAKES.



**CONSTRUCTION ENTRANCE DETAIL**  
NOT TO SCALE

**TEMPORARY TURN-AROUND NOTES:**

A 140-FOOT DIAMETER TEMPORARY TURN AROUND IS TO BE PROVIDED IN ST. PAUL LANE AT THE LIMIT OF PHASE 1 FOR EMERGENCY VEHICLE TURNAROUND ACCESS. THE TURNAROUND IS TO BE CONSTRUCTED WITH A COMPACTED GRAVEL BASED AND TOPPED WITH A 4-INCH LAYER OF 3/4" - 1 1/2" CRUSHED STONE. THE MAXIMUM SLOPE IN ANY DIRECTION SHALL NOT EXCEED 5%.

**General Notes**

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.  
OSRD Requirements:  
Minimum Area: 20,000 s.f.  
Minimum Frontage: 50' (100' average)  
Yard Setbacks: Front: 20'  
Side: 15'  
Rear: 15'
4. Parcels F and M are not building lots.
5. St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
6. The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.
7. Lot 28 is a single building lot which will be deed restricted such that it can not be further subdivided to create additional building lots.
8. A 20' wide temporary construction easement is to be reserved along the frontage of each lot within the subdivision and shall remain in effect until the street is accepted as a public way by the Town of Westford.
9. The boundary between the Open Space and the lots is to be delineated with 4" x 4" wood posts with 2' reveal and a sign describing the boundary. Posts shall be spaced 50' apart.

**PLAN REFERENCES**

- M.N.D.R.D. BOOK 240 PLAN 88
- M.N.D.R.D. BOOK 235 PLAN 51
- M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

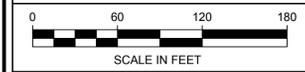
- M.N.D.R.D. BOOK 19882 PAGE 258
- M.N.D.R.D. BOOK 21730 PAGE 263
- M.N.D.R.D. BOOK 21730 PAGE 266
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- M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**

CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
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MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
MAS	ADD'L EROSION CONTROL	8/6/18
BY	REVISIONS	DATE

**EROSION CONTROL PLAN  
PHASES 1 & 2  
SPALDING HILL  
ESTATES  
WESTFORD, MA**

**ALAN  
ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
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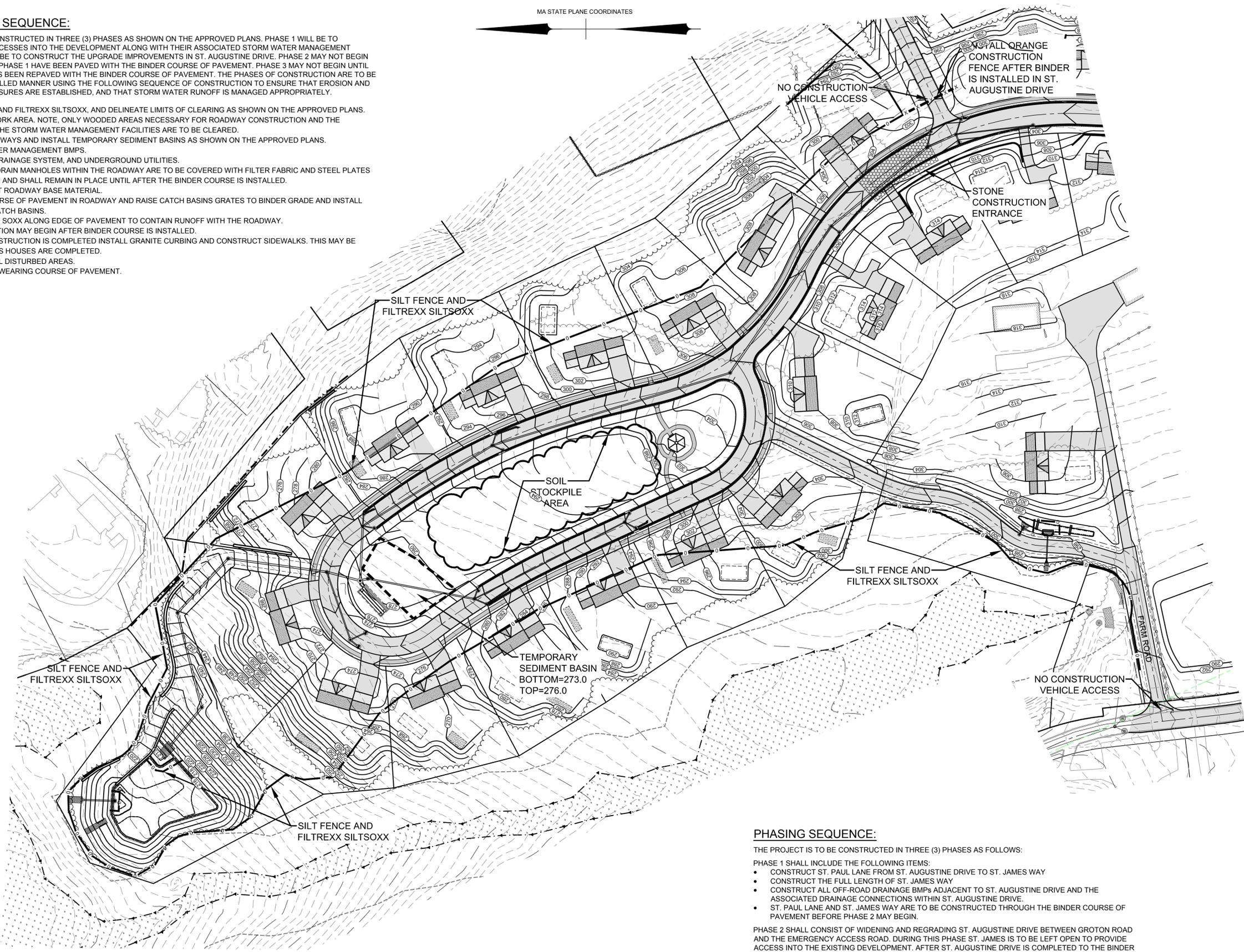
JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	24 of 30
SCALE: 1" = 60'	

**CONSTRUCTION SEQUENCE:**

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MA STATE PLANE COORDINATES



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**DEED REFERENCE**

M.N.D.R.D. BOOK 19682 PAGE 258  
M.N.D.R.D. BOOK 21730 PAGE 263  
M.N.D.R.D. BOOK 21730 PAGE 266  
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**RECORD OWNERS**

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P.O. BOX 1230  
WESTFORD, MA 01886

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MAP 040, PARCEL 0017 0000



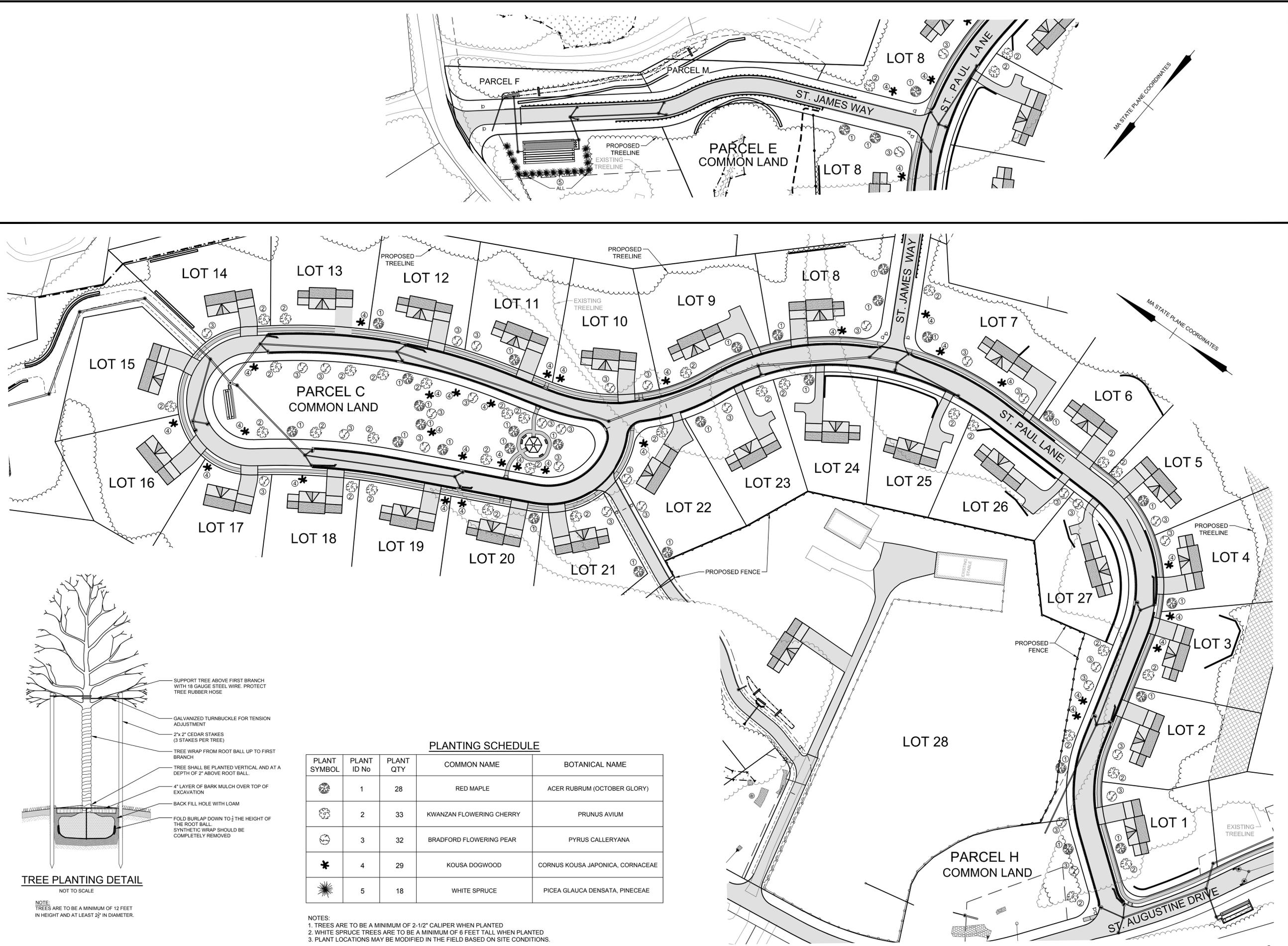
MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
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MAS	TOWN ENG. COMMENTS	1/31/2019
MAS	ADD'L EROSION CONTROL	8/6/18
BY	REVISIONS	DATE

**EROSION CONTROL PLAN  
PHASE 3  
SPALDING HILL  
ESTATES  
WESTFORD, MA**

**ALAN  
ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
WOBURN, MA 01801  
(978) 577-6444  
alan.eng@verizon.net

PREPARED FOR:  
CONNELL REAL ESTATE TRUST  
P.O. BOX 1230  
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	25 of 30
SCALE: 1" = 60'	



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**DEED REFERENCE**  
M.N.D.R.D. BOOK 19882 PAGE 258  
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P.O. BOX 1230  
WESTFORD, MA 01886

**ASSESSORS REFERENCES**  
MAP 040, PARCEL 0017 0000

0 60 120 180  
SCALE IN FEET

**PROFESSIONAL ENGINEER**  
MARK SLEGER  
10-94407  
REGISTERED  
12/9/2019

MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
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BY	REVISIONS	DATE

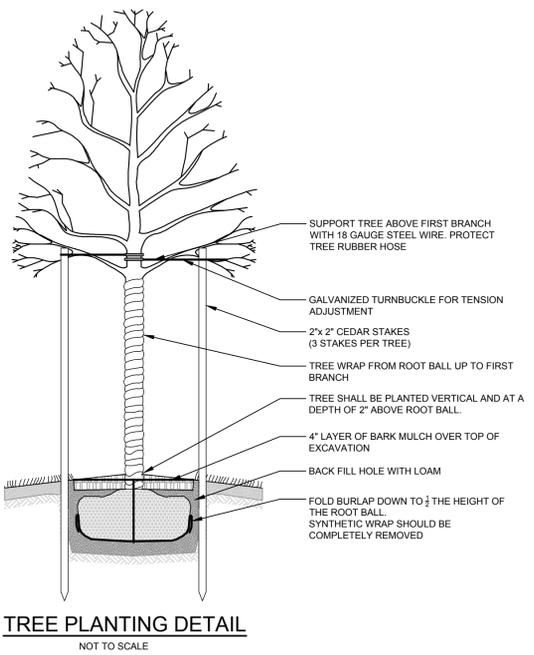
**LANDSCAPE PLAN**  
SPALDING HILL ESTATES  
WESTFORD, MA

**ALAN ENGINEERING, L.L.C.**  
110 WINN STREET, SUITE 209  
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**PREPARED FOR:**  
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JOB NO: 1174      DWG NO: 1637  
JULY 20, 2018      **26 of 30**  
SCALE: 1" = 60'

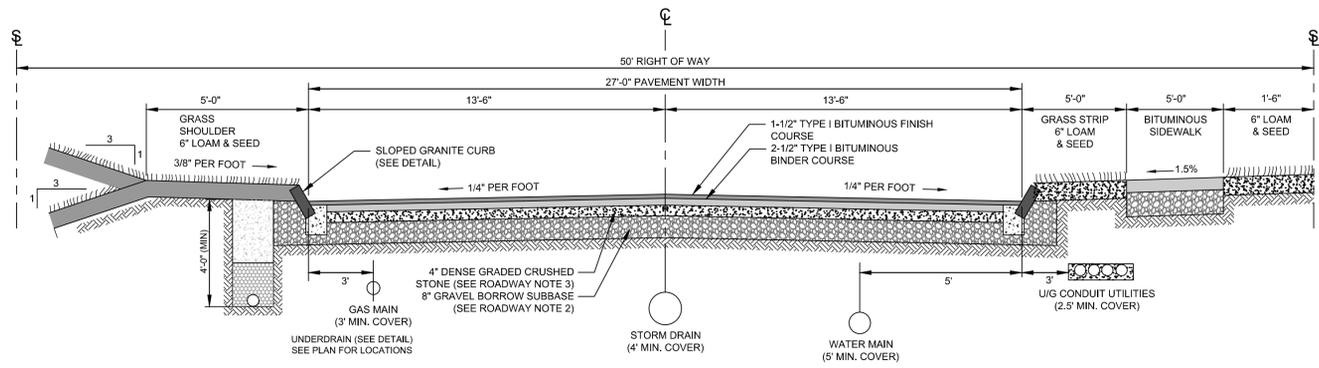
COPYRIGHT © 2018



**PLANTING SCHEDULE**

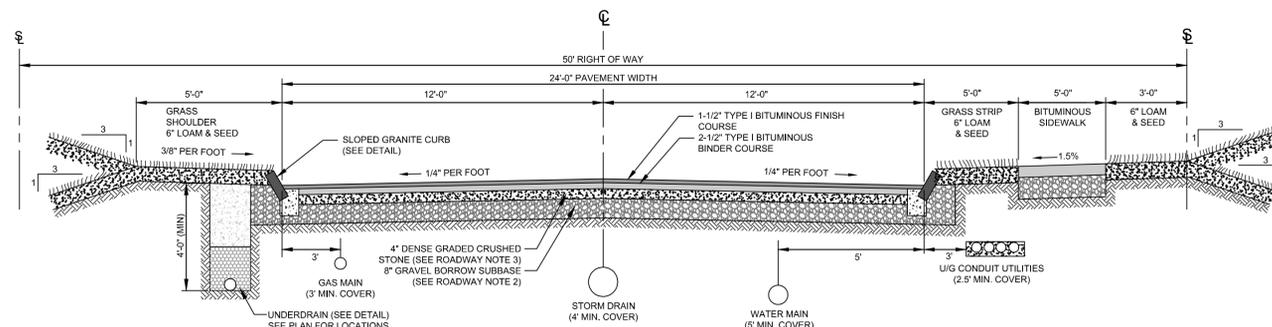
PLANT SYMBOL	PLANT ID No	PLANT QTY	COMMON NAME	BOTANICAL NAME
●	1	28	RED MAPLE	ACER RUBRUM (OCTOBER GLORY)
●	2	33	KWANZAN FLOWERING CHERRY	PRUNUS AVIUM
●	3	32	BRADFORD FLOWERING PEAR	PYRUS CALLERYANA
*	4	29	KOUSA DOGWOOD	CORNUS KOUSA JAPONICA, CORNACEAE
★	5	18	WHITE SPRUCE	PICEA GLAUCA DENSATA, PINECEAE

**NOTES:**  
1. TREES ARE TO BE A MINIMUM OF 2-1/2" CALIPER WHEN PLANTED  
2. WHITE SPRUCE TREES ARE TO BE A MINIMUM OF 6 FEET TALL WHEN PLANTED  
3. PLANT LOCATIONS MAY BE MODIFIED IN THE FIELD BASED ON SITE CONDITIONS.



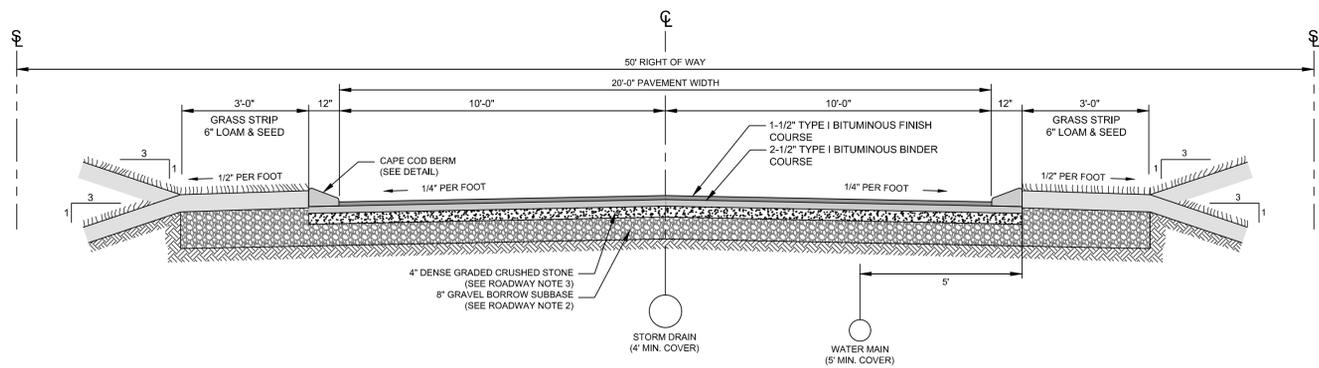
50' STREET CROSS SECTION WITH 27' PAVEMENT WIDTH  
NOT TO SCALE

ST. PAUL LANE: STATION 0+0 TO STATION 13+00  
ST. AUGUSTINE DRIVE FROM GROTON ROAD TO ST. PAUL LANE



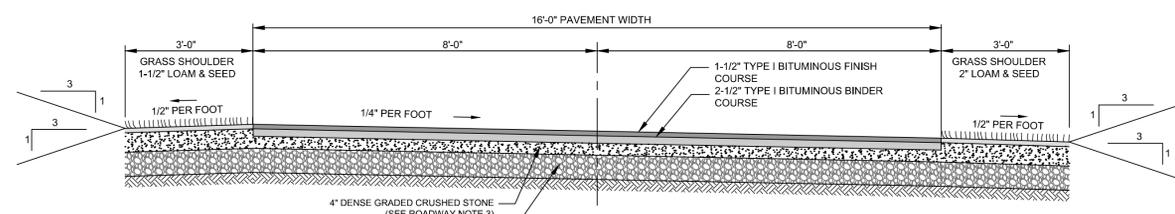
50' STREET CROSS SECTION WITH 24' PAVEMENT WIDTH  
NOT TO SCALE

ST. PAUL LANE: STATION 13+00 TO END



50' STREET CROSS SECTION WITH 20' PAVEMENT WIDTH  
NOT TO SCALE

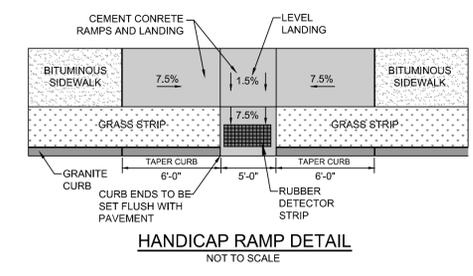
ST. JAMES WAY



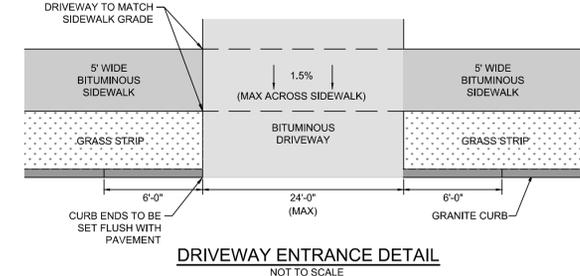
EMERGENCY ACCESS ROAD CROSS SECTION  
NOT TO SCALE

**ROADWAY NOTES:**

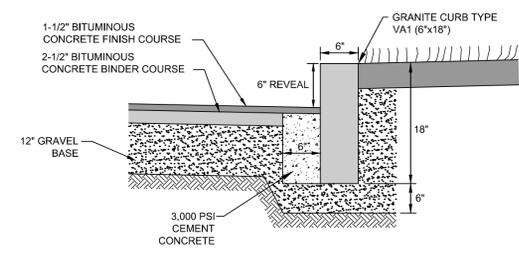
- SOIL TESTING INCLUDING SIEVE ANALYSES, PROCTOR TESTING, AND COMPACTION TESTING SHALL BE PERFORMED EVERY 100 FEET OF PAVED ROADWAY OR AS DIRECTED BY THE TOWN ENGINEER.
- GRAVEL BORROW SUBBASE SHALL CONFORM TO SECTION M1.03.0 TYPE B OF THE LATEST EDITION OF THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES. GRAVEL BORROW SUBBASE SHALL BE COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY OF THE MATERIAL AS DETERMINED BY THE STANDARD AASHTO TEST DESIGNATION T99 COMPACTION TEST METHOD C AT OPTIMUM MOISTURE CONTENT.
- DENSE GRADED CRUSHED STONE SHALL CONFORM TO SECTION M2.01.7 OF THE LATEST EDITION OF THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES. WITH THE APPROVAL OF THE TOWN ENGINEER PROCESSED GRAVEL MEETING SECTION M1.03.1 MAY BE USED AS IN PLACE OF THE DENSE GRADED CRUSHED STONE.



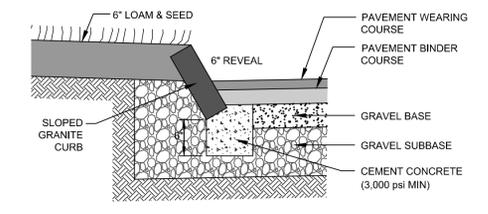
HANDICAP RAMP DETAIL  
NOT TO SCALE



DRIVEWAY ENTRANCE DETAIL  
NOT TO SCALE

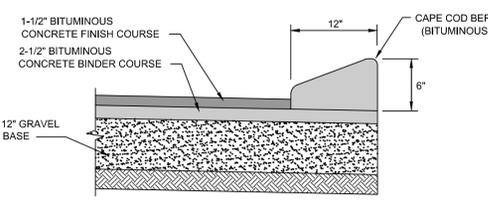


VERTICAL GRANITE CURB DETAIL  
NOT TO SCALE

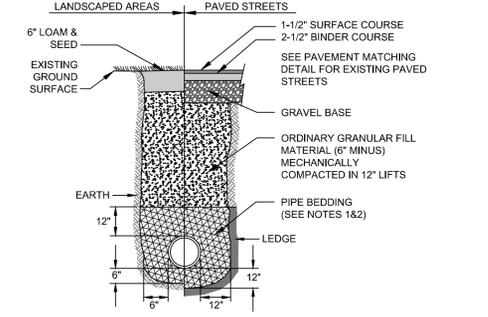


SLOPED GRANITE CURB DETAIL  
NOT TO SCALE

- GRANITE CURBING NOTES:
- GRAVEL SUBBASE AND CURB BACKING TO BE PLACED AND COMPACTED PRIOR TO SETTING GRANITE CURB.
  - GRANITE CURBING IS TO TYPE 'SB' WITH THE FOLLOWING MINIMUM DIMENSIONS:  
MAX LENGTH = 10' MIN LENGTH = 3' THICKNESS = 6'-8'
  - CEMENT CONCRETE IS TO BE PLACED 1/2" BELOW THE LEVEL OF THE BINDER COURSE TO FORM A LIP.

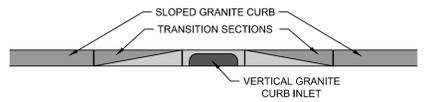


BITUMINOUS CAPE COD BERM  
NOT TO SCALE



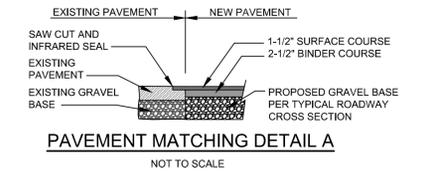
TYPICAL TRENCH SECTION  
NOT TO SCALE

- NOTES:
- PIPE BEDDING MATERIAL TO BE AS FOLLOWS:  
• FOR OLD WATER MAINS USE SAND  
• FOR PVC AND HDPE PIPING USE 3/4" CRUSHED STONE  
• FOR RCP USE SUITABLE GRANULAR FILL (2" MINUS)
  - FOR ANTI-SEEP COLLAR SUBSTITUTE BEDDING MATERIAL WITH BENTONITE FOR A DISTANCE OF 24 INCHES ALONG THE TRENCH.

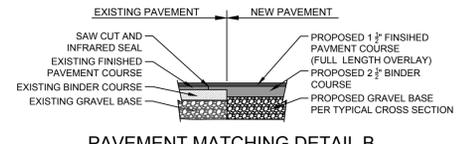


GRANITE CURB INLET DETAIL  
NOT TO SCALE

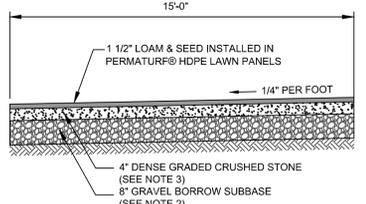
- NOTES:
- GRANITE CURB INLETS ARE TO BE USED AT ALL CATCH BASINS IN ST. PAUL LANE.



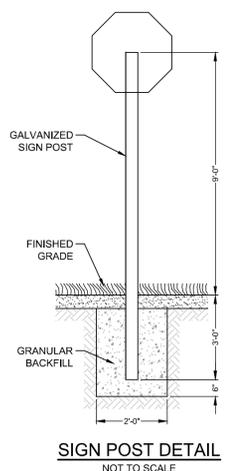
PAVEMENT MATCHING DETAIL A  
NOT TO SCALE



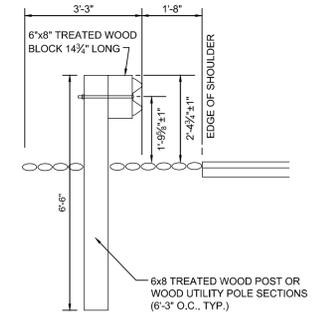
PAVEMENT MATCHING DETAIL B  
NOT TO SCALE



STABILIZED TURF ACCESS ROAD CROSS SECTION  
NOT TO SCALE



SIGN POST DETAIL  
NOT TO SCALE



GUARDRAIL DETAIL  
NOT TO SCALE

- NOTES:
- GUARDRAIL TO BE GALVANIZED STEEL W-BEAM HIGHWAY GUARD (MASS HIGHWAY SPEC) WITH TREATED WOOD POSTS OR 12" DIA. UTILITY POLES.
  - WOOD BLOCKS SHALL BE TOE-NAILED INTO THE WOOD POSTS WITH A MINIMUM OF FOUR (4) 12d GALVANIZED NAILS.

**General Notes**

**PLAN REFERENCES**  
M.N.D.R.D. BOOK 240 PLAN 88  
M.N.D.R.D. BOOK 235 PLAN 51  
M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**  
M.N.D.R.D. BOOK 19682 PAGE 258  
M.N.D.R.D. BOOK 21730 PAGE 263  
M.N.D.R.D. BOOK 21730 PAGE 266  
M.N.D.R.D. BOOK 21730 PAGE 267  
M.N.D.R.D. BOOK 21730 PAGE 269  
M.N.D.R.D. BOOK 23657 PAGE 195

**RECORD OWNERS**  
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WESTFORD, MA 01886

**ASSESSORS REFERENCES**  
MAP 040, PARCEL 0017 0000



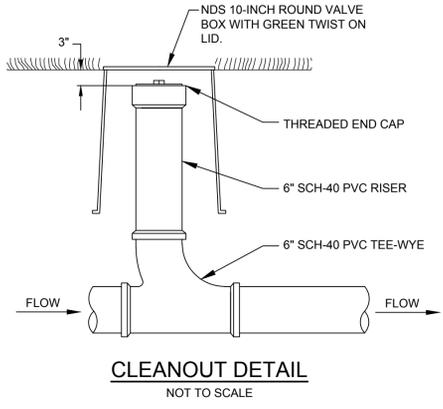
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MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**CONSTRUCTION DETAILS**  
SPALDING HILL ESTATES  
WESTFORD, MA

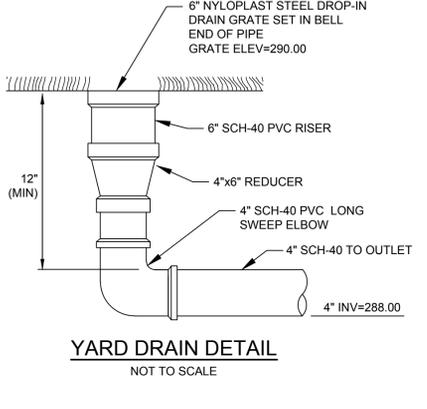
**ALAN ENGINEERING, L.L.C.**  
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(978) 577-6444  
alan.eng@verizon.net

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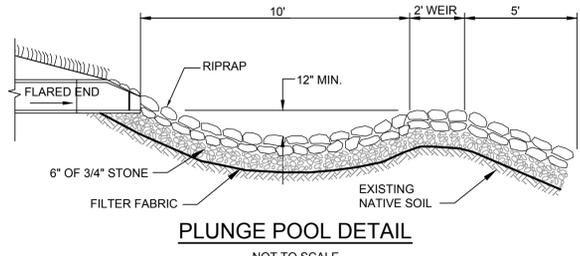
JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	27 of 30
SCALE: AS SHOWN	



**CLEANOUT DETAIL**  
NOT TO SCALE

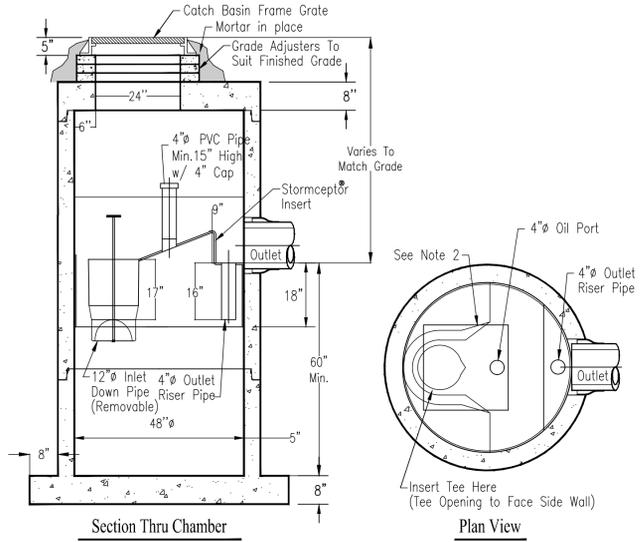


**YARD DRAIN DETAIL**  
NOT TO SCALE



**PLUNGE POOL DETAIL**  
NOT TO SCALE

NOTE:  
RIP RAP IS TO BE HARD DURABLE ANGULAR STONES RANGING IN SIZE FROM 8 INCHES TO 12 INCHES.

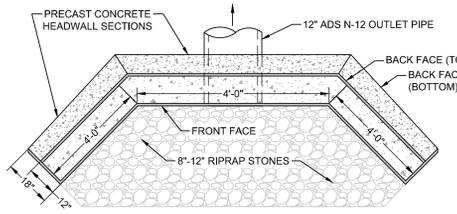


**Section Thru Chamber**

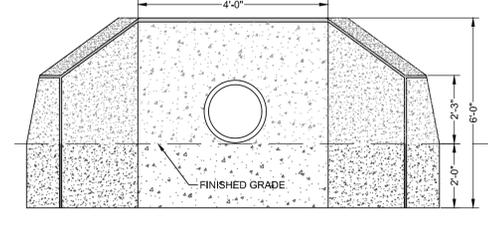
**Plan View**

- Notes:
1. The Use Of Flexible Connection is Recommended at The Inlet and Outlet Where Applicable.
  2. The Cover Should be Positioned Over The Inlet Drop Pipe and The Oil Port.
  3. The Stormceptor System is protected by one or more of the following U.S. Patents: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.
  4. Contact a Concrete Pipe Division representative for further details not listed on this drawing.

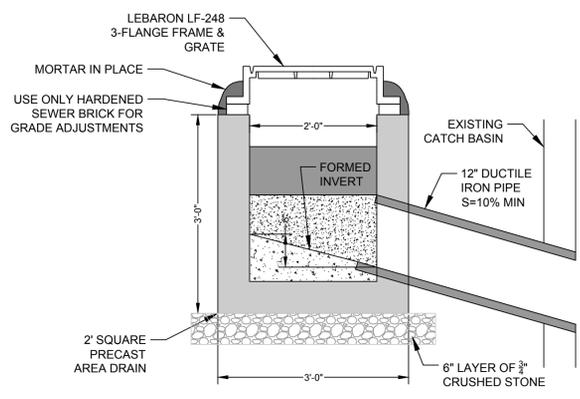
**STC 450i Precast Concrete Stormceptor®**  
(450 U.S. Gallon Capacity)



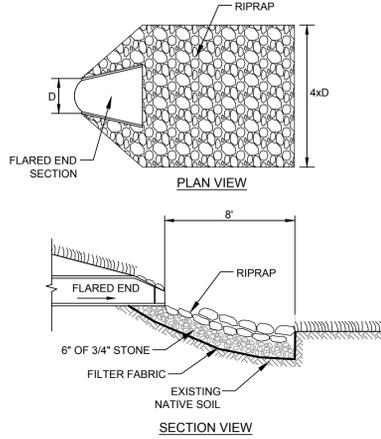
**PLAN**



**PRECAST CONCRETE HEADWALL DETAIL**  
NOT TO SCALE

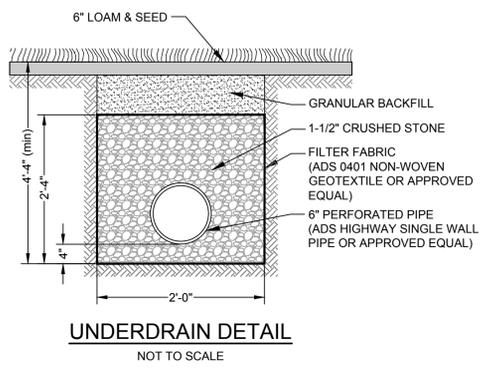


**GUTTER INLET DETAIL**  
NOT TO SCALE

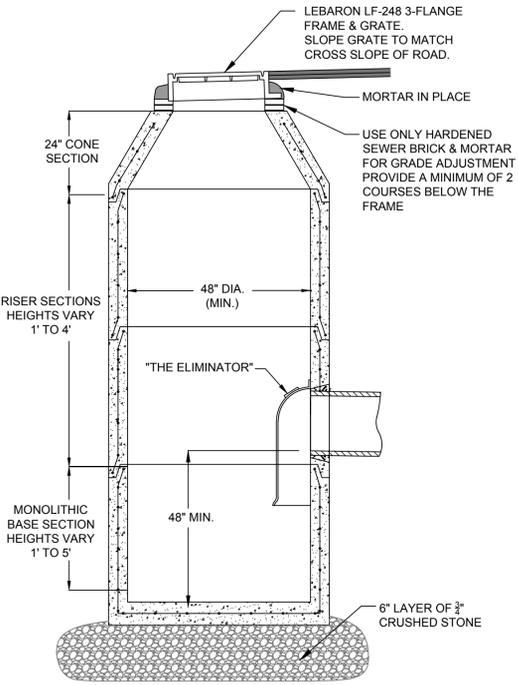


**FLARED END SECTION DETAIL**  
NOT TO SCALE

NOTE:  
RIP RAP IS TO BE HARD DURABLE ANGULAR STONES RANGING IN SIZE FROM 8 INCHES TO 12 INCHES



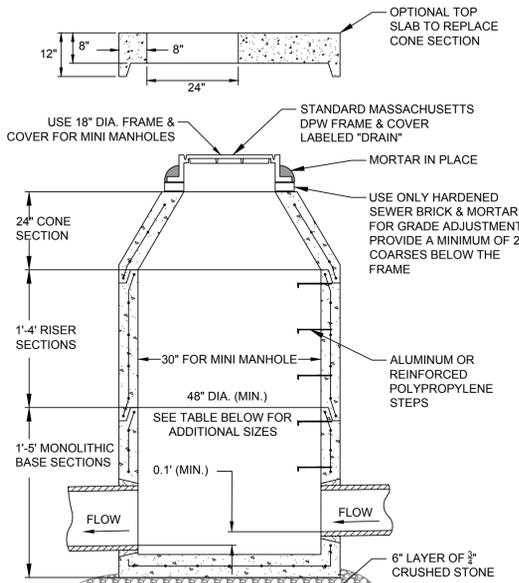
**UNDERDRAIN DETAIL**  
NOT TO SCALE



**PRECAST CONCRETE CATCH BASIN**  
NOT TO SCALE

- NOTES:
1. WHERE DOUBLE GRATES ARE SPECIFIED THE USE 5'-0" INSIDE DIAMETER CATCH BASIN.
  2. DOUBLE GRATES ARE TO BE SET PERPENDICULAR TO THE CURB.

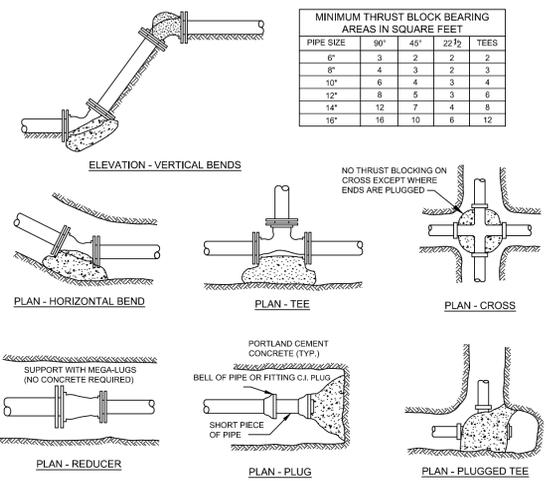
TWIN GRATE LOCATIONS:  
CB-1, CB-2, CB-4, CB-5, CB-7, CB-10, CB-17, CB-18, CB-20, CB-21



**PRECAST CONCRETE DRAIN MANHOLE**  
NOT TO SCALE

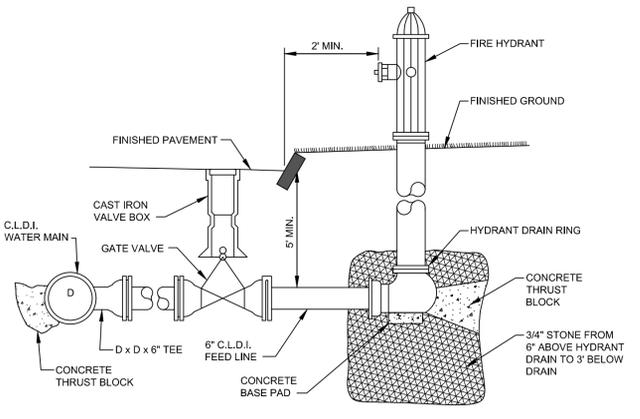
**SPECIFIC MANHOLE SIZES**

DMH-6	5' DIA
DMH-13	6' DIA
DMH-15	5' DIA



**WATER MAIN DETAILS**  
NOT TO SCALE

- NOTES:
1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE SPECIFICATIONS OF THE LOCAL WATER DEPARTMENT.
  2. CONCRETE SHALL BE 3,000 PSI MINIMUM AT 28 DAYS.
  3. THRUST BLOCKS SHALL BE PLACED AGAINST UNDISTURBED EARTH.
  4. ALL FITTINGS (EXCEPT AS INDICATED) SHALL BE SUPPORTED AND ANCHORED IN CONCRETE AND WITH "MEGALUG JOINT RESTRAINTS" OR APPROVED EQUAL.
  5. FOR FIRE HYDRANT THRUSTING SEE HYDRANT CONNECTION DETAIL.
  6. POURED CONCRETE SHALL BE KEPT 6" CLEAR OF MECHANICAL JOINTS TO ALLOW FOR FUTURE REPAIR OR REMOVAL.
  7. RETAINER GLANDS REQUIRED ON ALL BENDS.
  8. ALL MECHANICAL JOINT GLANDS SHALL BE WEDGE-ACTION LOCKING RESTRAINT TYPE.
  9. BELL ENDS OF PUSH-ON PIPE WITHIN 30 FEET OF THE TERMINATION OF THE WATER MAIN OR EITHER SIDE OF A 90-DEGREE BEND SHALL BE MECHANICALLY RESTRAINED. (FIELD-LOC GASKETS, RODS AND RESTRAINT CLAMPS OF SET SCREW PLUG).
  10. BRONZE CONDUCTIVITY WEDGES (2) SHALL BE INSTALLED AT EACH BELL JOINT.
  11. THE TAPPING SLEEVE SHALL BE ALL STAINLESS STEEL WRAP-AROUND TYPE.



**HYDRANT CONNECTION DETAIL**  
NOT TO SCALE

**General Notes**

**PLAN REFERENCES**

- M.N.D.R.D. BOOK 240 PLAN 88
- M.N.D.R.D. BOOK 235 PLAN 51
- M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

- M.N.D.R.D. BOOK 19682 PAGE 258
- M.N.D.R.D. BOOK 21730 PAGE 263
- M.N.D.R.D. BOOK 21730 PAGE 266
- M.N.D.R.D. BOOK 21730 PAGE 267
- M.N.D.R.D. BOOK 21730 PAGE 269
- M.N.D.R.D. BOOK 23657 PAGE 195

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**ASSESSORS REFERENCES**

MAP 040, PARCEL 0017 0000

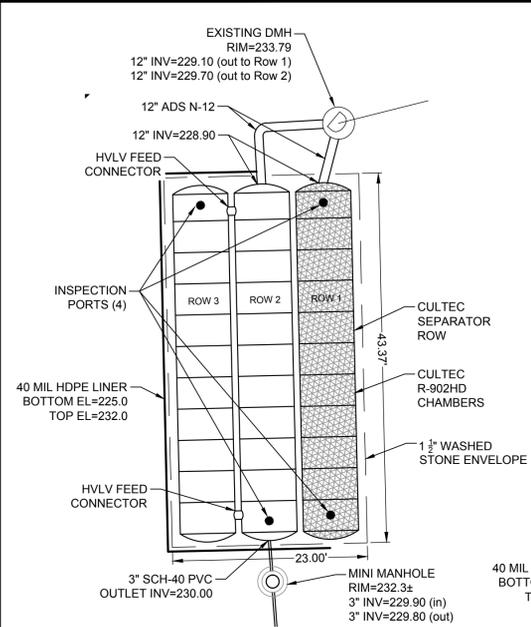


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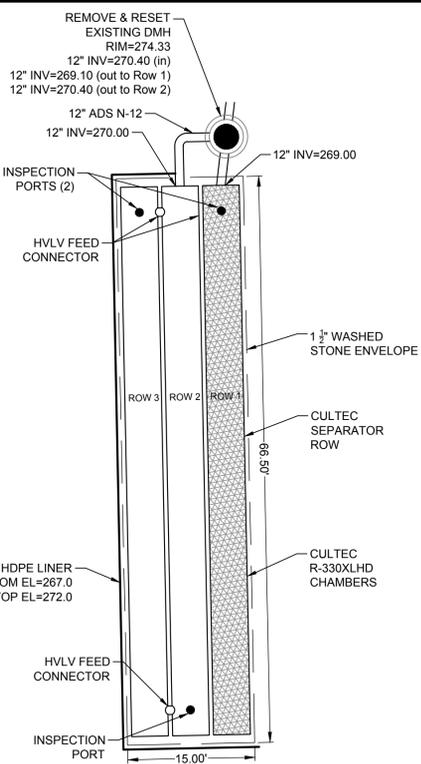
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JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	28 of 30
SCALE: AS SHOWN	



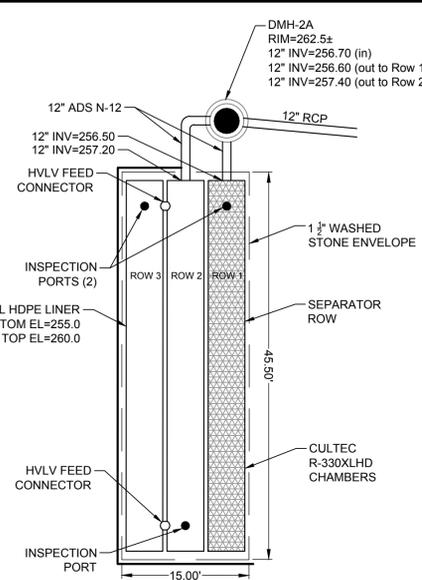
**INFILTRATION SYSTEM 1**

SCALE: 1" = 10'  
NOTE: FILTER FABRIC IS NOT REQUIRED WHERE THE HDPE LINER IS SHOWN.



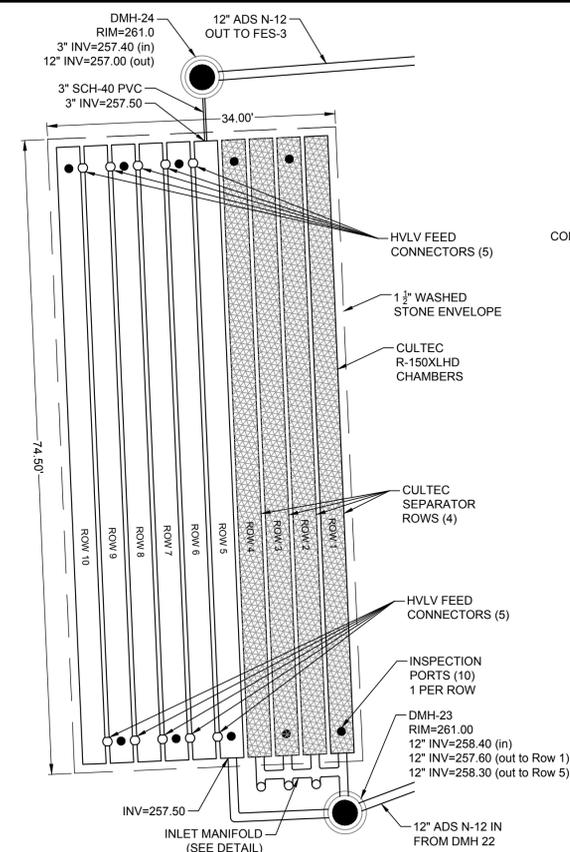
**INFILTRATION SYSTEM 2**

SCALE: 1" = 10'  
NOTE: FILTER FABRIC IS NOT REQUIRED WHERE THE HDPE LINER IS SHOWN.



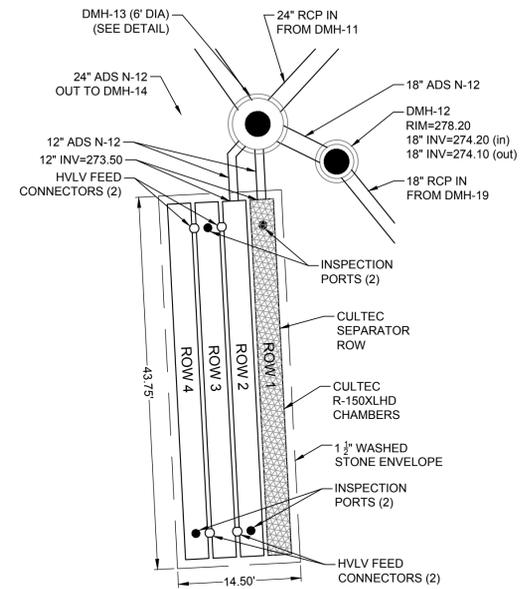
**INFILTRATION SYSTEM 3**

SCALE: 1" = 10'  
NOTE: FILTER FABRIC IS NOT REQUIRED WHERE THE HDPE LINER IS SHOWN.



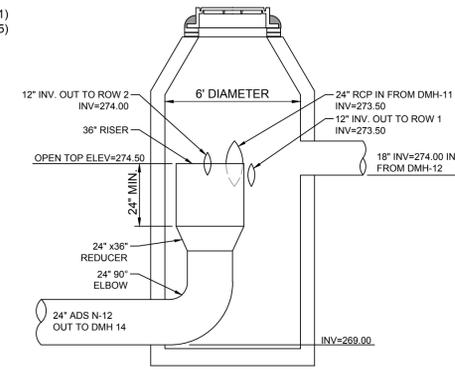
**DETENTION SYSTEM 4**

SCALE: 1" = 10'



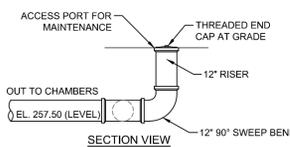
**INFILTRATION SYSTEM 5**

SCALE: 1" = 10'



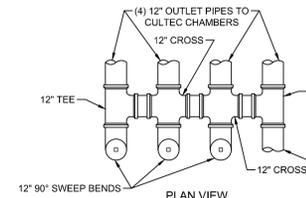
**DMH 13 DETAIL**

NOT TO SCALE  
24\"/>



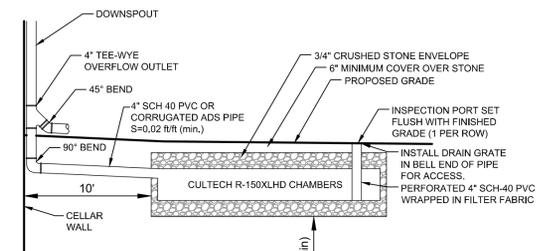
**12\"/>**

NOT TO SCALE  
MANIFOLD MAY BE CONSTRUCTED WITH EITHER SCH-40 PVC, ADS N-12, OR SDR-35 PVC PIPING



**12\"/>**

NOT TO SCALE  
MANIFOLD MAY BE CONSTRUCTED WITH EITHER SCH-40 PVC, ADS N-12, OR SDR-35 PVC PIPING



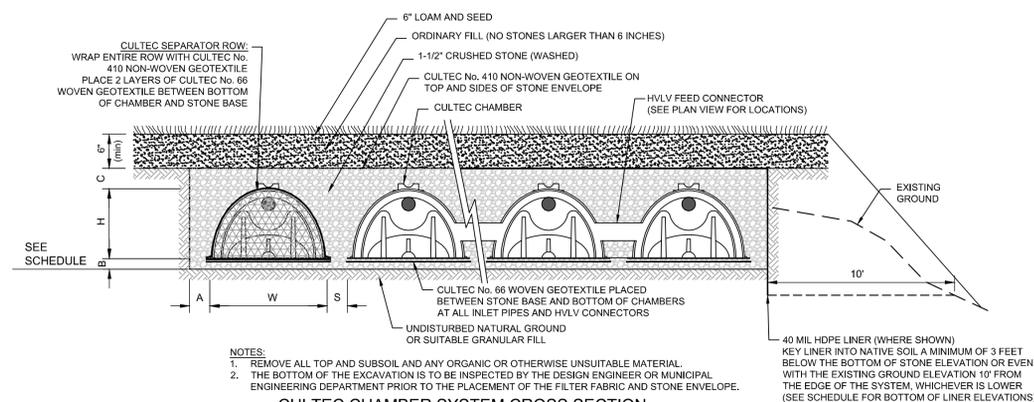
**ROOF DRAIN DETAIL**

NOT TO SCALE

**ROOF DRAIN SYSTEM SCHEDULE**

SYSTEM STYLE	No. CHAMBERS	ROWS	CHAMBERS PER ROW	STONE LENGTH	STONE WIDTH
A	6	2	3	33'-6"	8'-0"
B	6	3	2	23'-3"	11'-3"

- NOTES:
- CHAMBERS SHALL BE SPACED 6" APART
  - THE STONE ENVELOPE SHALL EXTEND TO 6" ABOVE THE TOP OF THE CHAMBER AND TO 6" BELOW THE BOTTOM OF THE CHAMBER. THE STONE ENVELOPE SHALL ALSO EXTEND OUTWARD 12" FROM THE SIDES AND ENDS OF THE CHAMBERS.
  - ROOF DRAIN SYSTEMS ARE DESIGNED TO RECEIVE A MAXIMUM OF 2,036 SQUARE FEET OF ROOF AREA. LARGER ROOF AREAS MAY REQUIRE ADDITIONAL CHAMBERS.
  - INFILTRATION SYSTEMS SHALL BE A MINIMUM OF 10 FEET FROM LOT LINES.



- NOTES:
- REMOVE ALL TOP AND SUBSOIL AND ANY ORGANIC OR OTHERWISE UNSUITABLE MATERIAL.
  - THE BOTTOM OF THE EXCAVATION IS TO BE INSPECTED BY THE DESIGN ENGINEER OR MUNICIPAL ENGINEERING DEPARTMENT PRIOR TO THE PLACEMENT OF THE FILTER FABRIC AND STONE ENVELOPE.

**CULTEC CHAMBER SYSTEM CROSS SECTION**

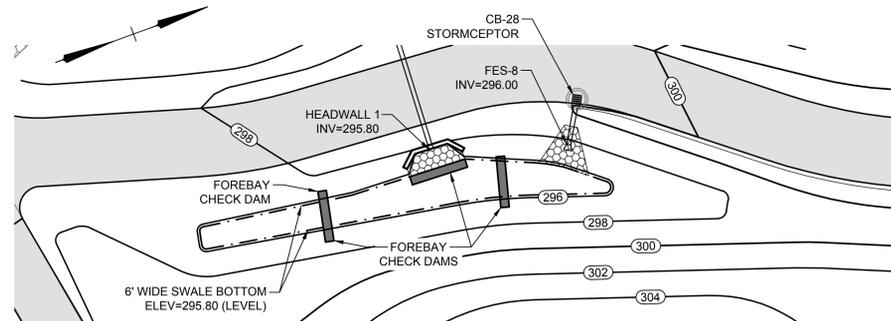
NOT TO SCALE

**CULTEC SYSTEM SEPARATOR ROW:**

- THE CHAMBERS OF THE SEPARATOR ROW SHALL WRAPPED ON THE TOP AND SIDES WITH CULTEC No. 410 NON-WOVEN GEOTEXTILE.
- A DOUBLE LAYER OF CULTEC No. 66 WOVEN GEOTEXTILE SHALL BE PLACED BETWEEN THE BOTTOM OF THE SEPARATOR ROW CHAMBERS AND THE STONE BASE.

**CULTEC CHAMBER SYSTEM SCHEDULE**

SYSTEM No.	CULTEC MODEL	H	W	A	B	S	C	No. CHAMBERS	NO. ROWS	UNITS PER ROW	SYSTEM LENGTH	SYSTEM WIDTH	BOTTOM OF STONE EL.	TOP OF STONE EL.	BOTTOM OF HDPE LINER
1	R-902 HD	48"	78"	12"	9"	9"	12"	33	3	11	43'-5"	23'-0"	226.0	231.8	223.0
2	R-330XLHD	30"	52"	6"	6"	6"	6"	27	3	9	66'-6"	15'-0"	268.0	271.5	265.0
3	R-330XLHD	30"	52"	6"	6"	6"	6"	18	3	6	45'-6"	15'-0"	256.0	259.5	253.0
4	R-150XLHD	18"	33"	12"	6"	6"	6"	72	10	7	74'-6"	34'-0"	257.0	259.5	N/A
5	R-150XLHD	18"	33"	12"	6"	6"	6"	16	4	4	43'-9"	14'-9"	273.0	275.5	N/A



**WATER QUALITY SWALE 2**

SCALE: 1" = 20'

**General Notes**

**PLAN REFERENCES**

M.N.D.R.D. BOOK 240 PLAN 88  
M.N.D.R.D. BOOK 235 PLAN 51  
M.N.D.R.D. BOOK 224 PLAN 90

**DEED REFERENCE**

M.N.D.R.D. BOOK 19682 PAGE 258  
M.N.D.R.D. BOOK 21730 PAGE 263  
M.N.D.R.D. BOOK 21730 PAGE 266  
M.N.D.R.D. BOOK 21730 PAGE 267  
M.N.D.R.D. BOOK 21730 PAGE 269  
M.N.D.R.D. BOOK 23657 PAGE 195

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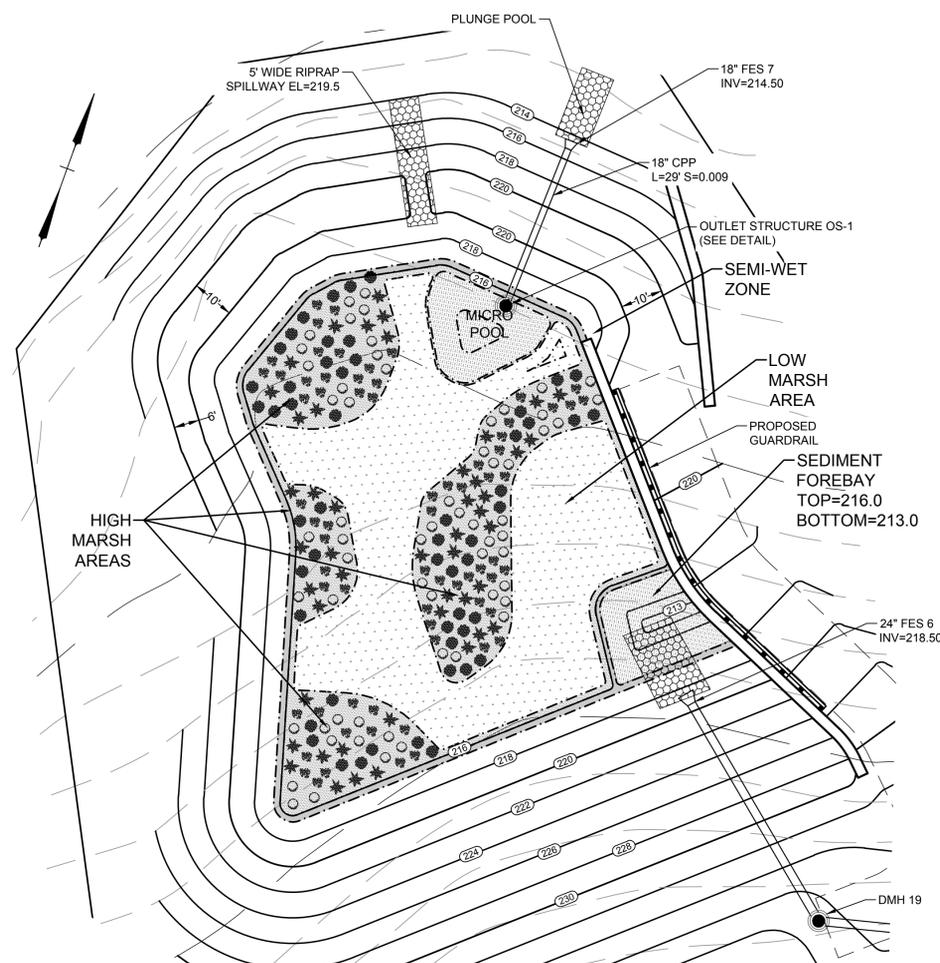
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MAS	TOWN ENG. COMMENTS	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
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JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	29 of 30
SCALE: AS SHOWN	



**WETLAND DETENTION BASIN DETAIL**  
SCALE: 1" = 20'

**PLANTING SCHEDULE**

PLANT SYMBOL	PLANT QTY	COMMON NAME	BOTANICAL NAME
	68	AMERICAN WITCH HAZEL	HAMAMELIS VIRGINIANA
	36	WINTERBERRY	ILEX VERTICILATA
	53	CREEPING JUNIPER	JUNIPERUS HORIZONTALIS
	60	LOW BUSH BLUEBERRY	VACCINIUM ANGUSTIFOLIUM

- NOTES:  
 1. LINE BOTTOM AND SID SLOPES OF FOREBAY AND MICRO POOL WITH 6" CLAY AND 6" LOAM  
 2. BOTTOM OF HIGH AND LOW MARSH AREAS IS TO BE A 12" LAYER OF LOAM AND PEAT  
 3. LOW AND HIGH MARSH AREAS ARE TO BE SEED WITH A NEW ENGLAND WETLAND SEED MIX  
 4. BASIN CONSTRUCTION TO BE SUPERVISED BY A WETLAND SPECIALIST  
 5. PLANT SPECIES AND QUANTITIES MAY VARY BASED ON SITE CONDITIONS AND THE RECOMMENDATIONS OF THE WETLAND SPECIALIST

**WETLAND BASIN SIZING CALCULATIONS (POCKET WETLAND)**

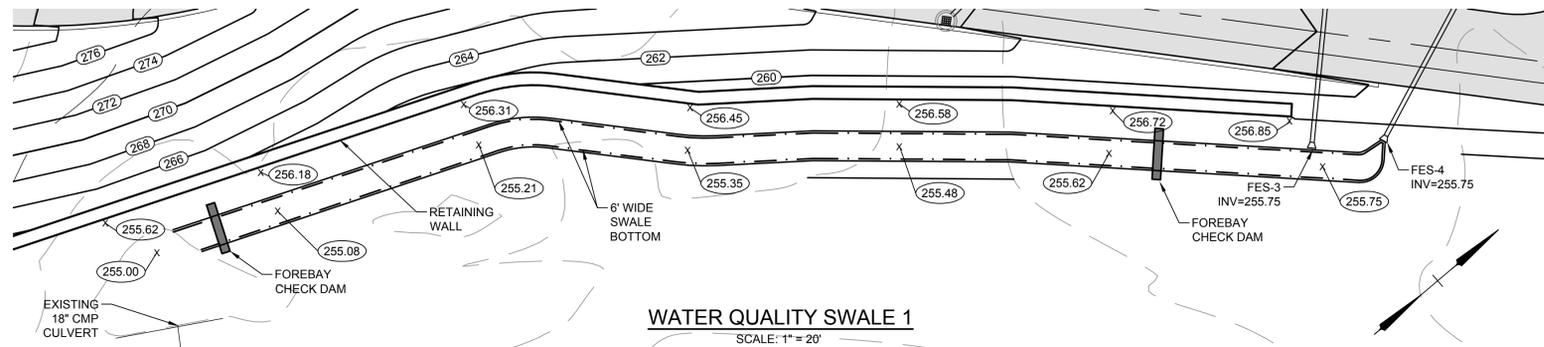
WATERSHED AREA	WETLAND BASIN AREA	WATERSHED / BASIN RATIO	FOREBAY		MICRO POOL		LOW MARSH		HIGH MARSH		SEMI-WET ZONE		
			AREA	Basin %	AREA	Basin %	AREA	Basin %	AREA	Basin %	AREA	Basin %	
DESIGN	7.30 Ac.	9,650 S.F. (0.22 Ac.)	0.03	485 S.F.	5.0%	483 S.F.	5.1%	4,330 S.F.	44.9%	3,840 S.F.	39.8%	517 S.F.	5.4%
DEP CRITERIA	≥ 1 to 10 Ac.	≥ 3,180 (0.07 Ac.)	≥ 0.01	482 S.F.	5.0%	482 S.F.	5.0%	4,344 S.F.	45.0%	3,860 S.F.	40.0%	482 S.F.	5.0%

**WETLAND BASIN WATER QUALITY CALCULATIONS (POCKET WETLAND)**

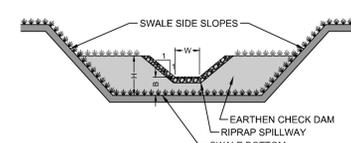
	FOREBAY		MICRO POOL		LOW MARSH		HIGH MARSH		
	VOLUME	% QV	VOLUME	% QV	VOLUME	% QV	VOLUME	% QV	
DESIGN	3,427 CU-FT	734 CU-FT	21%	694 CU-FT	20%	3,511 CU-FT	102%	3,245 S.F.	95%
DEP CRITERIA		343 CU-FT	10%	343 CU-FT	10%	1,865 CU-FT	55%	3,860 S.F.	25%

**BASIN ELEVATIONS**

WETLAND ZONE	ELEVATION
NORMAL POOL	216.0
FOREBAY	213.0 - 216.0
MICRO POOL	213.0 - 215.5
LOW MARSH	214.5 - 215.5
HIGH MARSH	215.5 - 216.0
SEMI-WET ZONE	216.0 - 216.5



**WATER QUALITY SWALE 1**  
SCALE: 1" = 20'

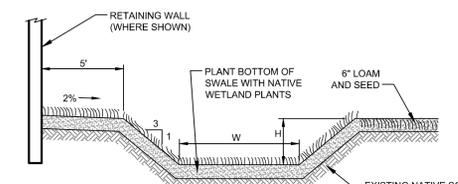


**FOREBAY CHECK DAM DETAIL**  
NOT TO SCALE

- CONSTRUCTION NOTES:  
 1. EARTHEN CHECK DAM TO HAVE 6" LOAM & SEED.  
 2. RIPRAP STONES ARE TO BE 4"-6" HARD DURABLE ANGULAR STONES.

**CHECK DAM DIMENSION SCHEDULE**

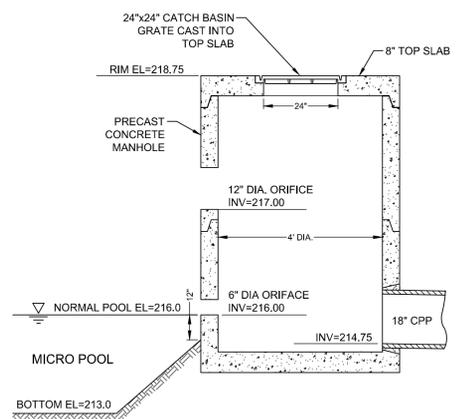
SWALE ID	WIDTH (W)	HEIGHT (H)
SWALE 1	6"	6"
SWALE 2	6"	6"



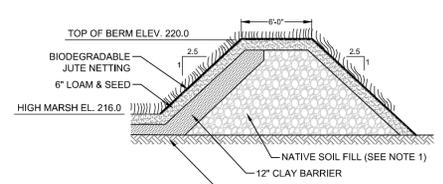
**WATER QUALITY SWALE DETAIL (WET)**  
NOT TO SCALE

**SWALE DIMENSION SCHEDULE**

SWALE ID	WIDTH (W)	HEIGHT (H)
SWALE 1	6"	12"
SWALE 2	6"	12"

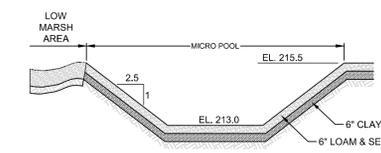


**WETLAND BASIN OUTLET STRUCTURE (OS 1)**  
NOT TO SCALE



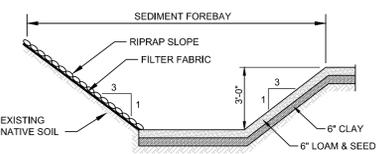
**WETLAND BASIN BERM CROSS SECTION**  
NOT TO SCALE

- NOTES:  
 1. REMOVE ALL TOP AND SUBSOIL FROM BENEATH BERM AREA. USE NATIVE SOIL SAND FROM OTHER AREAS OF THE SITE TO ACHIEVE FINAL BOTTOM GRADE.  
 2. BERM IS TO BE CONSTRUCTED WITH NATIVE SOIL WITH NO STONES LARGER THAN 2 INCHES. FILL IS TO BE COMPACTED IN 6-INCH LIFTS TO 95% MAXIMUM DRY DENSITY.



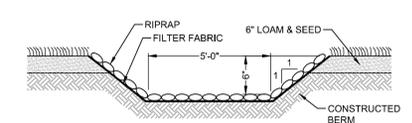
**MICRO POOL DETAIL**  
NOT TO SCALE

- BASIN CONSTRUCTION NOTES:  
 1. REMOVE ALL TOP AND SUBSOIL FROM BOTTOM AND SIDEWALLS. IF FILL MATERIAL IS NEEDED TO ACHIEVE SUB-GRADE ELEVATION USE NATIVE SOIL FROM OTHER ON-SITE EXCAVATIONS.  
 2. LOAM AND SEED BOTTOM AND SIDEWALLS WITH LOAM REMOVED FROM OTHER ON-SITE EXCAVATIONS.  
 3. SEED WITH NATIVE WETLAND SEED MIX.



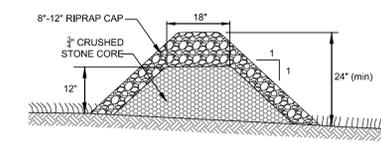
**SEDIMENT FOREBAY DETAIL**  
NOT TO SCALE

- BASIN CONSTRUCTION NOTES:  
 1. REMOVE ALL TOP AND SUBSOIL FROM FOREBAY BOTTOM AND SIDEWALLS. IF FILL MATERIAL IS NEEDED TO ACHIEVE SUBGRADE ELEVATION USE NATIVE SOIL FROM OTHER ON-SITE EXCAVATIONS.  
 2. LOAM AND SEED FOREBAY BOTTOM AND SIDEWALLS WITH LOAM REMOVED FROM OTHER ON-SITE EXCAVATIONS.  
 3. SEED FOREBAY WITH NATIVE WETLAND SEED MIX.



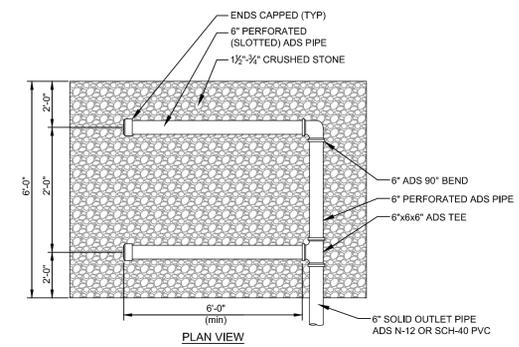
**RIPRAP SPILLWAY DETAIL**  
NOT TO SCALE

RIP RAP IS TO BE HARD DURABLE ANGULAR STONES RANGING IN SIZE FROM 8 INCHES TO 12 INCHES.



**RIPRAP BERM DETAIL**  
NOT TO SCALE

RIP RAP IS TO BE HARD DURABLE ANGULAR STONES RANGING IN SIZE FROM 8 INCHES TO 12 INCHES.



**STONE INLET DETAIL**  
NOT TO SCALE

**ELEVATION SCHEDULE**

LOCATION	PIPE SIZE	ELEVATION
DROP INLET ECB-6	6"	252.00
DET BASIN 3A	4"	279.00

**General Notes**

- PLAN REFERENCES**  
 M.N.D.R.D. BOOK 240 PLAN 88  
 M.N.D.R.D. BOOK 235 PLAN 51  
 M.N.D.R.D. BOOK 224 PLAN 90
- DEED REFERENCE**  
 M.N.D.R.D. BOOK 19682 PAGE 258  
 M.N.D.R.D. BOOK 21730 PAGE 263  
 M.N.D.R.D. BOOK 21730 PAGE 266  
 M.N.D.R.D. BOOK 21730 PAGE 267  
 M.N.D.R.D. BOOK 21730 PAGE 269  
 M.N.D.R.D. BOOK 23657 PAGE 195
- RECORD OWNERS**  
 CONNELL REAL ESTATE TRUST  
 P.O. BOX 1230  
 WESTFORD, MA 01886
- ASSESSORS REFERENCES**  
 MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	DATE
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**CONSTRUCTION DETAILS**  
**SPALDING HILL ESTATES**  
**WESTFORD, MA**

**ALAN ENGINEERING, L.L.C.**  
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PREPARED FOR:  
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 WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	30 of 30
SCALE: AS SHOWN	