

**Planning Board Meeting  
February 26, 2019 – 7:00 PM  
Town Office Conference Room**



**Meeting Materials**

**Planning Board**  
**Tuesday, February 26, 2019**  
**7:00 PM – Town Office Conference Room**

**CALL TO ORDER**

**MINUTES**

January 22, 2019

Public Hearing on February 12, 2019

**COMMUNICATIONS**

**OLD BUSINESS**

**NEW BUSINESS**

Minor Subdivision Application Amendment – Holly Russell – Off Cleve Tripp Road  
– Map 5 Lot 24 Sublot 3

Formal Site Plan Review – Poland Corner Road Water Main Extension Stream Crossing  
and Water Tank Storage – Poland Corner Road – Map 11 Lots 6B and 5

Formal Site Plan Review – MB Investment Properties, LLC – 100 Bark Mulch Drive  
– Map 4 Lot 15 Sublot 2 and Map 4 Lot 17

Findings of Fact and Conclusions of Law for:

Formal Shoreland Zoning Application – Thomas and Abbie Mannett – 41 Black Duck Lane  
– Map 36 Lot 7 Sublot 8

Formal Shoreland Zoning Application – Leonard and Patsy Adams – 283 Jordan Shore Drive  
– Map 29 Lot 3

Sketch Plan Review – Dawn Miller – 1199 Maine Street – Map 12 Lot 44

Formal Shoreland Zoning Application – Arthur and Rebecca Weissman  
– 37 Mountain View Drive – Map 49 Lot 35

Minor Subdivision Application – Megquire Hill Holdings, LLC – 260 Megquire Hill Road  
– Map 14 Lots 25 and 25B

Minor Subdivision Application – Greg Washburn – Off Maine Street – Map 15 Lot 18B

Road name Application for Brookdale Village

Vote of CLUC Marijuana Amendments 2019



**Planning Board  
Tuesday, February 26, 2019  
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**ANY OTHER BUSINESS**

**ADJOURNMENT**

**POLAND PLANNING BOARD**  
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**Approved on \_\_\_\_\_, 2019**

**CALL TO ORDER** – Vice Chairperson Porter called the meeting to order at 7:00pm with Members Mark Weinberg, George Greenwood, Stephanie Floyd, CEO Scott Neal, and Sarah Merrill present.

**MINUTES** – January 8, 2019 – Member Greenwood moved to approve the minutes with a change. Member Floyd seconded the motion. Discussion: None    Vote: 4-yes 0-no

**COMMUNICATIONS** – None

**OLD BUSINESS** – Formal Site Plan Review – 1484 Maine Street – Mark Lopez  
– Map 15 Lot 18B (Additional Information)

Jeff Amos is representing Mark Lopez and presented the project to the Board. The current plan calls for rotating the buildings ninety degrees (90°) and putting in a six foot (6') tall stockade fence.

The Board feels that the issues have been addressed and Mr. Lopez has tried to do everything the Board has requested. The Board will conditionally approve the project pending third party review and the review from the Fire Chief.

Member Greenwood moved to approve the checklist as complete. Member Floyd seconded the motion. Discussion: None    Vote: 4-yes 0-no

Member Greenwood moved to conditionally accept the application pending third party review and review from the Fire Chief and with the following conditions: the public hearing and site walk are waived. Member Weinberg seconded the motion. Discussion: None  
Vote: 4-yes 0-no

**NEW BUSINESS** – Formal Shoreland Zoning Application – Waterhouse Brook Dam on Poland Corner Road – Town of Poland Conservation Committee – Map 10 Lot 28 Sublot 1

Stewart Davis of Davis Land Surveying presented the Conservation Commission project to the Board. The Poland Conservation Commission would like to put a pedestrian bridge over the Waterhouse Brook Dam to connect two sides of a trail and to give people a safe place to cross away from the bridge.

Town Manager Matt Garside spoke on the design changes that need to happen and other changes the Conservation Commission wants to see. Don Stover also spoke about Waterhouse Brook Park.

There is a correction from the plan submitted. The steps in the plan are labeled as 4' x 8' however, they will be 4' x 4'. Once there is a final design for the bridge the DEP will

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give their final say and the Conservation Commission will come back to the planning board.

The Conservation Commission would like to put some parking spaces in but realize this could be an issue. Mr. Davis will meet with CEO Neal to discuss this issue and to look at the zoning for the fire/rescue station.

Member Greenwood moved to table the application until the Conservation Commission has more information. Member Weinberg seconded the motion.  
Discussion: None    Vote: 4-yes 0-no

Formal Shoreland Zoning Application – 283 Jordan Shore Drive – Leonard and Patsy Adams – Map 29 Lot 3

Stewart Davis of Davis Land Surveying presented the Adams project to the Board. The Adams would like to build a small addition and rebuild the steps on the camp. The Adams have also replaced an old shed with a larger shed which they did not get a building permit for. Mr. Davis said that the Adams, who live out of state, will come to get the appropriate permits for the shed when they are back in Maine.

The Adams will need to get a Flood Hazard Development Application permit from the state as part of their building application with the code enforcement office.

Member Greenwood moved to approve the application checklist. Member Floyd seconded the motion. Discussion: None    Vote: 4-yes 0-no

Member Greenwood moved to approve as complete the Formal Shoreland Zoning Application with the following conditions: the public hearing is waived, the site walk is waived, and the mylars will show the percentage of expansion on them and be recorded at the registry of deeds. Member Weinberg seconded the motion. Discussion: None  
Vote: 4-yes 0-no

**ANY OTHER BUSINESS** – Marijuana Committee Update

Mark Weinberg gave an update on the progress being made on the marijuana CLUC changes. The Committee is finished meeting and the final CLUC changes are being written up and will be part of the public hearing on all of the CLUC changes.

**ADJOURN** – Member Floyd moved to adjourn the meeting at 8:35 pm. Member Weinberg seconded the motion. Discussion: None    Vote: 4-yes 0-no

Recorded by: Sarah Merrill

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Planning Board

\_\_\_\_\_  
, Chairperson

\_\_\_\_\_  
James Porter, Vice - Chairperson

\_\_\_\_\_  
George Greenwood, Secretary

\_\_\_\_\_  
Mark Weinberg, Member

\_\_\_\_\_  
Stephane Floyd, Member

\_\_\_\_\_  
, Alternate

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**CALL TO ORDER** – Vice Chairperson Porter called the meeting to order at 7:00pm with Members Mark Weinberg, George Greenwood, Stephanie Floyd, CEO Scott Neal, and Sarah Merrill present.

Member Greenwood moved to open the Public Hearing on the CLUC Changes 2019 at 7:02 pm. Member Floyd seconded the motion. Discussion: None    Vote: 4-yes 0-no

Items indented, in bold, in a larger font size, underlined, and italicized are the motions made by the Board.

**CLUC Changes 2019**

**Article ?** To see if the Town will vote to adopt the 2019 Amendment to the **Poland Comprehensive Land Use Code** – Chapter 14 Definitions “Repair”? *(A copy of the proposed ordinance amendment is available for inspection in the Clerk’s office, as well as on the Town’s web site at polandtownoffice.org, and will also be available at Town Meeting.)*

**Chapter 14 Definitions:**

**Repair:** ~~To take necessary action to fix normal damage or storm damage.~~ To restore by fixing normal damage or storm damage i.e. 49% or less is being changed.

- **Member Greenwood moved to approve the amendment. Member Weinberg seconded the motion. Discussion: None    Vote: 1-yes 3-no**

**Article ?** To see if the Town will vote to adopt the 2019 Amendment to the **Poland Comprehensive Land Use Code** – Chapter 14 Definitions “Replace”? *(A copy of the proposed ordinance amendment is available for inspection in the Clerk’s office, as well as on the Town’s web site at polandtownoffice.org, and will also be available at Town Meeting.)*

**Chapter 14 Definitions:**

**Replace:** to put something new in place of i.e. 50% or more is being changed.

- **Member Greenwood moved to approve the amendment. Member Floyd seconded the motion. Discussion: None    Vote: 0-yes 4-no**

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**Article ?** To see if the Town will vote to adopt the 2019 Amendment to the **Poland Comprehensive Land Use Code** – section 508.18. L.3.? *(A copy of the proposed ordinance amendment is available for inspection in the Clerk’s office, as well as on the Town’s web site at [polandtownoffice.org](http://polandtownoffice.org), and will also be available at Town Meeting.)*

L.3. Signs in Street Right-of-Ways - No sign except traffic, and similar public safety signs, erected in accordance with this Section, Official Business Directional Signs erected in accordance with Section 508.18.K, and publicly erected information kiosks or sign boards, and temporary noncommercial signs of any type meeting the requirements of 23 M.R.S.A. §1913 – A(1)(L) shall be located in the public right-of-way of any street or highway.

- **Member Greenwood moved to approve the amendment. Member Weinberg seconded the motion. Discussion: None    Vote: 0-yes 4-no**

**Article ?** To see if the Town will vote to adopt the 2019 Amendment to the **Poland Comprehensive Land Use Code** – Chapter 14 Definitions “Agriculture”? *(A copy of the proposed ordinance amendment is available for inspection in the Clerk’s office, as well as on the Town’s web site at [polandtownoffice.org](http://polandtownoffice.org), and will also be available at Town Meeting.)*

**Chapter 14 Definitions:**

**Agriculture:** the production, keeping, or maintenance, for sale or lease, of plants and/or animals, including but not limited to: forages and sod crops; grains and seed crops; dairy animals and dairy products; poultry and poultry products; livestock; fruits and vegetables; and ornamental and green house products. Agriculture does not include forest management, timber harvesting activities, ~~or~~ confined feeding operations, or marijuana stores, marijuana production manufacturing, marijuana cultivation, marijuana processing, or marijuana testing, etc.

- **Member Greenwood moved to approve the amendment. Member Floyd seconded the motion. Discussion: None    Vote: 4-yes 0-no**

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**Article ?** To see if the Town will vote to adopt the 2019 Amendment to the **Poland Comprehensive Land Use Code**. Section 1100 “Amendments to Building Standards”? *(A copy of the proposed ordinance amendment is available for inspection in the Clerk’s office, as well as on the Town’s web site at polandtownoffice.org, and will also be available at Town Meeting.)*

**CHAPTER 11 - BUILDING STANDARDS** 109

**1100. SHORT TITLE** - This Chapter shall be known and may be cited as the “Building Code Standards for the Town of Poland, Maine” in conjunction with the Building Code Standards and Adoption of the 2015 International Building Code (IBC), 2015 International Residential Code (IRC), 2015 International Existing Building Code (IEBC), ~~2015~~ **2009** International Energy Conservation Code (IECC) and 2009 International Mechanical Code (IMC), all of which are hereby incorporated by Reference. The following standards have also been adopted E-1465-~~2006~~ **2008**, (Standard Practice for Radon Control Options for the Design and Construction of New Low-Rise Residential Buildings), ASHRAE 62.1 – ~~2007~~ **2013** (Ventilation for Acceptable Indoor Air Quality) ASHRAE 62.2 – ~~2007~~ **2013** (Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings) ASHRAE 90.1 —~~2007~~ **2013** (Energy Standard for Buildings except Low-Rise Residential Buildings) editions without addenda. <sup>1</sup>

- **Member Greenwood moved to approve the amendment. Member Weinberg seconded the motion. Discussion: None Vote: 4-yes 0-no**

**Article ?** To see if the Town will vote to adopt the 2019 Amendment to the **Poland Comprehensive Land Use Code**. Section 304.3 “Appeal Procedure”? *(A copy of the proposed ordinance amendment is available for inspection in the Clerk’s office, as well as on the Town’s web site at polandtownoffice.org, and will also be available at Town Meeting.)*

**304.3 Appeal Procedure**

- A. In all cases a person aggrieved by a decision of the Code Enforcement Officer or an appealable decision of the Planning Board shall commence an appeal within forty-five (45) **business** days of the decision being appealed. The appeal shall be filed with the Board of Appeals on forms approved for that purpose, and the aggrieved person shall specifically set forth on the form the grounds for the appeal.
- B. Following the filing of an appeal, and before taking action on the appeal, the Board of Appeals shall hold a Public Hearing on the appeal within thirty (30) **business** days of receipt of the appeal. The Board of Appeals shall notify the Code Enforcement Officer and Planning Board at least ten (10) **business** days in advance of the time and place of the hearing, and

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shall publish notice of the hearing at least five (5) business days in advance of the hearing in a newspaper of general circulation in the area.

- C. The Board of Appeals shall notify by Certified Mail the appellant and the owners of property within five hundred (500) feet of the property of which the appeal is taken, at least ten (10) business days in advance of the hearing. For the purpose of this Section, abutting property owners shall include properties directly across a street from the property for which the appeal is made.
1. The owners of property shall be considered to be those against whom taxes are assessed. Failure of any property owner to receive notice of the Public Hearing shall not necessitate another hearing or invalidate any action by the Board of Appeals. <sup>1</sup>
  2. It is the property owners' responsibility to keep the town Tax Assessor's Office informed of their current mailing address for the purpose of administering any portion of this Code. Failure on the part of the landowner to inform the town of such shall not delay or vacate any board or town officer action or decision.
- D. At any hearing, a party may be represented by an agent or attorney. Hearings shall not be continued to other times except for good cause.
- E. The Code Enforcement Officer or designated assistant shall attend all hearings and may present to the Board of Appeals all plans, photographs, or other material deemed appropriate for an understanding of the appeal.
- F. Within twenty (20) business days of the Public Hearing, the Board of Appeals shall reach a decision on an appeal and shall inform, in writing, the appellant, the Code Enforcement Officer, the Planning Board and the Municipal Officers of its decision and its reasons therefore.

- **Member Greenwood moved to approve the amendment. Member Floyd seconded the motion. Discussion: None    Vote: 4-yes 0-no**

**Article ?** To see if the Town will vote to adopt the 2019 Amendment to the **Poland Comprehensive Land Use Code**. Section 304.4 "Reconsideration"? *(A copy of the proposed ordinance amendment is available for inspection in the Clerk's office, as well as on the Town's web site at polandtownoffice.org, and will also be available at Town Meeting.)*

**304.4 Reconsideration** - The Board of Appeals may reconsider any decision reached within forty-five (45) business days of its prior decision. A request to the Board to reconsider a decision made by anyone other than a member of the Board must be filed within 10 business days of the decision that is to be reconsidered. A member of the Board may make a request for reconsideration at the next meeting of the Board, subject to the time limitations set forth in this section. In the event that the Board votes to reconsider a decision, all action on the

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reconsideration must be completed within forty-five (45) business days of the original decision. The Board may conduct additional hearings and receive additional evidence and testimony. Notwithstanding the provisions of Section 304.5.A, an appeal of a reconsidered decision must be made within fifteen (15) business days after the decision on reconsideration.

- **Member Greenwood moved to approve the amendment. Member Floyd seconded the motion. Discussion: None    Vote: 4-yes 0-no**

**Article ?** To see if the Town will vote to adopt the 2019 Amendment to the **Poland Comprehensive Land Use Code** – Chapter 14 Definitions “Business Day”? *(A copy of the proposed ordinance amendment is available for inspection in the Clerk’s office, as well as on the Town’s web site at polandtownoffice.org, and will also be available at Town Meeting.)*

**Chapter 14 Definitions:**

**Business Day:** Business days are Monday through Friday, excluding holidays.

- **Member Greenwood moved to approve the amendment. Member Weinberg seconded the motion. Discussion: None    Vote: 4-yes 0-no**

**Article ?.** Shall an ordinance entitled “2019 Amendments to the Poland Comprehensive Land Use Code to Authorize and Regulate Medical Marijuana Registered Caregiver Retail Stores” be enacted? *(A copy of the proposed ordinance is available for review and inspection at the Town Clerk’s Office; it will also be available at Town Meeting.)*

**1507 MEDICAL MARIJUANA REGISTERED CAREGIVER RETAIL STORES**

**1507.1 Allowed Locations**

Medical marijuana registered caregiver retail stores shall be allowed in the following locations, subject to the requirements of this Section:

A. Village 4 Zone.

B. General Purpose 1 Zone.

C. Each zone, Village 4 and General Purpose 1, may have a combined maximum of five medical marijuana registered caregiver retail stores and/or adult use retail stores in each district. A site may contain one or more stores provided they are all within the same building.

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D. This is a permitted use requiring Planning Board approval and licensing from the Town to operate

**1507.2 Signs**

A. Signage for medical marijuana registered caregiver retail stores will comply with Chapter 5, Section 508.18 Signs, of this Code, as well as with any applicable requirements of State law or regulation.

**1507.3 Security**

Medical marijuana registered caregiver retail stores shall comply with the following requirements:

A. Shall have lockable doors and windows and shall be served by an alarm system.

B. Shall have video surveillance capable of covering the exterior and interior of the facility. The video surveillance system shall be operated with continuous recording twenty-four hours per day, seven days per week and video shall be retained for a minimum duration of thirty (30) days. Such records shall be made available to law enforcement agencies when investigating a criminal complaint.

**1507.4 Ventilation**

Each medical marijuana registered caregiver retail store must be in an enclosed structure and shall have an odor mitigation system installed and operational that will provide odor control sufficient to ensure that no odors are perceptible off the premises or to neighboring tenants in the building.

[Article ?](#). Shall an ordinance entitled “2019 Amendments to the Poland Comprehensive Land Use Code to Authorize and Regulate Medical Marijuana Testing Facilities” be enacted? *(A copy of the proposed ordinance is available for review and inspection at the Town Clerk’s Office; it will also be available at Town Meeting.)*

**1506 MEDICAL MARIJUANA TESTING FACILITIES**

**1506.1 Allowed Locations**

Medical marijuana testing facilities shall be allowed in the following locations, subject to the requirements of this Section:

A. All Zones

B. Must be a registered caregiver and follow the requirements of home occupation as defined in the CLUC.

C. Requires licensing by the Town to operate

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**1506.2 Security**

Medical marijuana testing facilities must meet the following security requirements:

- A. Shall have lockable doors and windows and shall be served by an alarm system.
- B. Shall have video surveillance capable of covering the exterior and interior of the facility. The video surveillance system shall be operated with continuous recording twenty-four hours per day, seven days per week and video shall be retained for a minimum duration of thirty (30) days. Such records shall be made available to law enforcement agencies when investigating a criminal complaint.

**1506.3 Ventilation**

Medical marijuana testing facilities must be in an enclosed structure and shall have an odor mitigation system installed and operational that will provide odor control sufficient to ensure that no odors are perceptible off the premises or to neighboring tenants.

[Article ?](#). Shall an ordinance entitled “2019 Amendments to the Poland Comprehensive Land Use Code to Authorize and Regulate Medical Marijuana Manufacturing Facilities” be enacted? *(A copy of the proposed ordinance is available for review and inspection at the Town Clerk’s Office; it will also be available at Town Meeting.)*

**1505 MEDICAL MARIJUANA MANUFACTURING FACILITIES**

**1505.1 Allowed Locations**

Medical marijuana manufacturing facilities shall be allowed in the following locations, subject to the requirements of this Section:

- A. All Zones
- B. Must be a registered caregiver and follow the requirements of home occupation as defined in the CLUC.
- C. Requires licensing by the Town to operate. (Same comment as 1506.1)

**1505.2 Security**

Medical marijuana manufacturing facilities must meet the following security requirements:

- A. Shall have lockable doors and windows and shall be served by an alarm system.
- B. Shall have video surveillance capable of covering the exterior and interior of the facility. The video surveillance system shall be operated with continuous recording twenty-four hours per day, seven days per week and video shall be retained for a minimum duration of

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thirty (30) days. Such records shall be made available to law enforcement agencies when investigating a criminal complaint.

**1505.3 Ventilation**

Medical marijuana manufacturing facilities must be in an enclosed structure and shall have an odor mitigation system installed and operational that will provide odor control sufficient to ensure that no odors are perceptible off the premises or to neighboring tenants.

[Article ?](#). Shall an ordinance entitled “2019 Amendments to the Poland Comprehensive Land Use Code to Authorize and Regulate Adult Use Marijuana Cultivation Facilities” be enacted? *(A copy of the proposed ordinance is available for review and inspection at the Town Clerk’s Office; it will also be available at Town Meeting.)*

**1510 ADULT USE MARIJUANA CULTIVATION FACILITIES**

**1510.1 Allowed Locations**

Adult use marijuana cultivation facilities shall be allowed in the following locations, subject to the requirements of this Section:

- A. Tier 1, maximum 500 square feet of canopy.
  - 1. All Zones.
  - 2. Tier 1 Adult Use Marijuana Cultivation must follow the requirements of home occupation as defined in the CLUC.
- B. Tier 2, maximum 2000 square feet of canopy.
  - 1. Village 4 Zone and General Purpose 1 Zone. Must be combined with a Medical or Adult Use retail storefront. Maximum of five cultivation sites in each zone.
  - 2. Farm and Forest Zone. Maximum of five cultivation sites.
  - 3. Total number of Tier 2 cultivation sites among the three zones cannot exceed a maximum of 10.
- C. Tier 3, maximum 7000 square feet of canopy.
  - 1. Farm and Forest Zone. Maximum of five cultivation sites.
- D. Tier 4, 20,000 square feet of canopy. Not permitted.
- E. Tier 2, and 3 are permitted uses requiring Planning Board approval and licensing from the Town to operate.

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**1510.2 Security**

Adult use marijuana cultivation facilities must meet the following security requirements:

- A. Shall have lockable doors and windows and shall be served by an alarm system.
- B. Shall have video surveillance capable of covering the exterior and interior of the facility. The video surveillance system shall be operated with continuous recording twenty-four hours per day, seven days per week and video shall be retained for a minimum duration of thirty (30) days. Such records shall be made available to law enforcement agencies when investigating a criminal complaint.

**1510.3 Ventilation**

Adult use marijuana cultivation facilities must be in an enclosed structure and shall have an odor mitigation system installed and operational that will provide odor control sufficient to ensure that no odors are perceptible off the premises or to neighboring tenants.

[Article ?.](#) Shall an ordinance entitled “2019 Amendments to the Poland Comprehensive Land Use Code to Authorize and Regulate Adult Use Marijuana Products Manufacturing Facilities” be enacted? *(A copy of the proposed ordinance is available for review and inspection at the Town Clerk’s Office; it will also be available at Town Meeting.)*

**1511 ADULT USE MARIJUANA PRODUCTS MANUFACTURING FACILITIES**

**1511.1 Allowed Locations**

Adult use marijuana products manufacturing facilities shall be allowed in the following locations, subject to the requirements of this Section:

- A. Allowed in all locations where adult use cultivation is allowed and must be co-located with a cultivation facility.
- B. This is a permitted use requiring Planning Board approval and licensing by the Town to operate.

**1511.2 Security**

Adult use marijuana products manufacturing facilities must meet the following security requirements:

- A. Shall have lockable doors and windows and shall be served by an alarm system.
- B. Shall have video surveillance capable of covering the exterior and interior of the facility. The video surveillance system shall be operated with continuous recording twenty-four

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hours per day, seven days per week and video shall be retained for a minimum duration of thirty (30) days. Such records shall be made available to law enforcement agencies when investigating a criminal complaint.

### **1511.3 Ventilation**

Adult use marijuana products manufacturing facilities must be in an enclosed structure and shall have an odor mitigation system installed and operational that will provide odor control sufficient to ensure that no odors are perceptible off the premises or to neighboring tenants.

[Article ?](#). Shall an ordinance entitled “2019 Amendments to the Poland Comprehensive Land Use Code to Authorize and Regulate Adult Use Marijuana Testing Facilities” be enacted? *(A copy of the proposed ordinance is available for review and inspection at the Town Clerk’s Office; it will also be available at Town Meeting.)*

## **1512 ADULT USE MARIJUANA TESTING FACILITIES**

### **1512.1 Allowed Locations**

Adult use marijuana testing facilities shall be allowed in the following locations, subject to the requirements of this Section:

- A. Allowed in all zones.
- B. This is a permitted use requiring Planning Board approval and licensing by the Town to operate.

### **1512.2 Security**

Adult use marijuana testing facilities must meet the following security requirements:

- A. Shall have lockable doors and windows and shall be served by an alarm system.
- B. Shall have video surveillance capable of covering the exterior and interior of the facility. The video surveillance system shall be operated with continuous recording twenty-four hours per day, seven days per week and video shall be retained for a minimum duration of thirty (30) days. Such records shall be made available to law enforcement agencies when investigating a criminal complaint.

### **1512.3 Ventilation**

Adult use marijuana testing facilities must be in an enclosed structure and shall have an odor mitigation system installed and operational that will provide odor control sufficient to ensure that no odors are perceptible off the premises or to neighboring tenants.

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[Article ?](#). Shall an ordinance entitled “2019 Amendments to the Poland Comprehensive Land Use Code to Authorize and Regulate Adult Use Marijuana Stores” be enacted? *(A copy of the proposed ordinance is available for review and inspection at the Town Clerk’s Office; it will also be available at Town Meeting.)*

**1513 ADULT USE MARIJUANA STORES**

**1513.1 Allowed Locations**

Adult use marijuana stores shall be allowed in the following locations, subject to the requirements of this Section:

- A. Village 4 Zone.
- B. General Purpose 1 Zone.
- C. Each zone, Village 4 and General Purpose 1, may have a combined maximum of five medical and/or adult use storefront sites. A site may contain one or more storefronts provided they are all within the same building.
- D. This is a permitted use requiring Planning Board approval and licensing by the Town to operate.

**1513.2 Signs**

- A. Signage for adult use marijuana stores will comply with Chapter 5, Section 508.18 Signs, of this Code, as well as with any applicable requirements of State law or regulation.

**1513.3 Security**

Adult use marijuana stores must meet the following security requirements:

- A. Shall have lockable doors and windows and shall be served by an alarm system.
- B. Shall have video surveillance capable of covering the exterior and interior of the facility. The video surveillance system shall be operated with continuous recording twenty-four hours per day, seven days per week and video shall be retained for a minimum duration of thirty (30) days. Such records shall be made available to law enforcement agencies when investigating a criminal complaint.

**1513.4 Ventilation**

Adult use marijuana store must be in an enclosed structure and shall have an odor mitigation system installed and operational that will provide odor control sufficient to ensure that no odors are perceptible off the premises or to neighboring tenants.

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**Article ?.** Shall an ordinance entitled “2019 Amendments to the Poland Comprehensive Land Use Code to Add Definitions to Section 1402 Related to Medical Marijuana and Adult Use Marijuana Uses” be enacted? *(A copy of the proposed ordinance is available for review and inspection at the Town Clerk’s Office; it will also be available at Town Meeting.)*

**Adult use marijuana:** "Adult use marijuana" means marijuana cultivated, manufactured, distributed or sold by a marijuana establishment.

**Adult Use Marijuana establishment:** "Marijuana establishment" means a cultivation facility, a products manufacturing facility, a testing facility or a marijuana store licensed under state law.

**Adult use marijuana product:** "Adult use marijuana product" means a marijuana product that is manufactured, distributed or sold by a marijuana establishment.

**Adult use marijuana products manufacturing facility:** "Marijuana products manufacturing facility" means a facility licensed under state law to purchase adult use marijuana from a cultivation facility or another products manufacturing facility; to manufacture, label and package adult use marijuana and adult use marijuana products; and to sell adult use marijuana and adult use marijuana products to marijuana stores and to other products manufacturing facilities.

**Adult use marijuana store:** "Adult Use Marijuana Store" means a facility licensed under state law to purchase adult use marijuana, immature marijuana plants and seedlings from a cultivation facility, to purchase adult use marijuana and adult use marijuana products from a products manufacturing facility and to sell adult use marijuana, adult use marijuana products, immature marijuana plants and seedlings to consumers.

**Adult use marijuana testing facility:** "Adult use marijuana testing facility" means a facility licensed under state law to develop, research and test adult use marijuana, marijuana products and other substances.

**Disqualifying drug offense:** "Disqualifying drug offense" means a conviction for a violation of a state or federal controlled substance law that is a crime punishable by imprisonment for one year or more, but does not include (1) An offense for which the sentence, including any term of probation, incarceration or supervised release, was completed 10 or more years earlier; or (2) An offense that consisted of conduct that would have been permitted under the Maine Adult Use Marijuana Act.

**Home cultivation of marijuana:** “Home cultivation of marijuana” means cultivation for personal adult use by a person 21 years of age or older is limited to cultivation of three (3) mature marijuana plants, twelve (12) immature marijuana plants, and an unlimited number of seedlings by each person 21 years of age or older who is domiciled on a parcel or tract of land.

**Marijuana cultivation:** "Marijuana cultivation" means the planting, propagation, growing, harvesting, drying, curing, grading, trimming or other processing of marijuana for use or sale. "Cultivation" or "cultivate" does not include manufacturing, testing or marijuana extraction.



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**Marijuana cultivation facility:** "Marijuana Cultivation facility" means a facility licensed under state law to purchase marijuana plants and seeds from other cultivation facilities; to cultivate, prepare and package adult use marijuana; to sell adult use marijuana to products manufacturing facilities, to marijuana stores and to other cultivation facilities; and to sell marijuana plants and seeds to other cultivation facilities and immature marijuana plants and seedlings to marijuana stores. Cultivation facilities are categorized into tiers based on the number of adult plants and usable square footage for cultivation.

**Marijuana manufacturing or manufacture:** "Manufacturing" or "manufacture" of marijuana means the production, blending, infusing, compounding or other preparation of marijuana and marijuana products, including, but not limited to, marijuana extraction or preparation by means of chemical synthesis. "Manufacturing" or "manufacture" does not include cultivation or testing.

**Marijuana odor mitigation:** All marijuana establishments, cultivation operation, manufacturing facility, testing, and retail storefronts must be in an enclosed structure and shall have an odor mitigation system installed and operational that will provide odor control sufficient to ensure that no odors are perceptible off the premises or to neighboring tenants.

**Marijuana product:** "Marijuana product" means a product composed of marijuana or marijuana concentrate and other ingredients that is intended for use or consumption. "Marijuana product" includes, but is not limited to, an edible marijuana product, a marijuana ointment and a marijuana tincture. "Marijuana product" does not include marijuana concentrate.

**Medical marijuana establishment:** "Medical marijuana establishment" means a medical marijuana registered caregiver retail store, registered dispensary, medical marijuana testing facility, or medical marijuana manufacturing facility.

**Medical marijuana manufacturing facility:** "Medical marijuana manufacturing facility" means a manufacturing facility authorized under state law to manufacture marijuana products for medical use or to engage in marijuana extraction for medical use.

**Medical Marijuana registered caregiver retail store:** "Medical Marijuana registered caregiver retail store" means a registered caregiver authorized under state law to cultivate medical marijuana for qualifying patients that operates a retail store to sell medical marijuana to qualifying patients.

**Medical marijuana testing facility:** "Medical marijuana testing facility" means a public or private laboratory authorized under state law to test medical marijuana for contamination, potency or cannabinoid profile.

**Registered dispensary:** "Registered dispensary" means a dispensary authorized under state law to cultivate and dispense medical marijuana to qualifying patients and caregivers.

**State registration authority:** "State registration authority" means the authority created or designated by the state for the purpose of regulating and controlling registration for medical marijuana establishments.

**POLAND PLANNING BOARD  
MINUTES OF PUBLIC HEARING  
February 12, 2019  
Approved on \_\_\_\_\_, 2019**

**Article ?.** Shall an ordinance entitled “2019 Amendments to the Poland Comprehensive Land Use Code to adopt Marijuana Standards” be enacted? *(A copy of the proposed ordinance is available for review and inspection at the Town Clerk’s Office; it will also be available at Town Meeting.)*

**CHAPTER 15 – MARIJUANA STANDARDS**

**1501 SHORT TITLE** – This Chapter shall be known as the “Marijuana Standards for the Town of Poland, Maine.”

**1502 PURPOSE**

**1502.1 Purposes** – The purposes of this Chapter are:

- A. To provide guidance to those wishing to establish any type of marijuana establishment in Poland;
- B. To clarify the approval criteria for each type of marijuana establishment; and
- C. To promote uniform standards.

**1503 ADMINISTRATION**

- A. Any commercial operation must submit site plans to the Planning Board and is subject to the administration of the Planning Board.
- B. The Code Enforcement Officer is responsible for the final sign off to the State regarding whether or not an operation meets the applicable requirements of the Comprehensive Land Use Code.

**1504 MEDICAL MARIJUANA CAREGIVER CULTIVATION**

**1504.1 Allowed Locations**

Medical marijuana caregiver cultivation sites shall be allowed in the following locations, subject to the requirements of this Section:

- A. All Zones
- B. Must follow the requirements of home occupation as defined in the CLUC.

**1504.2 Security**

Medical marijuana caregiver cultivation sites must meet the following security requirements:

- A. Shall have lockable doors and windows and shall be served by an alarm system.
- B. Shall have video surveillance capable of covering the exterior and interior of the facility. The video surveillance system shall be operated with continuous recording twenty-four hours per day, seven days per week and video shall be retained for a minimum duration of thirty (30) days. Such records shall be made available to law enforcement agencies when investigating a criminal complaint.

**POLAND PLANNING BOARD  
MINUTES OF PUBLIC HEARING  
February 12, 2019  
Approved on \_\_\_\_\_, 2019**

**1504.3 Ventilation**

Medical marijuana caregiver cultivation sites must be in an enclosed structure and shall have an odor mitigation system installed and operational that will provide odor control sufficient to ensure that no odors are perceptible off the premises or to neighboring tenants.

**The Board did not vote on the marijuana amendments individually, but it total.  
The motion was as follows:**

- **Member Greenwood moved to move all the articles regulating marijuana on to the Select Board for consideration at Town Meeting. Member Weinberg seconded the motion. Discussion: None    Vote: 4-yes 0-no**

**ADJOURN** – Member Floyd moved to adjourn the meeting at 8:25 pm. Member Greenwood seconded the motion. Discussion: None    Vote: 4-yes 0-no

Recorded by: Sarah Merrill

Planning Board

\_\_\_\_\_  
, Chairperson

\_\_\_\_\_  
James Porter, Vice - Chairperson

\_\_\_\_\_  
George Greenwood, Secretary

\_\_\_\_\_  
Mark Weinberg, Member

\_\_\_\_\_  
Stephane Floyd, Member

\_\_\_\_\_  
, Alternate



# Town of Poland, Maine Planning Board

## Minor Subdivision Application Instructions

### Instructions:

1. Read every part of this document. Failure to follow requirements can and will delay the Planning Board's decisions.
2. Fill out the forms And Obtain copies of information as required by the application on these pages.
  - A) Obtain names and addresses of "Abutters" (within 500 feet of your lot) from the Assessor's Office.
    - i) You will need to deliver this list to the Planning Board Office. It is needed for the official abutters' notification to be sent by this office of your request.
    - ii) An "Agenda Request form should be filed at the same time so that a meeting date with proper notification to the abutters can be set.
3. Use the "Submission Checklist" to make sure submission requirements are met.
  - A) The checklist is a summary of the standard requirements in Section 606.3 of the Comprehensive Land Use Code.
    - i) The actual Code wording may be found on-line at [www.polandtownoffice.org](http://www.polandtownoffice.org). Go to the "Code Enforcement" page and then select "Comprehensive Land Use Code". Hardcopies are available for purchase at the town office.
  - B) Make sure all waiver requests have a written statement for each request. Check with the Code Enforcement Office to make sure items stated as "On File" are indeed in the town office.
  - C) Some requirements may need only a one paragraph or one sentence statement. Make sure all requests are answered.
4. Make the necessary copies of all information requested.
5. NUMBER OF COPIES OF THE APPLICATION AND DUE DATES
  - A) A total of 14 copies of the plans are needed.
    - i) Four (4) of the copies are required for Department Heads and should be attached to the department head notice. (The Recreation Dept. need to be notified but usually does not need a copy of the application)
    - ii) The applicant is responsible for the delivery of the Road Commissioner's, the Fire/Rescue Chief's, the Police Dept, and the School Departments application copies.
  - B) Department heads require at least fourteen days to review the applications. If insufficient time is given to the department heads for review, their response to the Planning Board will delay the Planning Board's decision.
  - C) The Code Enforcement Office must receive an original application (An application with original signatures) and an additional 13 copies for the Board members along with the appropriate fees by 1:00 p.m. eleven (11) days before the stated meeting to remain on the upcoming agenda.
  - D) If review for completeness of information by the Code Enforcement Officer is desired, a copy must be submitted to the CEO at least 14 days prior to the meeting.
  - E) The application will be put on display for public review 7 days prior to the meeting.
  - F) Applications received after the Agenda is posted may not be reviewed by the Board for your scheduled meeting date.

### **PROJECT NAME:**

Date of Planning Board Review: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Application # \_\_\_\_\_

### **LOT INFORMATION:**

Tax Assessor's \_\_\_\_\_ Map # 0005-0024-0003 Lot # 3 Sub-lot # \_\_\_\_\_  
Lake Watershed: Upper Range  
Road Location: Cleve Tripp Road  
Lot Size 105,098 Sq. Ft. Water frontage \_\_\_\_\_ Ft. Road Frontage: 297.62 Ft.  
Year lot created: 1999 (If unknown, give best estimate with "est." after date)  
Zoning District(s): Rural Residential 2 Flood Zone: ✓ Aquifer Overlay: \_\_\_\_\_  
Current use of lot: Vacant

### **LAND OWNER(s):** Submit copy of deed and copy of Tax Assessor's information card

Name(s): Holly Russell  
Company: \_\_\_\_\_  
Mail Address: 15 Tirrell Avenue Phone: (207) 740-4082  
Mechanic Falls, ME 04256  
Town/State/Zip: Mechanic Falls, ME 04256



**APPLICANT or CONTACT PERSON:**Applicant is: ☒ Landowner ☐ Contractor ☐ Renter ☐ Buyer

If landowner, write "Same" below and continue to next block below. If not the landowner, submit a letter of permission to construct on or use the land, or copy of a contract to buy from the landowner, along with the following information:

Name(s): Same

Company: \_\_\_\_\_

Mail Address: \_\_\_\_\_ Phone: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Town/State/Zip: \_\_\_\_\_

**THIS APPLICATION IS FOR:** (Check all that apply)

- |   |   |
|---|---|
| <input type="checkbox"/> Commercial             | <input checked="" type="checkbox"/> New Development |
| <input type="checkbox"/> Industrial             | <input type="checkbox"/> Change in Use              |
| <input type="checkbox"/> Institutional          | <input type="checkbox"/> Expansion of Use           |
| <input type="checkbox"/> Governmental           | <input type="checkbox"/> Expansion of Structure(s)  |
| <input checked="" type="checkbox"/> Residential | <input type="checkbox"/> Resumption of Use          |

**EXISTING LOT CONDITIONS****1. General**

- |  |   |  |
|--|---|--|
| i) Does this lot have any existing development? (If No, go to next page)                                 | _____ Yes                               | <input checked="" type="checkbox"/> No |
| b. Is there an existing Well   | _____ Yes                               | <input checked="" type="checkbox"/> No |
| c. Is there an existing Septic System  | _____ Yes                               | <input checked="" type="checkbox"/> No |
| i) If yes, submit a copy of a septic permit, or drawing(s) showing size & location.                      |   |  |
| d. Is there an existing Road Entrance or driveway?   | <input checked="" type="checkbox"/> Yes | _____ No                               |
| i) If yes, will there be any changes/modifications?  | <input checked="" type="checkbox"/> Yes | _____ No                               |
| ii) (If no, submit copy of appropriate road entry application if entrance is onto a state or town road.) |   |  |
| e. Any structures to be removed  | _____ Yes                               | <input checked="" type="checkbox"/> No |
| i) If yes, submit information about the structure to be removed and how any debris will be disposed of.  |   |  |

**2. Existing Land Development & Improvements NOT Including Buildings**

- |  |       |                  |
|--|-------|------------------|
| a. Size of lawns                             | _____ | Sq. Ft. or Acres |
| b. Size of fields                            | _____ | Sq. Ft. or Acres |
| c. Size of driveways/roads                   | _____ | Sq. Ft.          |
| d. Size of paths & other non-vegetated areas | _____ | Sq. Ft.          |
| e. Wetlands already filled                   | _____ | Sq. Ft.          |

**3. Existing Main Structure**

- |  |                                  |         |
|--|----------------------------------|---------|
| a. Ground Footprint  | _____                            | Sq. Ft. |
| b. Total Gross Floor Space (exterior dimensions of all floors) | _____                            | Sq. Ft. |
| c. Road Frontage Setback                                       | _____                            | Ft.     |
| d. Side Setback  | _____                            | Ft.     |
| e. Rear Setback  | _____                            | Ft.     |
| f. Distance to Great Pond                                      | _____ Not applicable (over 250') | Ft.     |
| g. Distance to Stream  | _____ Not applicable (over 250') | Ft.     |
| h. Distance to Wetlands  | _____ Not applicable (over 250') | Ft.     |
| i. Foundation  |                                  |         |

\_\_\_\_\_ Full Basement \_\_\_\_\_ Frost Walls \_\_\_\_\_ Slab \_\_\_\_\_ Piers

**4. Existing Accessory Structure(s)**

- |                               |                                  |         |
|-------------------------------|----------------------------------|---------|
| a. Total Number of Structures | _____                            |         |
| b. Total Ground Footprint     | _____                            | Sq. Ft. |
| c. Total Floor Space          | _____                            | Sq. Ft. |
| d. Closest Road Setback       | _____                            | Ft.     |
| e. Closest Side Setback       | _____                            | Ft.     |
| f. Closest Rear Setback       | _____                            | Ft.     |
| g. Distance to Great Pond     | _____ Not applicable (over 250') | Ft.     |
| h. Distance to Streams        | _____ Not applicable (over 250') | Ft.     |
| i. Distance to Wetlands       | _____ Not applicable (over 250') | Ft.     |

## PROPOSED Development

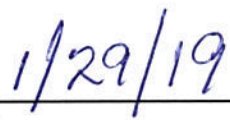
### SUBMISSION REQUIREMENTS:

1. Standard submissions requirements shall follow Section 606.2 Comprehensive Land Use Code.
2. Additional information requested by the Planning Board at the Pre-application Sketch Plan and/or the Site Inspection meetings shall be added to the standard submission requirements.
3. Information shall be submitted in the order shown in the check list.
4. Submit information on status of any necessary state and/or federal permit.

### DISCLOSURE: (READ BEFORE SIGNING)

1. I hereby acknowledge that I have read this application and pertinent sections of the ordinances, and state that the information in this document is to the best of my knowledge true and accurate. I agree to comply with all the Town of Poland's ordinances and the State of Maine's statutes regulating the activities sought in this application as well as any permit(s) approved for this application.
2. I understand that all construction of structures shall conform to the *Maine Uniform Building and Energy Code* and the *NFPA-101 Life Safety Code, 2006*.
3. I understand that any approval is valid for only the use(s) as specified in this application. The permitting authority must approve any change(s) made to the use(s) sought in the application. Any approval issued for this application is approved on the basis of truthful information provided by the applicant(s), and as allowed by the ordinances of the town.
4. I understand that it is my responsibility to assure that the lot description herein accurately describes its ownership, its boundary lines, and the setback measurements from the legal boundary lines.
5. I understand that I have the burden of proof as to the legal right to use the property, and that approval of this application in no way relieves me of this burden. Any approval issued does not constitute a resolution in favor of me or the landowner in any matters regarding the property boundaries, ownership, or similar titles.
6. I understand that all necessary **Building and Use Permits** shall be secured from the Code Enforcement Office after the Planning Board grants approval of this application.
7. I understand that a **Certificate of Occupancy** shall be required prior to the start of any use or occupancy associated with this application unless a signed written waiver is issued with the permit. Fines and penalties may be issued if use or occupancy is started prior to the issuance of the certificate.
8. I understand that the **approval becomes invalid** if construction or use has not commenced within twelve (12) months of the approval date, construction is suspended for more than six (6) months and no notice for just cause is submitted prior to the end of the six (6) months, or it is found that false statements have been furnished in this application.
9. I understand that if I fail to comply with the aforementioned statements, a "STOP WORK" order may be issued for which I will immediately halt any construction and/or use(s) that are approved for this application. This failure may also require that I return the property to its natural state or as closely thereto before the use(s) was/were approved.
10. I understand that failure to follow these requirements will lead to Violation Notices and Citations that have fines and penalties. This in turn can lead to civil proceedings in District Court.
11. I understand that **all state and federal permits** are my responsibility as the applicant and/or owner.
12. Anything agreed to verbally or in writing during the application process must be adhered to and will be enforced.

  
Applicant's Signature

  
Date



# Submissions CHECKLIST:

Plan Name: \_\_\_\_\_

The following list is the information required by Chapter 606.3 of the Comprehensive Land Use Code for the Town of Poland, Maine for a Minor Subdivision Plan Application. Please check in the columns on the left if the information has been provided, a request of a waiver, or you believe the information is not applicable to your application. If a waiver is requested, or the information is not applicable, a written explanation is required.

For Applicant Use				For Planning Board Use			
Provided	Waiver Request	Not Applicable		Received	On File	Waived	Not Applicable
<input checked="" type="checkbox"/>			<b>Section 606.3 Submission requirements</b>				
<input checked="" type="checkbox"/>			A. Application form				
<input checked="" type="checkbox"/>			B. Location Map				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	B.1. Existing subdivision In proximity				
<input checked="" type="checkbox"/>			B.2. Location & names of streets				
<input checked="" type="checkbox"/>			B.3. Zoning Districts				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	B.4. Outline of subdivision & holdings				
<input checked="" type="checkbox"/>			C. Final Plan				
<input checked="" type="checkbox"/>			* 2 Originals plans				
<input checked="" type="checkbox"/>			* 12 copies of application				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	* Board Endorsement area				
<input checked="" type="checkbox"/>			* Digital form of plan				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	D.1. Proposed name				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	D.2. Names & address of all involved				
<input checked="" type="checkbox"/>			D.3. Date plan prepared				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	D.4. Existing physical features				
<input checked="" type="checkbox"/>			* Number of acres				
<input checked="" type="checkbox"/>			* Property lines				
			* Existing buildings				
		<input checked="" type="checkbox"/>	* Vegetative cover type				
		<input checked="" type="checkbox"/>	* Trees >24" DBH				
		<input checked="" type="checkbox"/>	* Clearing area for lawns & structures				
<input checked="" type="checkbox"/>			* Restrictions on clearings				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	D.5. Location of water bodies				
		<input checked="" type="checkbox"/>	D.6. Contours at requested intervals				
<input checked="" type="checkbox"/>			D.7. Zoning Districts				
<input checked="" type="checkbox"/>			D.8 Location, names, widths of:				
<input checked="" type="checkbox"/>			* Roads				
<input checked="" type="checkbox"/>			* Easements				
		<input checked="" type="checkbox"/>	* Buildings				
		<input checked="" type="checkbox"/>	* Parks				
		<input checked="" type="checkbox"/>	* Open Spaces				
<input checked="" type="checkbox"/>			D.9. Title, rights, & interests				
<input checked="" type="checkbox"/>			D.10. Standard boundary survey				
<input checked="" type="checkbox"/>			D.11. Copy of most recent deed on parcel				
		<input checked="" type="checkbox"/>	D.12. Intended deed restrictions				
		<input checked="" type="checkbox"/>	D.13. Type of sewage disposal				
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	D.13.a. SSWS pit locations & analyses				
		<input checked="" type="checkbox"/>	D.14.a. Public water supply approval				
		<input checked="" type="checkbox"/>	D.14.b. Private wells adequate supply				
		<input checked="" type="checkbox"/>	D.14.c. Adequate central supply				
<input checked="" type="checkbox"/>			D.15. Wetland identified				
		<input checked="" type="checkbox"/>	D.16. Phosphorous analysis				
		<input checked="" type="checkbox"/>	D.17. Location of sewers, water mains, culverts, & drainage ways				

For Applicant Use				For Planning Board Use			
Provided	Waiver Request	Not Applicable		Received	On File	Waived	Not Applicable
		✓	D.19. Dedicated public use land				
		✓	* Offers to town				
		✓	* Selectmen look favorable on offer				
		✓	D.20. Flood prone areas				
		✓	D.21. Hydrogeologic assessment				
		✓	D.21.a. Sand & gravel aquifers				
		✓	D.21.b. Average dwelling density				
		✓	* Potential for adverse impact				
		✓	D.22. Storm water management plan				
		✓	D.23. Erosion & sedimentation plan				
		✓	D.23.a Permit from DEP				
		✓	D.24 Areas of wildlife habitat				
		✓	D.25. Areas on NRHP				
		✓	D.26. Disposal of debris				
		✓	* DEP permit				
		✓	D.27. Scenic sites				
		✓	D.28. Agricultural areas				
		✓	D.29. Archeological resources				
		✓	D.30. Technical & financial ability				
			<b>Supplemental Information</b>				
✓			Notification of fire, rescue, road, & school departments				
			Status of State and/or Federal permits				
			Condition A.				
			Condition B.				
			Condition C.				
			Condition D.				
			Condition E.				
			Condition F.				

This pre-application was first looked at by the Planning Board on \_\_\_\_ / \_\_\_\_ / \_\_\_\_ but does not create vested rights in the initiation of the review process.

By vote of the Board this application requires an on-site inspection: Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, an onsite inspection is scheduled for \_\_\_\_ / \_\_\_\_ / \_\_\_\_ at \_\_\_\_ : \_\_\_\_ \_\_\_\_AM \_\_\_\_PM

**Special Requirements for Formal Site Review:**

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\_\_\_\_\_  
**Planning Board Chair**

\_\_\_\_ / \_\_\_\_ / \_\_\_\_  
**Date**

#### On-site Inspection

ITEM	Requirements Met	Deficient	Waived	Not Applicable
A. Less than 6 inches of snow on the ground				
B. Structures, roads, parking, etc. flagged				
C. Notice of inspection posted				
D. Public allowed to accompany on-site inspection				
E. PB reviewed site findings at next meeting				
F. PB set contour intervals for formal application				



## Town of Poland

### Planning Board DEPARTMENTAL REVIEW OF PROPOSED SITE APPLICATION

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

To: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

In accordance with Chapter 606, Site Review, of the Comprehensive Land Use Code for the Town of Poland, an applicant for development approval is required to ask that Municipal Departments to comment on their capacity of capital facilities to serve a proposed development. Therefore, the Planning Board, by way of the applicant, is notifying you of the following proposed project and requests your comments

Applicant: Holly L Russell  
Address: 15 Tirrell Avenue  
Mechanic Falls, ME 04256  
Location: Map # \_\_\_\_\_ Lot # \_\_\_\_\_ Sublot # \_\_\_\_\_  
Road Location: Cleve Tripp Road  
Project overview: \_\_\_\_\_  
Scheduled Planning Board Meeting Date \_\_\_\_/\_\_\_\_/\_\_\_\_

#### Applicants:

1. Should attach all relevant sections of their plans to prevent delays.
2. Mail this form letter along with a copy of the application so that each department head receives it at least fourteen days prior to the scheduled meeting. (See reverse for list of Department Heads)
3. Confirm with the department heads that they have delivered their response to the Planning Board Office in time for the meeting.

#### For the Department Head

I have reviewed this application and provide the following:

- ☐ The project has no impact on the Department.
- ☐ The Department has adequate existing capital facilities to serve the project.
- ☐ The Department does not have adequate existing capital facilities to serve the project for the reasons listed. (Please submit reasons on department letterhead)
- ☐ I need more information on the application.

Signed: \_\_\_\_\_  
Head of Department

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

#### RETURN THIS FORM TO:

Please return by: Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Planning Board Office  
Town of Poland  
1231 Maine Street  
Poland, Maine 04274-7328

## **Town of Poland**

### **Department Heads**

<b>FIRE/ RESCUE CHIEF</b>	<b>MARK BOSSE</b> 1231 Maine Street Poland, ME 04274 998-2361 (Dispatch)
<b>ROAD COMMISSIONER</b>	<b>BYRON A. STROUT</b> 1231 Maine Street Poland, ME 04274 998-4601
<b>SUPERINTENDENT OF SCHOOLS</b>	<b>KENNETH HEALEY</b> 1146 Maine Street Poland, ME 04274 998-2727
<b>POLICE DEPARTMENT</b>	<b>CHIEF DEPUTY WILLIAM GAGNE</b> Androscoggin Sheriff's Office 2 Turner Street Auburn, ME 04210 998-2361 (Dispatch)

January 28, 2019

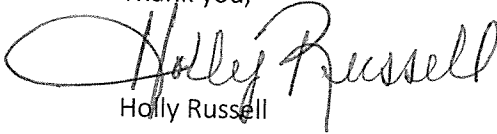
Planning Board Office  
Town of Poland  
1231 Maine Street  
Poland, ME 04274

To Whom It May Concern:

I purchased a piece of property located on the Cleve Tripp Road in Poland, Maine on October 1<sup>st</sup>, 2018, more specifically described as Map #: 0005-0024-0003, Lot #: 3. This lot had stipulations that I have to "share" a driveway with the lot to the left of me. I do not want to have a shared driveway with anyone and therefore I have contacted the Town of Poland and on October 16<sup>th</sup>, 2018 I met with Adam who works for the Town of Poland road department and he is in agreement that my driveway does not need to be shared and the visibility would be better suited for a different location.

At this time, I am asking the Town of Poland to allow me to change the location of the current "shared driveway" to the new location on Cleve Tripp Road.

Thank you,

A handwritten signature in black ink, appearing to read "Holly Russell". The signature is fluid and cursive, with a large loop at the beginning.

Holly Russell

15 Tirrell Avenue  
Mechanic Falls, ME 04256



# 500 foot Abutters List Report

Poland, ME  
January 24, 2019

## Subject Property:

Parcel Number: 0005-0024-0003  
CAMA Number: 0005-0024-0003  
Property Address: CLEVE TRIPP RD

Mailing Address: COFFIN, AUBREY L.  
128 RANGE HILL RD.  
POLAND, ME 04274

---

## Abutters:

Parcel Number: 0005-0022  
CAMA Number: 0005-0022  
Property Address: CLEVE TRIPP RD.

Mailing Address: FOSTER, GLENN  
P. O. BOX 157  
GRAY, ME 04039

Parcel Number: 0005-0022C  
CAMA Number: 0005-0022C  
Property Address: 59 CLEVE TRIPP RD.

Mailing Address: LEMMINGS, LACEY M.  
108 BLUEBERRY LN  
GRAY, ME 04039

Parcel Number: 0005-0023  
CAMA Number: 0005-0023  
Property Address: 47 CLEVE TRIPP RD.

Mailing Address: LAJOIE, ADAM M.  
47 CLEVE TRIPP RD.  
POLAND, ME 04274

Parcel Number: 0005-0023A  
CAMA Number: 0005-0023A  
Property Address: 37 CLEVE TRIPP RD.

Mailing Address: HARVEY, VICTORIA Y.  
37 CLEVE TRIPP RD.  
POLAND, ME 04274

Parcel Number: 0005-0024  
CAMA Number: 0005-0024  
Property Address: CLEVE TRIPP RD.

Mailing Address: COFFIN, AUBREY L.  
128 RANGE HILL RD.  
POLAND, ME 04274

Parcel Number: 0005-0024-0001  
CAMA Number: 0005-0024-0001  
Property Address: 42 CLEVE TRIPP RD.

Mailing Address: PARSHALL, JACK P.  
42 CLEVE TRIPP RD.  
POLAND, ME 04274

Parcel Number: 0005-0024-0002  
CAMA Number: 0005-0024-0002  
Property Address: CLEVE TRIPP RD

Mailing Address: COFFIN, AUBREY L.  
128 RANGE HILL RD.  
POLAND, ME 04274

Parcel Number: 0005-0024-0004  
CAMA Number: 0005-0024-0004  
Property Address: CLEVE TRIPP RD.

Mailing Address: BERGERON, RAYMOND  
31 SANDERSON ROAD  
POLAND, ME 04274

Parcel Number: 0005-0024-0005  
CAMA Number: 0005-0024-0005  
Property Address: CLEVE TRIPP RD.

Mailing Address: GRAVEL, ANN-MARIE  
270 MARKED TREE RD.  
HOLLISTON, MA 01746

Parcel Number: 0005-0024-0006  
CAMA Number: 0005-0024-0006  
Property Address: 10 BLACK DUCK LANE

Mailing Address: GRAVEL, PAUL B.  
10 BLACK DUCK LANE  
POLAND, ME 04274



[www.cai-tech.com](http://www.cai-tech.com)

1/24/2019

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Page 1 of 3



# 500 foot Abutters List Report

Poland, ME

January 24, 2019

Parcel Number: 0005-0024D  
CAMA Number: 0005-0024D  
Property Address: 34 ECHO COVE LANE

Mailing Address: MONTESI, ANTHONY R.  
69 GARNET RD  
ROXBURY, CT 06783

Parcel Number: 0007-0021  
CAMA Number: 0007-0021  
Property Address: BAILEY HILL RD.

Mailing Address: HUNTRESS, FRED A., JR.  
67 STROUT RD.  
POLAND, ME 04274

Parcel Number: 0007-0021  
CAMA Number: 0007-0021-0006  
Property Address: BAILEY HILL RD.

Mailing Address: HUNTRESS, FRED A., JR.  
67 STROUT RD.  
POLAND, ME 04274

Parcel Number: 0036-0001A  
CAMA Number: 0036-0001A  
Property Address: 61 ECHO COVE LANE

Mailing Address: WELCH, BENJAMIN L.  
8 MEDINAH CIRCLE  
FALMOUTH, ME 04105

Parcel Number: 0036-0002  
CAMA Number: 0036-0002  
Property Address: 47 ECHO COVE LANE

Mailing Address: COFFIN, AUBREY L.  
128 RANGE HILL RD.  
POLAND, ME 04274

Parcel Number: 0036-0003  
CAMA Number: 0036-0003  
Property Address: 67 BLACK DUCK LANE

Mailing Address: COLETTI, MICHAEL P.  
111 CROSS LANE  
BEVERLY, MA 01915

Parcel Number: 0036-0004  
CAMA Number: 0036-0004  
Property Address: 63 BLACK DUCK LANE

Mailing Address: STICKNEY, MICHAEL R.  
61 WEYMOUTH ST.  
BRUNSWICK, ME 04011

Parcel Number: 0036-0005  
CAMA Number: 0036-0005  
Property Address: 53 BLACK DUCK LANE

Mailing Address: DRISCOLL, THOMAS  
84 OAKRIDGE ST.  
CHICOPEE, MA 01020

Parcel Number: 0036-0006  
CAMA Number: 0036-0006  
Property Address: 45 BLACK DUCK LANE

Mailing Address: MANNETT, THOMAS W., III  
1 AMBIANA AVE.  
RAYMOND, ME 04071

Parcel Number: 0036-0007-0008  
CAMA Number: 0036-0007-0008  
Property Address: 41 BLACK DUCK LANE

Mailing Address: MANNETT, THOMAS W., III  
1 AMBIANA AVE.  
RAYMOND, ME 04071

Parcel Number: 0036-0009  
CAMA Number: 0036-0009  
Property Address: 39 BLACK DUCK LANE

Mailing Address: JOPE, ROGER  
39 BLACK DUCK LANE  
POLAND, ME 04274

Parcel Number: 0036-0010  
CAMA Number: 0036-0010  
Property Address: 37 BLACK DUCK LANE

Mailing Address: STONE, CHARLES H., JR.  
170 PINE ST.  
NORTON, MA 02766



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1/24/2019

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Page 2 of 3



# 500 foot Abutters List Report

Poland, ME

January 24, 2019

Parcel Number: 0036-0011  
CAMA Number: 0036-0011  
Property Address: 31 BLACK DUCK LANE

Mailing Address: WATSON, PATRICIA L.  
100 ROCKWOOD RD.  
NORFOLK, MA 02056

Parcel Number: 0036-0011A  
CAMA Number: 0036-0011A  
Property Address: BLACK DUCK LANE

Mailing Address: WATSON, PATRICIA L.  
100 ROCKWOOD RD.  
NORFOLK, MA 02056

Parcel Number: 0036-0012  
CAMA Number: 0036-0012  
Property Address: 29 BLACK DUCK LANE

Mailing Address: LIMOGES, GLORIA B. & ROBERT D.  
Trustees  
29 BLACK DUCK LANE  
POLAND, ME 04274



[www.cai-tech.com](http://www.cai-tech.com)

1/24/2019

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Page 3 of 3







**WARRANTY DEED**  
(Statutory Short Form)

Aubrey L. Coffin, of Poland, Androscoggin County, Maine, for consideration paid, grants to Holly Russell, of Mechanic Falls, Androscoggin County, Maine whose mailing address is 15 Tirrell Avenue, Mechanic Falls, ME 04256, with Warranty Covenants, a certain lot or parcel of land situated on the southerly side of the Cleve Tripp Road in Poland, Androscoggin County, Maine, more particularly described as follows:

See Schedule "A" attached hereto and made a part hereof.

Meaning and intending to convey a portion and a portion only of the premises conveyed to Aubrey L. Coffin and Dorothy C. Coffin by deed of Guy Chipman and Merle Chipman recorded in the Androscoggin County Registry of Deeds in Book 919, Page 102.

The grantor is the surviving joint tenant his late wife, Dorothy C. Coffin having died on June 23, 2017 a resident of Poland Spring, Androscoggin County, Maine. Reference is made to Androscoggin County Probate Court Docket #2017-362

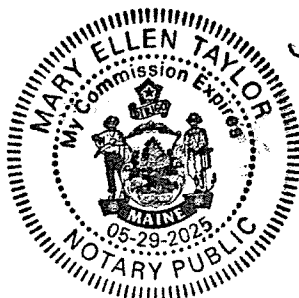
Dated: October 2nd, 2018

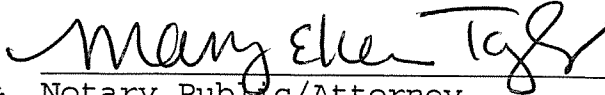
  
Aubrey L. Coffin

STATE OF MAINE  
Androscoggin, ss.

October 2nd, 2018

Personally appeared, before me, the above-named **Aubrey L. Coffin** and acknowledged the foregoing instrument to be his free act and deed.



  
Notary Public/Attorney

MARY ELLEN TAYLOR  
Print Name



### **SCHEDULE "A"**

A certain lot or parcel of land located on the Southerly side of the Cleve Tripp Road in Poland, Androscoggin County, Maine, more particularly described as follows:

Lot 3 as depicted on the recorded plan of Echo Cove Subdivision recorded at the Androscoggin County Registry of Deeds in Plan Book 40, Page 150.

Lot 3 is conveyed subject to all easements, terms, buffers, restrictions and conditions shown on said Plan including the four Deed Restrictions & Requirements and the thirteen Notes as stated on said Plan.

Being a portion and a portion only of the premises conveyed by Guy Chipman and Merle Chipman to Aubrey L. Coffin and Dorothy C. Coffin recorded at the Androscoggin County Registry of Deeds in Book 919, Page 102.







# **Pine Tree Engineering, Inc.**

---

53 Front Street  
Bath, Maine 04530  
(207) 443-1508  
Fax: (207) 442-7029  
E-mail: [pte@pte-maine.com](mailto:pte@pte-maine.com)

January 30, 2019

Town of Poland  
Attn: Scott Neal, CEO  
1231 Maine Street  
Poland, Maine 04274

**Subject: Poland Corner Road Water Main Extension #18001**  
**Stream Crossing and Water Storage Tank**  
**Poland, Maine**

Dear Scott:

On behalf of the Mechanic Falls Water Department, enclosed are one original, one electronic disk, and nine copies of the Formal Site Plan Review Application for the Poland Corner Road Water Main Extension project. The water main will be extended in order to provide public water to additional neighborhoods in Poland.

The purpose of the water storage tank is to increase the volume of water available at this end of town to improve fire protection services and water supply for any high use situations. An easement will be granted to the Mechanic Falls Water Department for the installation of the storage tank. The disturbed land around the storage will be loamed and seeded and maintained as lawn.

The following items are also included with this application:

- Site Location Map
- National Flood Hazard Map
- Abutter Information
- Proposed Legal Description and Easement for Water Storage Tank
- Construction Drawings (one set 24" x 36", nine sets 11" x 17")
- Natural Resources Protection Act Permit-by-Rule application

Highway Opening and Utility Location permits will be obtained from the Maine Department of Transportation since Poland Corner Road is a State Aid roadway.

Scott Neal, CEO  
January 30, 2019  
Page 2

Please let me know if you have any questions or comments regarding this submittal.

Sincerely,

**PINE TREE ENGINEERING, INC.**

A handwritten signature in black ink, appearing to read "Robert L. Prue".

Robert L. Prue, P.E.  
Project Manager

RLP/szd  
Enclosures

c: Steve French, Superintendent, Mechanic Falls Water Department



# Town of Poland, Maine Planning Board

## Formal Site Plan Review

### Instructions:

1. Read every part of this document. Failure to follow requirements can and will delay the Planning Board's decisions.
2. Fill out the forms on pages 1 through 6. Obtain or get copies of information as required by the application on these pages.
3. Use the "Submission Checklist" on pages 5 and 6 to make sure submission requirements are met.
  - a. The checklist is a summary of the standard requirements in Section 509.8 of the Comprehensive Land Use Code.
    - i. The actual Code wording may be found on-line at [www.polandtownoffice.org](http://www.polandtownoffice.org). Go to the "Code Enforcement" page, select "Comprehensive Land Use Code" at that bottom of the page. Hardcopies are available for purchase at the town office.
  - b. Make sure all waiver requests have a written statement for each request. Check with the Code Enforcement Office to make sure items stated as "On File" are indeed in the town office.
  - c. Some requirements may need only a one paragraph or one sentence statement. Make sure all requests are answered.
4. **NUMBER OF COPIES OF THE APPLICATION AND DUE DATE**
  - a. A total of at least ten (10) copies of the plans and one PDF copy (on either cd or usb) are needed. Be sure to make a copy for yourself.
  - b. The Code Enforcement Office must receive the original application, an additional 9 copies, and a digital PDF copy (either cd or usb) with appropriate fees by 1:00 p.m. eleven (11) days before the stated meeting to be put on the upcoming agenda.
  - c. If review for missing information by the Code Enforcement Officer is desired, a copy must be submitted to the CEO at least 14 days prior to the meeting.
  - d. The application must be on file for public review for at least 10 days prior to the meeting. Applications received after the Agenda is posted may not be reviewed by the Board for your scheduled meeting date.
5. Check with this office to make sure that all departments have responded to your application prior to the meeting.

**PROJECT NAME:** Poland Corner Road Water Main Extension Stream Crossing and Water Storage Tank

Date of Planning Board Review:                      /                      /                      Application #                     

### LOT INFORMATION:

Tax Assessor's Map # 11 (tank) Lot # Portion of #6B to be joined to #5 (tank)

Watershed: Range Brook (crossing)

Property's Road Location: Poland Corner Road

Lot Size: .21 (tank) Acres Road Frontage: 150 Ft.

Year lot created: 2019 (If unknown, give best estimate with "est." after date)

Zoning District(s): Rural Residential III Flood Zone: Yes Aquifer Overlay: No

Current use of lot: Vacant

### LAND OWNER(S):

Name(s) Orrin Welch (tank) - easement to Water Department Town of Poland right-of-way (crossing)

Company Town of Mechanic Falls Water Department

Mail Address: 62 Highland Ave. Main Phone 207-345-5351

Town/State/Zip Mechanic Falls, ME 04256 Alternate Phone: 207-212-7116

**APPLICANT or CONTACT PERSON:**Applicant is: ☒ Landowner ☐ Contractor ☐ Renter ☐ Buyer

If landowner, write "Same" below and continue to next block below. If not the landowner, submit a letter of permission to construct on or use the land, or copy of a contract to buy from the landowner, along with the following information:

Name(s): SameCompany Mail Address:  Main Phone: - -Town/State/Zip  Alternate Phone: - -**THIS APPLICATION IS FOR:** (Check all that apply)

- |  |  |
|--|--|
| <input type="checkbox"/> Commercial              | <input type="checkbox"/> New Development           |
| <input type="checkbox"/> Industrial              | <input type="checkbox"/> Change In Use             |
| <input type="checkbox"/> Institutional           | <input type="checkbox"/> Expansion of Use          |
| <input checked="" type="checkbox"/> Governmental | <input type="checkbox"/> Expansion of Structure(s) |
| <input type="checkbox"/> Open Space              | <input type="checkbox"/> Resumption of Use         |

**EXISTING LOT CONDITIONS:**

(This page is to describe what is on your lot currently)

1. **General**Does this lot have any development? (If No, go to "Proposed Development")  Yes☒ Noa. Is there an existing Well  Yes  
 Nob. Is there an existing Septic System  Yes  
 No

i) If yes, submit a copy of a septic permit, or drawing(s) showing size &amp; location.

c. Is there an existing Road Entry  Yes  
 Noi) If yes, will there be any changes/modifications?  Yes  
 No

ii) (If no, submit copy of appropriate road entry application if entrance is onto a state or town road.)

d. Any structures to be removed  Yes  
 No

i) If yes, submit information about the structure to be removed and how any debris will be disposed of.

2. **Existing Land Development & Improvements NOT Including Buildings**a. Size of lawns  Sq. Ft.  
or Acresb. Size of fields  Sq. Ft.  
or Acresc. Size of driveways/roads  Sq. Ft.d. Size of other non-vegetated areas  Sq. Ft.e. Wetlands already filled  Sq. Ft.3. **Existing Main Structure**a. Ground Footprint  Sq. Ft.b. Total Gross Floor Space (exterior dimensions of all floors)  Sq. Ft.c. Road Frontage Setback  Ft.

- d. Side Setback \_\_\_\_\_ Ft.  
e. Rear Setback \_\_\_\_\_ Ft.  
f. Distance to Great Pond \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.  
g. Distance to Stream \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.  
h. Distance to Wetlands \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.
4. **Foundation Type** \_\_\_\_\_ Full Basement \_\_\_\_\_ Frost Walls \_\_\_\_\_ Slab \_\_\_\_\_ Piers
5. **Existing Accessory Structure(s)**
- a. Total Number of Structures \_\_\_\_\_  
b. Total Ground Footprint \_\_\_\_\_ Sq. Ft.  
c. Total Floor Space \_\_\_\_\_ Sq. Ft.  
d. Closest Road Setback \_\_\_\_\_ Ft.  
e. Closest Side Setback \_\_\_\_\_ Ft.  
f. Closest Rear Setback \_\_\_\_\_ Ft.  
g. Distance to Great Pond \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.  
h. Distance to Streams \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.  
i. Distance to Wetlands \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.
6. **Total Existing Impervious Surfaces** \_\_\_\_\_ Sq. Ft.  
a.  $Add\ 2c + 2d + 3a + 5b$

**PROPOSED DEVELOPMENT:**

1. Wetlands to be impacted \_\_\_\_\_ 0 \_\_\_\_\_ Sq. Ft.  
2. New footprint(s) and developed area(s):  
a. Changes in building footprint(s) \_\_\_\_\_ 301 \_\_\_\_\_ Sq. Ft.  
b. Changes in driveway/roadway \_\_\_\_\_ 0 \_\_\_\_\_ Sq. Ft.  
c. Changes in patios, walkways, etc. \_\_\_\_\_ 0 \_\_\_\_\_ Sq. Ft.  
d. TOTAL (2a+2b+2c) \_\_\_\_\_ 301 \_\_\_\_\_ Sq. Ft.  
3. Percentage of lot covered by impervious surfaces: \_\_\_\_\_ 3.3% \_\_\_\_\_ %  
a.  $(Equals\ [areas\ on\ line\ 6\ page\ 2 + line\ 2d\ above] / [Total\ lot\ area\ measured\ in\ sq.\ ft.] * 100\%)$

**SUBMISSIONS:**

1. **Attach drawings and/or statements describing the following items, if applicable:**
- a. Provide a copy of deed and Tax Assessor's information card.  
b. Provide a map of the general area showing land features within at least ½ mile of this lot.  
c. Provide site plan(s) of your lot with existing development and its dimensions shown.  
d. Provide site plan(s) of your lot with proposed development and its dimensions shown.  
i. *(May be combined on existing development drawing.)*  
e. Provide detailed plans of proposed structural development and changes.  
f. Provide statements or drawings of methods of infrastructure:  
i. Water supply  
ii. Sewage disposal  
iii. Fire protection  
iv. Electricity  
v. Solid waste disposal  
g. Type, size, and location of signs.  
h. Number of parking spaces.  
i. Provide phosphorus loading calculation if in a great pond watershed area.  
j. Anticipated date for start of construction.  
k. Anticipated date for completion of construction.  
l. Standard submissions requirements shall follow Section 509.8 of the Comprehensive Land Use Code. Copies of the Code are available for viewing at the Town Office and Library. Copies are available for purchase (\$25.00) in the Code Enforcement Office.  
i. *(Use checklist starting on page 6 for summary of usual requirements.)*  
m. Other requirements unique to your project added by the Planning Board.


2. **List all state and federal approvals, permits, and licenses required, if any, for the project:**

This includes but is not limited to the following:

1. State highway entrance permit.
2. Soil disturbances involving more than one acre.
3. Impact on more than 4,300 square feet of any type wetland.
4. Soil disturbances within 100 feet of lakes, rivers or streams.
5. Activity within 75 feet, over the water, or in the water of lakes, rivers, or streams.
6. Timber harvesting.
7. Flood zones.
8. Discharges and emissions

**DISCLOSURE: (READ BEFORE SIGNING)**

1. I hereby acknowledge that I have read this application and pertinent sections of the ordinances, and state that the information in this document is to the best of my knowledge true and accurate. I agree to comply with all the Town of Poland's ordinances and the State of Maine's statutes regulating the activities sought in this application as well as any permit(s) approved for this application.
2. I understand that all construction of structures shall conform to or exceed the minimum requirements of the Maine Uniform Building and Energy Code, and the NFPA-101 Life Safety Code, 2009
3. I understand that any approval is valid for only the use(s) as specified in this application. The permitting authority must approve any change(s) made to the use(s) sought in the application. Any approval issued for this application is approved on the basis of truthful information provided by the applicant(s), and as allowed by the ordinances of the town.
4. I understand that it is my responsibility to assure that the lot description herein accurately describes its ownership, its boundary lines, and the setback measurements from the legal boundary lines.
5. I understand that I have the burden of proof as to the legal right to use the property, and that approval of this application in no way relieves me of this burden. Any approval issued does not constitute a resolution in favor of me or the landowner in any matters regarding the property boundaries, ownership, or similar titles.
6. I understand that all necessary **Building and Use Permits** shall be secured from the Code Enforcement Office after the Planning Board grants approval of this application.
7. I understand that a **Certificate of Occupancy or Compliance** shall be required prior to the start of any use or occupancy associated with this application unless a signed written waiver is issued with the permit. Fines and penalties may be issued if use or occupancy is started prior to the issuance of the certificate.
8. I understand that the **approval becomes invalid if** construction or use has not commenced within twelve (12) months of the Planning Board's approval date, construction is suspended for more than six (6) months and no notice for just cause is submitted prior to the end of the six (6) months, or it is found that false statements have been furnished in this application.
9. I understand that if I fail to comply with the aforementioned statements, a "STOP WORK" order may be issued for which I will immediately halt any construction and/or use(s) that are approved for this application. This failure may also require that I return the property to its natural state or as closely thereto before the use(s) was/were approved.
10. I understand that failure to follow these requirements will lead to Violation Notices and Citations that have fines and penalties. This in turn can lead to civil proceedings in District and/or Superior Court.
11. I understand that **all state and federal permits** are my responsibility as the applicant and/or owner and will secure the same prior to the start of the project.

  
\_\_\_\_\_

Applicant's Signature(s)

1-29-19  
\_\_\_\_\_

Date



## Submission CHECKLIST

The following list is a short summary of the information required in Chapter 509.8 of the Comprehensive Land Use Code for the Town of Poland, Maine. Please checkmark or place an "X" in the left-hand columns if the information has been provided, if you request a waiver from submitting the information, or you believe the information is not applicable to your application. If a waiver(s) is requested, or the information is not applicable, a written explanation is required. Columns on the right are for the Planning Board's use.

For Applicant Use				For Planning Board Use			
Provided	Waiver Request	Not Applicable	Section 509.8.A Submission requirements	Received	On File	Waived	Not Applicable
X			1. Site Plan Drawings				
X			2. Signed copy of application				
X			3.a. Name & address of owner				
X			Name of development				
X			Name & address of abutters within 500' of lot for development				
X			Map of general location				
X			Show all contiguous properties				
X			Names, Map, & lot #'s on drawings				
X			Copy of deeds, agreements				
X			Engineer/ designer of plans				
			<b>Existing Conditions (Site Plan)</b>				
X			Zoning Districts on and/or abutting project's lot shown				
X			Bearings & Distances shown on drawings				
X			Location of utilities, culverts, drains				
X			Location, name of existing r/w				
		X	Location, dimensions of existing structures				
X			Location, dimensions of existing roads, walks, parking, loading, etc.				
X			Location of intersection within 200'				
X			Location of open drains, wetlands, wildlife areas, historic sites, etc.				
X			Direction of surface drainage				
X			100-yr. Floodplain				
		X	Signs				
X			Easement, covenants, restrictions				
			<b>Proposed Development (Site Plan)</b>				
X			Location & dimensions of all new structures. New development delineated from existing development				
X			Setback dimensions shown & met				
		X	Exterior lighting (Will meet full cutoff requirements)				
		X	Incineration devices				
		X	Noise of machinery and operations				
		X	Type of odors generated				
		X	Septic system and other soils reports				
X			Water supply				
		X	Raw & finished materials stored outside				
X			Contours shown at PB specified intervals				
		X	Curbs, sidewalks, drives, fences, retaining walls, parking, etc.				
		X	Landscaping plan				
X			Easements, r/w, legal restrictions				
X			Abutters' property lines, names				
			<b>TRAFFIC DATA</b>				

For Applicant Use				For Planning Board Use			
Provided	Waiver Request	Not Applicable	Section 509.8.A Submission requirements	Received	On File	Waived	Not Applicable
		X	Peak hour traffic				
		X	Traffic counts				
		X	Traffic accident data				
		X	Road capacities				
		X	Traffic signs, signals				
			<b>STORMWATER &amp; EROSION</b>				
X			Method for handling stormwater shown				
X			Flow direction				
		X	Catch basins, dry wells, ditches, etc.				
		X	Engineering Analysis of stormwater				
X			Erosion control measures				
		X	Hydrologist groundwater impact				
X			Utility plans for all utilities				
		X	Cross-section profile of roads, walks				
X			Construction drawings of roads, utilities				
		X	Cost analysis of project and financial capability demonstrated				
		X	Phosphorus control plan if in watershed of a great pond				
		X	Submission of waiver requests				
X			Copies of state, federal applications, permits, &/or licenses required for this project.				
			Condition A.				
			Condition B.				
			Condition C.				
			Condition D.				
			Condition E.				

This application was first looked at by the Planning Board on \_\_\_ / \_\_\_ / \_\_\_ but does not create vested rights in the initiation of the review process.

By vote of the Board this application requires an on-site inspection: \_\_\_\_\_ Yes \_\_\_\_\_ No

If yes, an onsite inspection is scheduled for \_\_\_ / \_\_\_ / \_\_\_ at \_\_\_ : \_\_\_ \_\_\_ AM \_\_\_ PM

By vote of the Board this application requires a public hearing: \_\_\_\_\_ Yes \_\_\_\_\_ No

If yes, public hearing is scheduled for \_\_\_ / \_\_\_ / \_\_\_ at \_\_\_ : \_\_\_ \_\_\_ AM \_\_\_ PM

**Conditions of Approval for Formal Site Review:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Planning Board Chair

\_\_\_ / \_\_\_ / \_\_\_  
Date

**Site Review and Shoreland Zoning Review Fees:**

<u>Type of fee</u>	<u>Fee</u>	<u>Units or Comments</u>
Application – sketch plans, Rough design	\$75.00	Each application (no other fees)
Application – formal <sup>3</sup>	\$150.00	Each application + fees below
Approval extension, Planning Board Approval only	\$50.00	One extension only (no other fees)
Escrow <sup>4</sup> , minimum amount	\$700.00	When required by Planning Board
Extension of approval	\$100.00	Before approval expires
Auto graveyards, recycle business	\$5.00	Per vehicle storage slot (parking space)
Junkyard, Storage Lots	\$1.50	Per ft <sup>2</sup> of outside storage
Residential Towers	\$20.00 + \$5.00 per \$1,000.00	Based on Cost of Work
Commercial Towers	\$20.00 + \$10.00 per \$1,000.00	Based on Cost of Work
Notifications	\$.75	Each Notification, First Class Mail sent by Town

1. Building and Structures may include up to five times the footprint area of the building for grounds improvements, exclusive of the building footprint, as part of the building review fee.

2. Building and Grounds Improvement Fees. The sum of these two fees may be limited to \$2,500.00 per application at the discretion of the Planning Board. (Junkyards, auto graveyards, recycling business, and towers excluded.

3. Reduced Fees: The Planning Board may, upon application therefore, allow a reduced total site review fees to \$50.00 in any case which it determines that the work for which the permit is sought will be performed within the Shoreland Zone. The project shall be intended solely for the purpose of protecting a Great Pond, Stream, River, or other Natural Resources through the implementation of Conservation, Best Management Practices, or other environmental safeguards. Also, the project shall not result in the enlargement of any building or structure or an intensification of the existing use of the property.

4. Review Escrow Funds may be used by the Town to pay for professional reviews an advice requested by the Planning Board or Code Enforcement Officer related to the applicant's proposed development. Review escrow funds deposited by the applicant not spent during the course of the Town's review shall be returned to the developer within sixty days after the Planning Board's decision on the application is final. If Professional review and advice fees exceed the amount deposited, the developer shall pay the amount outstanding before final approval or any permit is granted.

**Town of Poland, Maine**  
**PLANNING BOARD AGENDA REQUEST**

Date of meeting you are requesting to be scheduled for: 2 / 12 /2019 Meetings are normally conducted from 7:00 to 10:00 PM in the Municipal Conference Room at the Town Office  
Map 11 (tank) Lot 6B Sub-lot \_\_\_\_\_

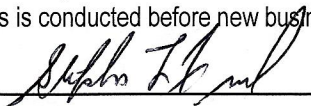
Applicant's Name: Mechanic Falls Water Department, Steve French, Superintendent  
Mailing Address: 62 Highland Avenue  
Town, State, Zip: Mechanic Falls, ME 04256  
  
Home Phone: \_\_\_\_\_ Hours: \_\_\_\_\_  
Work Phone: 345-5351 Hours: M-F 7:30 - 4:00

Type of application: Sketch Plan ☒ Site Review ☒ Shoreland ☐ Subdivision ☐ Informational  
**Road location for project:** Poland Corner Road  
Zoning: Rural Residential III Lake Watershed: No Nature of business to be discussed (Brief description): Water main extension, including a stream crossing and installation of a 30,000 gallon water storage tank.

**IMPORTANT - READ CAREFULLY:**

This Office must receive the original application, plus nine (9) copies, a digital PDF copy (on either cd or usb), and appropriate fees by Friday at 1:00 p.m., eleven (11) days before the stated meeting to be put on the upcoming agenda.

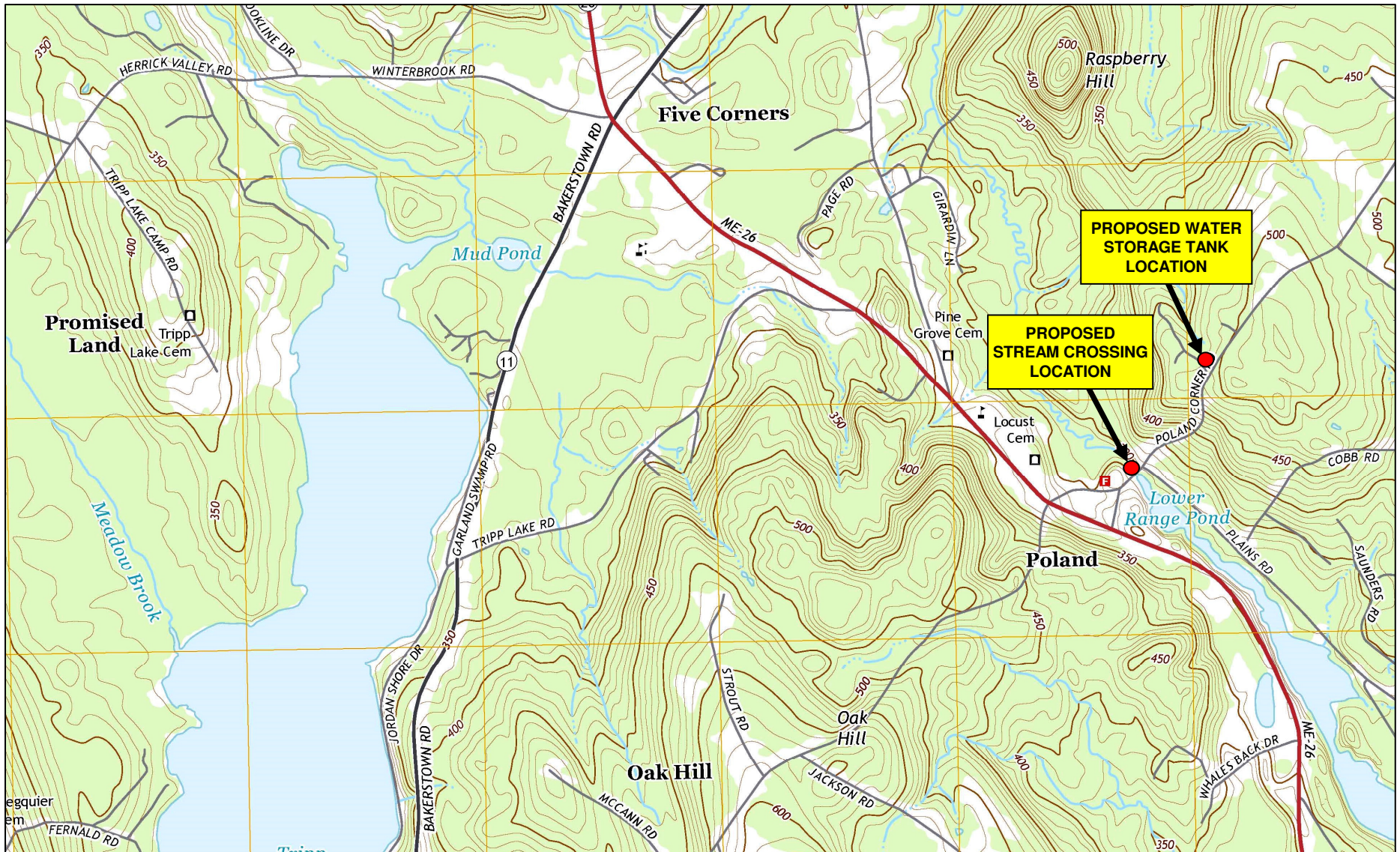
- New business is scheduled on the agenda in the order this office receives this form.
- If you want your application reviewed for contents prior to the meeting, it must be in this office 14 days before the meeting.
- Should the Board choose to adjourn before all business is addressed, all remaining business will be tabled until the next available meeting.
- Unfinished business is conducted before new business is addressed.

Applicant's Signature:  Date: 1 / 29 / 19

**OFFICE USE ONLY:**

Request Taken By: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Time: \_\_\_\_:\_\_\_\_ a.m. p.m.





**Pine Tree  
Engineering**

Civil/Environmental Engineering ♦ Surveying

53 Front Street  
Bath, Maine 04530  
Tel: (207) 443-1508  
Fax: (207) 442-7029

# **LOCATION MAP STREAM CROSSING AND WATER STORAGE TANK**

DATE  
JANUARY 28, 2019

PLACE: **POLAND CORNER ROAD**  
TOWN: **POLAND**  
COUNTY: **ANDROSCOGGIN**  
STATE: **MAINE**

APPLICATION BY:  
MECHANIC FALLS WATER DEPARTMENT  
62 HIGHLAND AVE.  
MECHANIC FALLS, MAINE 04256



# National Flood Hazard Layer FIRMette



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



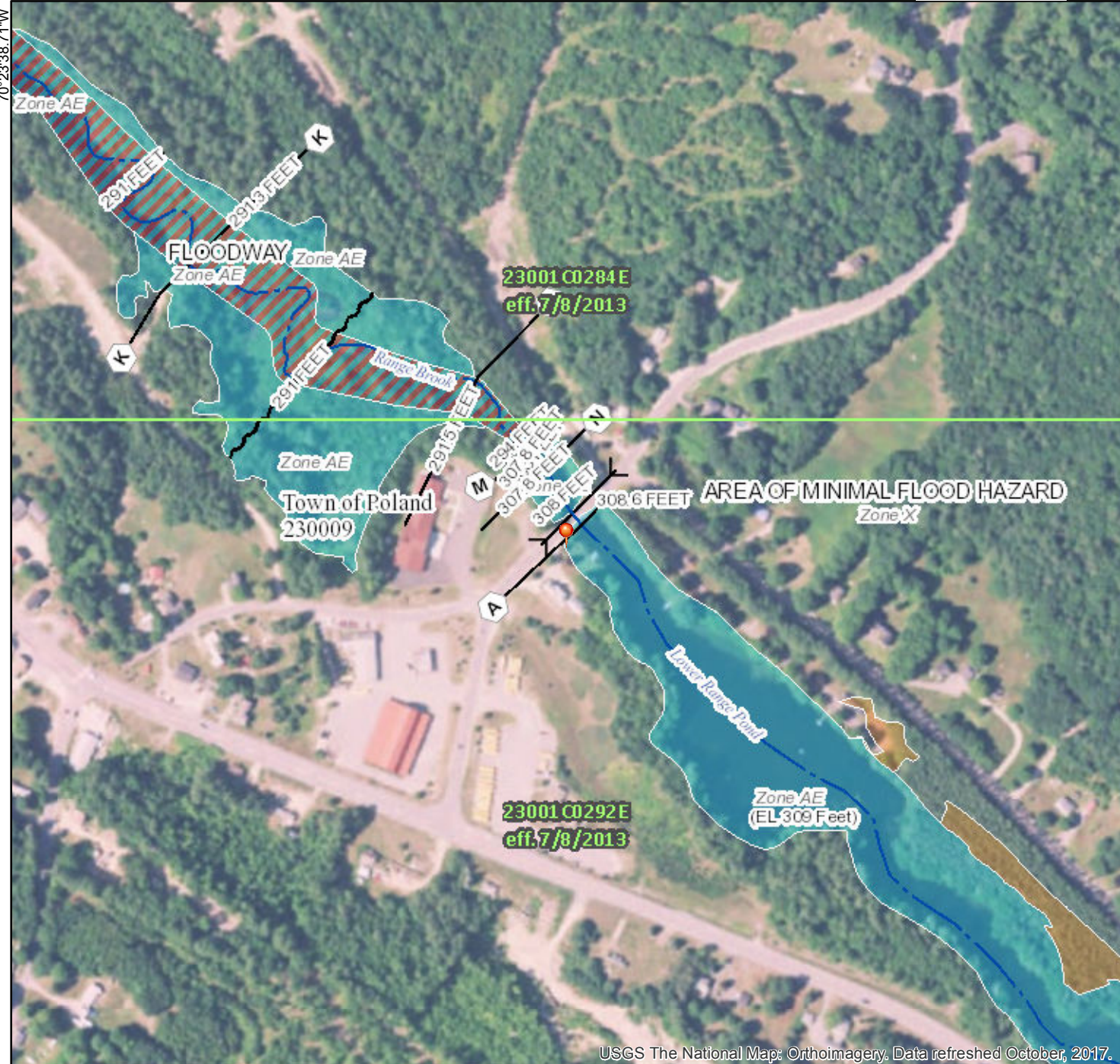
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **1/25/2019 at 12:01:05 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

44°3'55.13"N



USGS The National Map: Orthoimagery. Data refreshed October, 2017.

0 250 500 1,000 1,500 2,000 Feet 1:6,000

44°3'29.28"N

70°23'1.26"W

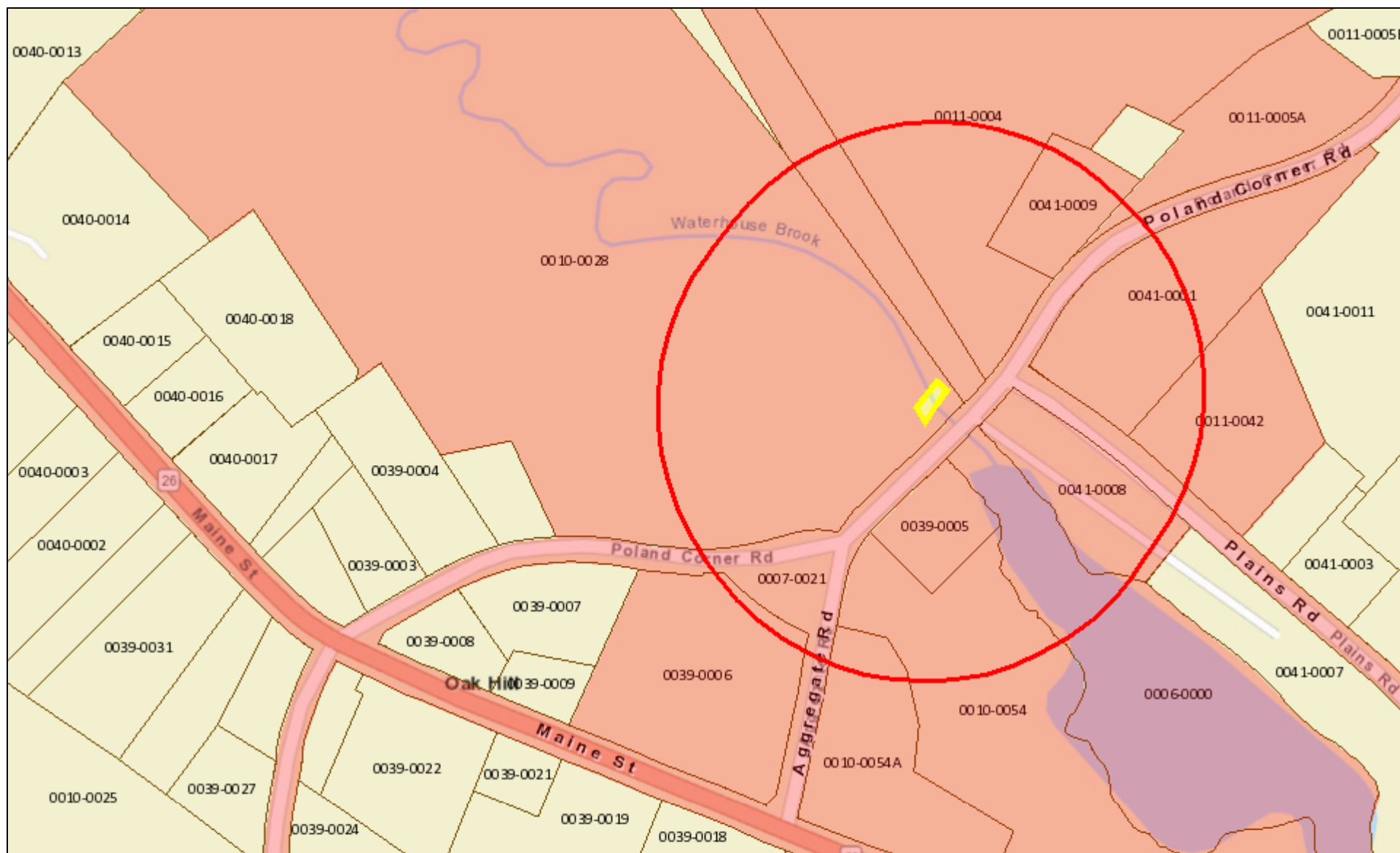


## Poland, ME



1 inch = 268 Feet

www.cai-tech.com



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

**Abutters**  
**Poland Corner Road Water Main Extension**  
**Stream Crossing**  
**Poland, Maine**

Parcel Number	GIS Number	Cama Number	Property Address	Owner Name	Co-Owner Name	Owner Address	Owner Address 2	Owner City	Owner State	Owner Zip
0010-0028	0010-0028	0010-0028	33 POLAND CORNER RD.	POLAND, TOWN OF		1231 MAINE ST.		POLAND	ME	04274
0010-0028	0010-0028	0010-0028-0001	POLAND CORNER RD.	POLAND, TOWN OF		1231 MAINE STREET		POLAND	ME	04274
0010-0054	0010-0054	0010-0054	MAINE ST.	POLAND, TOWN OF		1231 MAINE ST.		POLAND	ME	04274
0010-0054A	0010-0054A	0010-0054A	3 AGGREGATE RD.	REGIONAL SCHOOL UNIT #16		3 AGGREGATE RD.		POLAND	ME	04274
0011-0004	0011-0004	0011-0004	65 POLAND CORNER RD.	MULLEN, ROBERT D.		25 OLD PLAINS RD.		POLAND	ME	04274
0011-0004-0001	0011-0004-0001	0011-0004-0001	POLAND CORNER RD.	POLAND, TOWN OF		1231 MAINE ST.		POLAND	ME	04274
0011-0005A	0011-0005A	0011-0005A	99 POLAND CORNER RD.	HAGGETT, MICHAEL A.		99 POLAND CORNER RD.		POLAND	ME	04274
0011-0042	0011-0042	0011-0042	644 PLAINS RD.	LIBBY, E. BEULAH		1642 WEST SHORES RD.		MELBOURNE	FL	32935
0039-0005	0039-0005	0039-0005	46 POLAND CORNER RD.	JEWELL, DALE K.		P. O. BOX 36		POLAND	ME	04274
0039-0006	0039-0006	0039-0006	30 POLAND CORNER RD.	POLAND, TOWN OF		1231 MAINE ST.		POLAND	ME	04274
0041-0001	0041-0001	0041-0001	70 POLAND CORNER RD.	JARVIS, CLARK J.		70 POLAND CORNER RD.		POLAND	ME	04274
0041-0008	0041-0008	0041-0008	645 PLAINS RD.	CROUCH, JOHN E.		P. O. BOX 268		POLAND	ME	04274
0041-0009	0041-0009	0041-0009	69 POLAND CORNER RD.	MARTIN, PATRICK M.		112 BIRCH DRIVE		POLAND	ME	04274
<b>ADDITIONAL PROJECT ROUTE ABUTTERS:</b>										
0041-0010	0041-0010	0041-0010	77 POLAND CORNER RD.	BOSTON, KENT R.		77 POLAND CORNER RD.		POLAND	ME	04274
0041-0011	0041-0011	0041-0011	POLAND CORNER ROAD	LIBBY, ERNEST G.		1642 WEST SHORES RD.		MELBOURNE	FL	32935





# Water Storage Tank

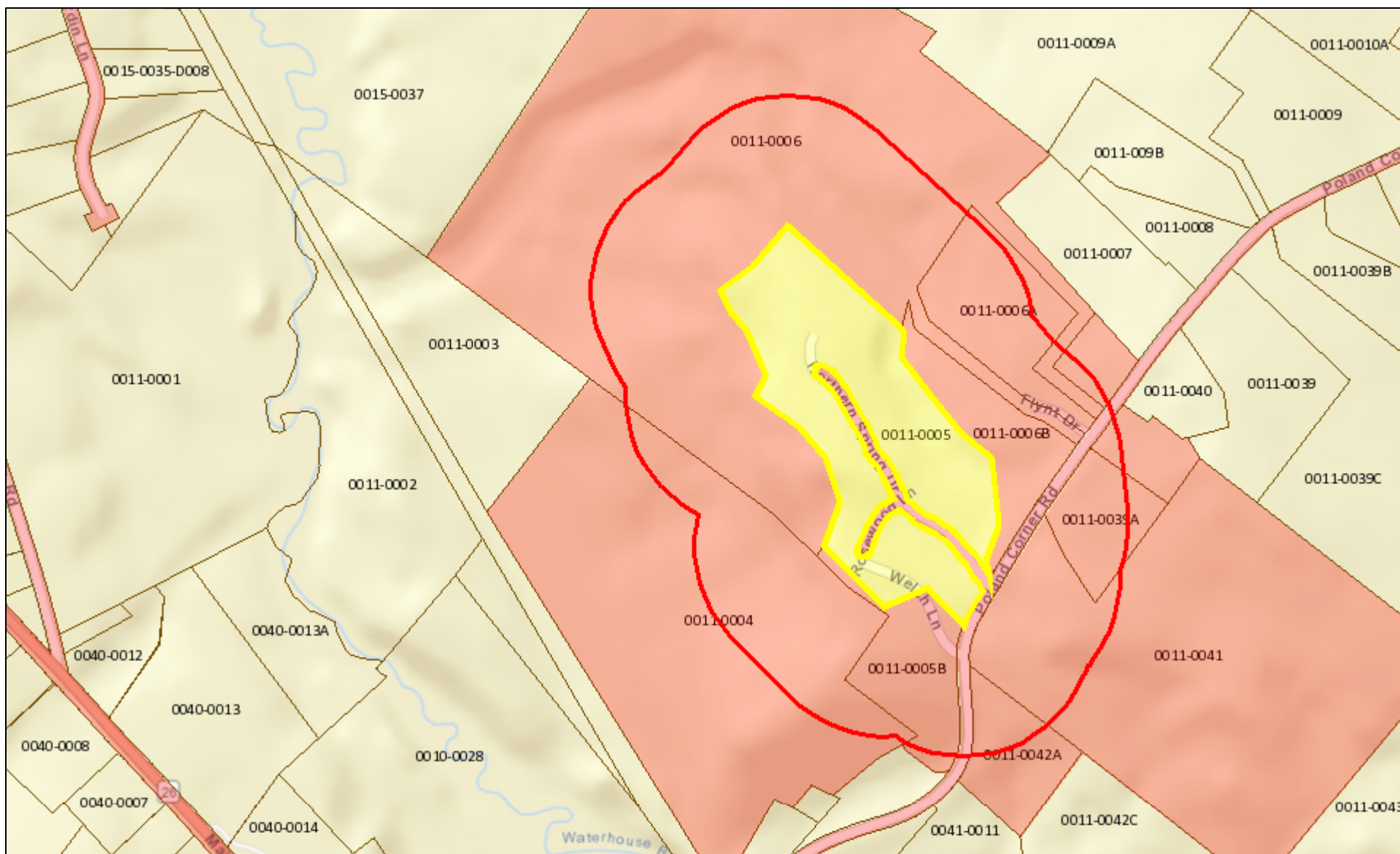
Poland, ME



January 28, 2019

1 inch = 537 Feet

[www.cai-tech.com](http://www.cai-tech.com)



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

**Abutters**  
**Poland Corner Road Water Maine Extension**  
**Water Storage Tank**  
**Poland, Maine**

Parcel Number	GIS Number	Cama Number	Property Address	Owner Name	Owner Address	Owner Address 2	Owner City	Owner State	Owner Zip
0011-0004	0011-0004	0011-0004	65 POLAND CORNER RD.	MULLEN, ROBERT D.	25 OLD PLAINS RD.		POLAND	ME	04274
0011-0005B	0011-0005B	0011-0005B	117 POLAND CORNER RD.	TIBBETTS, MICHAEL D.	117 POLAND CORNER RD.		POLAND	ME	04274
0011-0006	0011-0006	0011-0006	POLAND CORNER RD.	FLYNT, WILLIAM A. ET AL	%MARY PIGNATA	600 THACKERAY CT.	ROSEVILLE	CA	95747
0011-0006A	0011-0006A	0011-0006A	14 FLYNT DR.	FLYNT, WILLIAM A.	14 FLYNT DR.		POLAND	ME	04274
0011-0006B	0011-0006B	0011-0006B	7 FLYNT DR.	FLYNT, JOHN B.	7 FLYNT DR.		POLAND	ME	04274
0011-0006C	0011-0006C	0011-0006C	167 POLAND CORNER RD.	THE ISABELLE COTTAGE, LLC	167 POLAND CORNER RD.		POLAND	ME	04274
0011-0039A	0011-0039A	0011-0039A	POLAND CORNER RD.	FROST, GREGORY ALAN	55 LUNT LANE		POLAND	ME	04274
0011-0039-A001	0011-0039-A001	0011-0039-A001	164 POLAND CORNER RD.	COLE, SUSAN P.	164 POLAND CORNER RD.		POLAND	ME	04274
0011-0041	0011-0041	0011-0041	POLAND CORNER RD.	SMALL WOODLAND OWNERS	P. O. BOX 836		AUGUSTA	ME	04332
0011-0042A	0011-0042A	0011-0042A	112 POLAND CORNER RD.	PERRON, JACOB	112 POLAND CORNER RD.		POLAND	ME	04274

Proposed Legal Description for  
John B. Flynt & Patricia R. Flynt to  
Affordable Homes, Inc.  
Poland Corner Road, Poland, Maine

A certain lot or parcel of land with the improvements thereon, located on the northerly side of the Poland Corner Road, in the Town of Poland, County of Androscoggin, and State of Maine being more particularly bounded and described as follows:

Beginning at a capped rebar set on the northerly sideline of the Poland Corner Road, said point of beginning being the most southerly corner of John B. Flynt as described in a warranty deed from William F. Flynt dated December 03, 1987 and recorded in Book 2188, Page 301 A.C.R.D., Thence, from said point of beginning N 16°34'15" W a distance of 74.62' feet to a point;

Thence, N 45°52'10" E a distance of 114.89' feet to a capped rebar set and the northerly corner of the parcel herein described;

Thence, S 44°32'28" E along remaining land formerly of the said John B. Flynt a distance of 70.96' feet to a capped rebar set on the northerly sideline of the said road;

Thence, S 47°42'17" W along the northerly sideline of the said road a distance of 150.00' feet to a capped rebar set and the point of beginning;

CONTAINING 0.209 Acres.

ALL CAPPED REBAR SET are 5/8th inch diameter rebar with an orange plastic cap inscribed K.F. Farrar PLS # 2021.

BEARINGS are based upon a plat entitled "Boundary Retracement Survey of property located along Poland Corner Road, Poland, Maine, for Affordable Homes, Inc. " dated December 12, 2018 by Kenneth F. Farrar PLS # 2021, and refer to magnetic north;

Meaning and Intending to describe a portion of the premises as described in a Warranty Joint Tenancy Deed John B. Flynt to John B. Flynt and Patricia R. Flynt dated August 20, 2015 and recorded in Book 9211, Page 161, Androscoggin County Registry of Deeds.

prepared by:

Kenneth F. Farrar  
Maine P.L.S. License # 2021  
P.O. Box 368  
West Paris, Maine 04289  
180341gl

December 12, 2018



Proposed Legal Description for Water Storage Tank Easement Area  
Affordable Homes, Inc. to  
Town of Mechanic Falls Water Department  
Poland Corner Road, Poland, Maine

A certain lot or parcel of land with the improvements thereon, located on the northerly side of the Poland Corner Road, in the Town of Poland, County of Androscoggin, and State of Maine being more particularly bounded and described as follows:

Beginning at a capped rebar set on the northerly sideline of the Poland Corner Road, said point of beginning being the most southerly corner of John B. Flynt as described in a warranty deed from William F. Flynt dated December 03, 1987 and recorded in Book 2188, Page 301 A.C.R.D., Thence, from said point of beginning N 16°34'15" W a distance of 56.00' feet to a capped rebar set;

Thence, N 43°45'42" E a distance of 123.67' feet to a capped rebar set and the northerly corner of the parcel herein described;

Thence, S 53°57'38" E a distance of 59.00' feet to a capped rebar set on the northerly sideline of the said road;

Thence, S 47°42'17" W along the northerly sideline of the said road a distance of 150.00' feet to a capped rebar set and the point of beginning;

CONTAINING 0.171 Acres.

ALL CAPPED REBAR SET are 5/8th inch diameter rebar with an orange plastic cap inscribed K.F. Farrar PLS # 2021.

BEARINGS are based upon a plat entitled " Plan Showing a Proposed Water Storage Tank Easement Area of property located along Poland Corner Road, Poland, Maine, for the Mechanic Falls Water Department " dated December 12, 2018 by Kenneth F. Farrar PLS # 2021, and refer to magnetic north;

prepared by:

Kenneth F. Farrar  
Maine P.L.S. License # 2021  
P.O. Box 368  
West Paris, Maine 04289  
18034agl

December 12, 2018



**DEPARTMENT OF ENVIRONMENTAL PROTECTION  
PERMIT BY RULE NOTIFICATION FORM**

(For use with DEP Regulation, Natural Resources Protection Act- Permit by Rule Standards, Chapter 305)  
PLEASE TYPE OR PRINT IN **BLACK INK ONLY**

APPLICANT INFORMATION (Owner)				AGENT INFORMATION (If Applying on Behalf of Owner)			
Name:				Name:			
Mailing Address:				Mailing Address:			
Town:				Town:			
State and Zip Code:				State and Zip Code:			
Daytime Phone #:				Daytime Phone #:			
Email Address:				Email Address:			
PROJECT INFORMATION							
Part of a larger project? (check one):	<input type="checkbox"/> Yes <input type="checkbox"/> No	After the Fact? (check one):	<input type="checkbox"/> Yes <input type="checkbox"/> No	Project involves work below mean low water? (check one):	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name of waterbody:	
Project Town:			Project Location (Address):			Map & Lot Number:	
Brief Project Description:							
Brief Directions to Site:							

**PERMIT BY RULE (PBR) SECTIONS (Check at least one):** I am filing notice of my intent to carry out work which meets the requirements for Permit By Rule (PBR) under DEP Rules, Chapter 305. **I and my agents, if any, have read and will comply with all of the standards in the Sections checked below.**

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Sec. (2) Act. Adj. to Protected Natural Res. | <input type="checkbox"/> Sec. (10) Stream Crossing                                | <input type="checkbox"/> Sec. (17) Transfers/Permit Extension  |
| <input type="checkbox"/> Sec. (3) Intake Pipes                        | <input type="checkbox"/> Sec. (11) State Transportation Facil.                    | <input type="checkbox"/> Sec. (18) Maintenance Dredging  |
| <input type="checkbox"/> Sec. (4) Replacement of Structures           | <input type="checkbox"/> Sec. (12) Restoration of Natural Areas                   | <input type="checkbox"/> Sec. (19) Activities in/on/over significant vernal pool habitat   |
| <input type="checkbox"/> Sec. (5) REPEALED                            | <input type="checkbox"/> Sec. (13) F&W Creation/Enhance/Water Quality Improvement | <input type="checkbox"/> Sec. (20) Activities located in/on/over high or moderate value inland waterfowl & wading bird habitat or shorebird feeding & roosting areas |
| <input type="checkbox"/> Sec. (6) Movement of Rocks or Vegetation     | <input type="checkbox"/> Sec. (14) REPEALED                                       |  |
| <input type="checkbox"/> Sec. (7) Outfall Pipes                       | <input type="checkbox"/> Sec. (15) Public Boat Ramps                              |  |
| <input type="checkbox"/> Sec. (8) Shoreline stabilization             | <input type="checkbox"/> Sec. (16) Coastal Sand Dune Projects                     |  |
| <input type="checkbox"/> Sec. (9) Utility Crossing                    |   |  |

**NOTE: Municipal permits may also be required. Contact your local code enforcement office for more information. Federal permits may be required for stream crossings and for projects involving wetland fill. Contact the Army Corps of Engineers at the Maine Project Office for more information.**

**NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS**

- ☐ **Attach** all required submissions for the PBR Section(s) checked above. The required submissions for each PBR Section are outlined in Chapter 305 and may differ depending on the Section you are submitting under.
- ☐ **Attach** a check for the correct fee made payable to: "Treasurer, State of Maine". The current fee for NRPA PBR Notifications can be found at the Department's website: <http://www.maine.gov/dep/feesched.pdf>
- ☐ **Attach** a location map that clearly identifies the site (U.S.G.S. topo map, Maine Atlas & Gazetteer, or similar).
- ☐ **Attach Proof of Legal Name** if applicant is a corporation, LLC, or other legal entity. Provide a copy of Secretary of State's registration information (available at <http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x>) Individuals and municipalities are not required to provide any proof of identity.

I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules.

I also understand that this PBR becomes effective 14 calendar days after receipt by the Department *unless the Department approves or denies the PBR prior to that date.*

**By signing this Notification Form, I represent that the project meets all applicability requirements and standards in the rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.**

Signature of Agent or Applicant:		Date:	
----------------------------------	--	-------	--

**Keep a copy as a record of permit.** Send the form with attachments via certified mail or hand deliver to the Maine Dept. of Environmental Protection at the appropriate regional office listed below. The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. Permits are valid for two years. **Work carried out in violation of any standard is subject to enforcement action.**

AUGUSTA DEP  
17 STATE HOUSE STATION  
AUGUSTA, ME 04333-0017  
(207)287-7688

PORTLAND DEP  
312 CANCO ROAD  
PORTLAND, ME 04103  
(207)822-6300

BANGOR DEP  
106 HOGAN ROAD  
BANGOR, ME 04401  
(207)941-4570

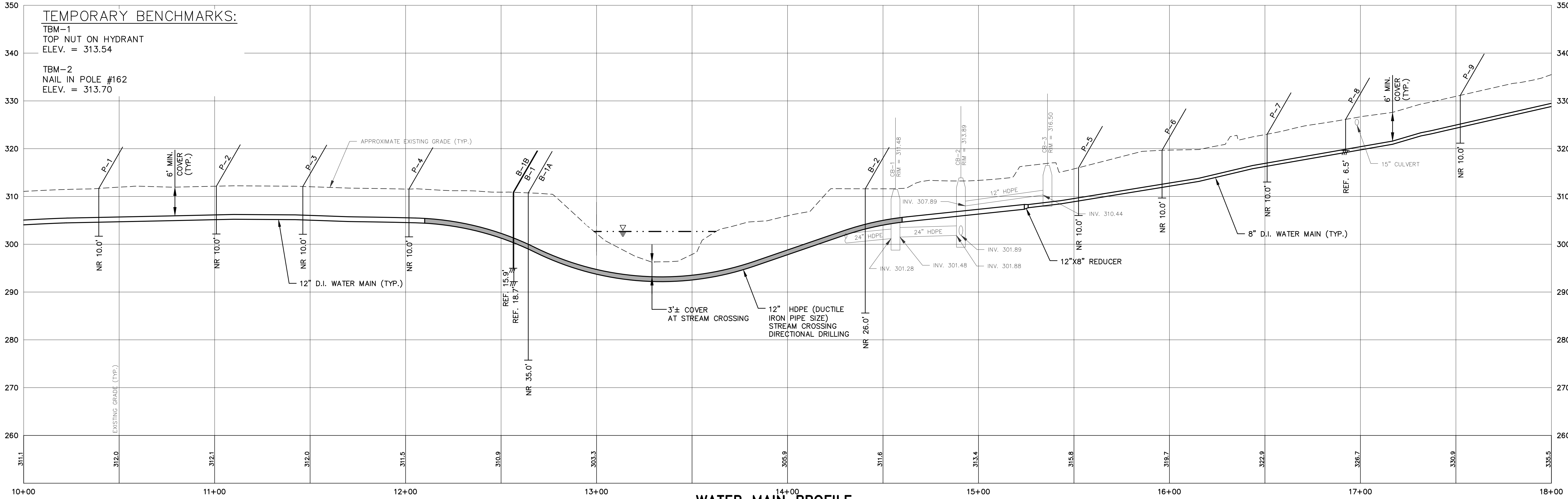
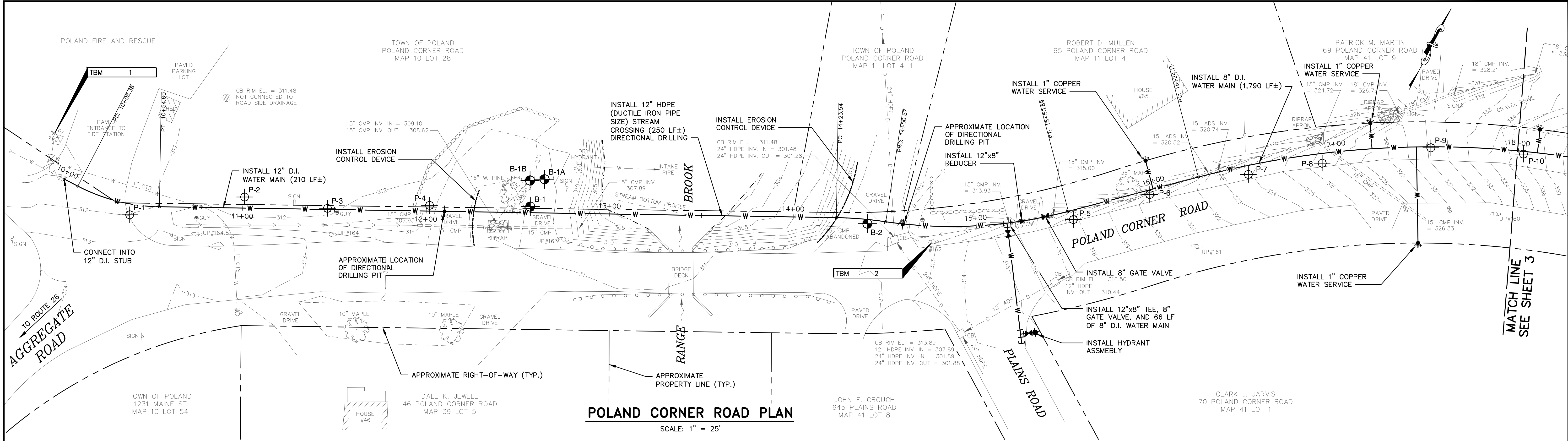
PRESQUE ISLE DEP  
1235 CENTRAL DRIVE  
PRESQUE ISLE, ME 04769  
(207)764-0477

OFFICE USE ONLY	Ck.#	Date	Staff	Staff	After Photos
PBR #	FP		Acc. Date	Def. Date	



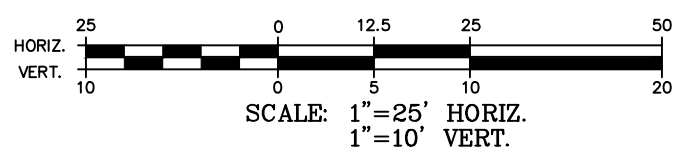




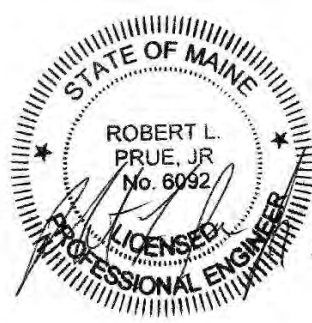


WATER MAIN PROFILE

SCALE: 1" = 25' HORIZ., 1" = 10' VERT.



REV	DATE	STATUS	BY	CHKD	APPD
1	1/29/2019	ISSUED FOR PLANNING BOARD REVIEW	DB	RLP	RLP



DESIGNED BY:	RLP
DRAWN BY:	DB
CHECKED BY:	RLP
APPROVED BY:	RLP
DATE:	1/29/2019

**Pine Tree Engineering**

Civil/Environmental Engineering • Surveying

53 Front Street  
Bath, Maine 04530  
Tel: (207) 443-1508  
Fax: (207) 442-7029

CLIENT

TOWN OF MECHANIC FALLS  
108 LEWISTON ROAD  
MECHANIC FALLS, MAINE 04253

PROJECT

POLAND CORNER ROAD  
WATER MAIN EXTENSION

TITLE

PLAN AND PROFILE  
STA. 10+00 TO STA. 18+00

SCALE

AS SHOWN

PROJECT NO.

18001

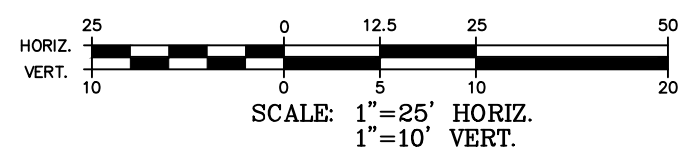
DRAWING NO.

18001 site.dwg

SHT.

2 of 5

REV. 0



# Pine Tree Engineering

53 Front Street  
Bath, Maine 04530  
Tel: (207) 443-1508  
Fax: (207) 442-7029

TOWN OF MECHANIC FALLS  
108 LEWISTON ROAD  
MECHANIC FALLS, MAINE 04253

SCALE		AS SHOWN
PROJECT NO.		18001
DRAWING NO.		18001 site.dwg
SHT.	3 of 5	REV. 0

C:\Users\alana\Dropbox\DCS-Projects\Pine Tree Engineering\Poland\dwg\18001 site.dwg

01/29/19 3:03pm

MICHAEL D. TIBBETTS  
POLAND CORNER ROAD  
MAP 11 LOT 5B

### TEMPORARY BENCHMARKS:

TBM-4  
NAIL IN POLE #153  
ELEV. = 485.58

MATCH LINE  
SEE SHEET 3

INSTALL 8" D.I.  
WATER MAIN (1,790 LF±)

INSTALL 1" COPPER  
WATER SERVICE

INSTALL HYDRANT  
ASSEMBLY

DETENTION CB RIM EL. = 472.51  
15" HDPE INV. OUT = 467.91

PVC VENT PIPE  
SUBSURFACE WASTEWATER  
DISPOSAL FIELD  
PVC VENT PIPE

MOBILE HOME  
AFFORDABLE HOMES, INC.  
POLAND CORNER ROAD  
MAP 11 LOT 5

INSTALL 33,000 GALLON  
WATER STORAGE TANK  
(19.58' DIAMETER x 20' HEIGHT)

PROPERTY  
PINS TO BE  
SET (TYP.)

AFFORDABLE HOMES, INC.  
POLAND CORNER ROAD  
MAP 11 LOT 5

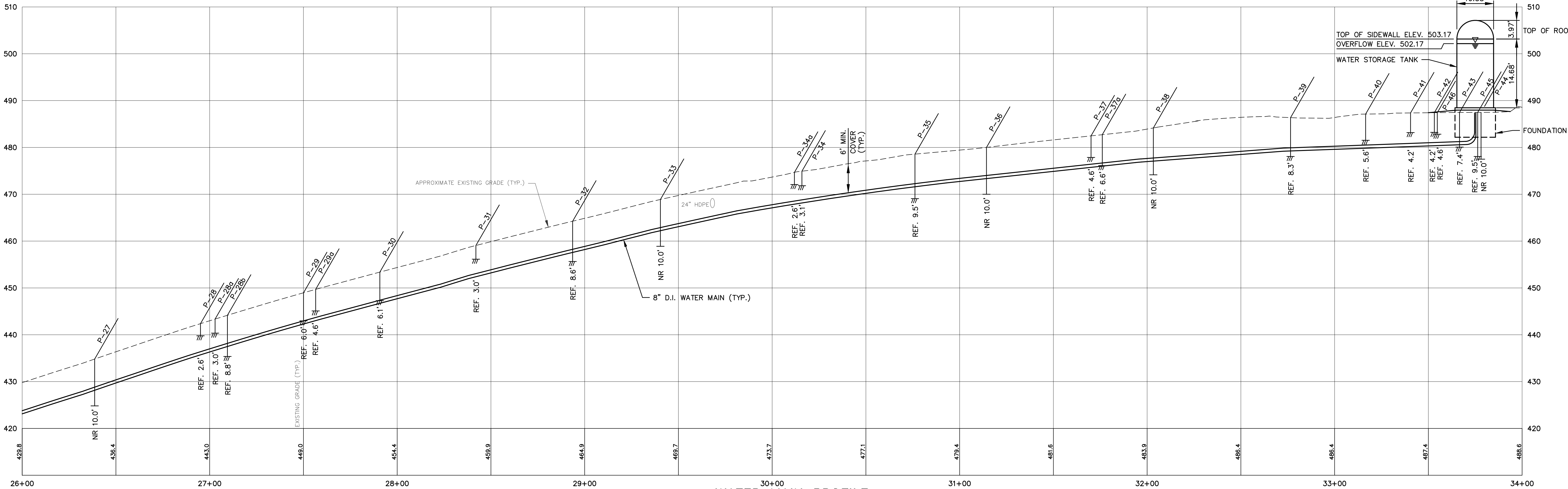
CURRENT BOUNDARY  
LINES  
BETWEEN FLYNT &  
AFFORDABLE HOMES

JOHN B. FLYNT  
7 FLYNT DRIVE  
MAP 11 LOT 6B

INSTALL DRAINAGE  
SWALES AROUND  
STORAGE TANK AND  
ALONG GRAVEL DRIVE

### POLAND CORNER ROAD PLAN

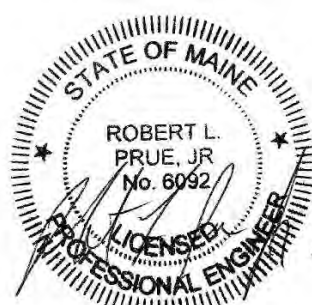
SCALE: 1" = 25'



### WATER MAIN PROFILE

SCALE: 1" = 25' HORIZ., 1" = 10' VERT.

HORIZ. SCALE: 1"=25'  
VERT. SCALE: 1"=10'



DESIGNED BY: RLP  
DRAWN BY: DB  
CHECKED BY: RLP  
APPROVED BY: RLP  
DATE: 1/29/2019

**Pine Tree  
Engineering**

Civil/Environmental Engineering • Surveying

53 Front Street  
Bath, Maine 04530  
Tel: (207) 443-1508  
Fax: (207) 442-7029

CLIENT

TOWN OF MECHANIC FALLS  
108 LEWISTON ROAD  
MECHANIC FALLS, MAINE 04253

PROJECT

POLAND CORNER ROAD  
WATER MAIN EXTENSION

TITLE

PLAN AND PROFILE  
STA. 26+00 TO STA. 33+75

SCALE

AS SHOWN

PROJECT NO.

18001

DRAWING NO.

18001 site.dwg

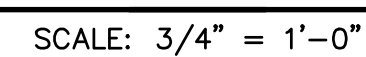
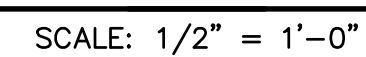
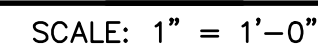
SHT.

4 of 5

REV.

0









February 1, 2019

Mr. Scott Neal  
Town of Poland  
1231 Maine Street  
Poland, Maine 04274

Re: Application for Site Plan Review  
MB Bark, LLC  
100 Bark Mulch Drive, Auburn, Maine  
St.Germain Collins File No.: 2265-0002

Dear Mr. Neal:

MB Bark, LLC (MB Bark) is proposing to develop additional material handling areas at its facility in Poland, Maine with a street address of 100 Bark Mulch Drive, Auburn, Maine. The development will include the expansion of one gravel pad area and the construction of two additional gravel pads and two internal access drives connecting the new gravel pads. These pads will be used for the processing and storage of recyclable materials as allowed under the applicant's solid waste processing license from the Maine Department of Environmental Protection (MEDEP). No buildings are proposed in this application.

MB Bark has received approval from the MEDEP for the new handling areas, and to accept and recycle asphalt (roofing) shingles in accordance with its solid waste processing license.

Enclosed please find 10 copies of the completed application form and supporting documents. Checks are enclosed for the review and notification fees (\$162) and review escrow (\$1,000).

If you should have any questions, please feel free to call me at (207) 591-7000 ext. 41 or email me at [peterm@stgermaincollins.com](mailto:peterm@stgermaincollins.com).

Sincerely,  
ST.GERMAIN COLLINS

A handwritten signature in black ink that reads "Peter Mohlin". The signature is written in a cursive, flowing style.

Peter Mohlin  
Project Manager

enclosure

cc: Jim Hiltner, MB Bark, LLC  
Bill Crawford, MB Bark, LLC



**APPLICATION FOR SITE PLAN REVIEW  
TOWN OF POLAND PLANNING BOARD**

**MB Bark, LLC  
100 Bark Mulch Drive  
Auburn, Maine**

**Submitted on behalf of:**

**MB Bark, LLC  
100 Bark Mulch Drive  
Auburn, Maine 04210**

**Prepared by:**

**St. Germain Collins  
846 Main Street  
Westbrook, Maine 04092**

**January 2019**

**St. Germain Collins File No.: 2265-0002**



# Town of Poland, Maine Planning Board

## Formal Site Plan Review

### Instructions:

1. Read every part of this document. Failure to follow requirements can and will delay the Planning Board's decisions.
2. Fill out the forms on pages 1 through 6. Obtain or get copies of information as required by the application on these pages.
3. Use the "Submission Checklist" on pages 5 and 6 to make sure submission requirements are met.
  - a. The checklist is a summary of the standard requirements in Section 509.8 of the Comprehensive Land Use Code.
    - i. The actual Code wording may be found on-line at [www.polandtownoffice.org](http://www.polandtownoffice.org). Go to the "Code Enforcement" page, select "Comprehensive Land Use Code" at that bottom of the page. Hardcopies are available for purchase at the town office.
  - b. Make sure all waiver requests have a written statement for each request. Check with the Code Enforcement Office to make sure items stated as "On File" are indeed in the town office.
  - c. Some requirements may need only a one paragraph or one sentence statement. Make sure all requests are answered.
4. **NUMBER OF COPIES OF THE APPLICATION AND DUE DATE**
  - a. A total of at least ten (10) copies of the plans and one PDF copy (on either cd or usb) are needed. Be sure to make a copy for yourself.
  - b. The Code Enforcement Office must receive the original application, an additional 9 copies, and a digital PDF copy (either cd or usb) with appropriate fees by 1:00 p.m. eleven (11) days before the stated meeting to be put on the upcoming agenda.
  - c. If review for missing information by the Code Enforcement Officer is desired, a copy must be submitted to the CEO at least 14 days prior to the meeting.
  - d. The application must be on file for public review for at least 10 days prior to the meeting. Applications received after the Agenda is posted may not be reviewed by the Board for your scheduled meeting date.
5. Check with this office to make sure that all departments have responded to your application prior to the meeting.

**PROJECT NAME:** \_\_\_\_\_  
Date of Planning Board Review: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Application # \_\_\_\_\_

### LOT INFORMATION:

Tax Assessor's Map # \_\_\_\_\_ Lot # \_\_\_\_\_ Sub lot # \_\_\_\_\_  
Watershed: \_\_\_\_\_

Property's Road Location: \_\_\_\_\_

Lot Size: \_\_\_\_\_ Acres or Sq. Ft. Road Frontage: \_\_\_\_\_ Ft.

Year lot created: \_\_\_\_\_ (If unknown, give best estimate with "est." after date)

Zoning District(s): \_\_\_\_\_ Flood Zone: \_\_\_\_\_ Aquifer Overlay: \_\_\_\_\_

Current use of lot: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### LAND OWNER(s):

Name(s) \_\_\_\_\_

Company \_\_\_\_\_

Mail Address: \_\_\_\_\_ Main Phone: \_\_\_\_\_

\_\_\_\_\_

Town/State/Zip \_\_\_\_\_ Alternate Phone: \_\_\_\_\_

**APPLICANT or CONTACT PERSON:**

Applicant is: \_\_\_\_\_ Landowner \_\_\_\_\_ Contractor \_\_\_\_\_ Renter \_\_\_\_\_ Buyer

If landowner, write "Same" below and continue to next block below. If not the landowner, submit a letter of permission to construct on or use the land, or copy of a contract to buy from the landowner, along with the following information:

Name(s): \_\_\_\_\_

Company \_\_\_\_\_

Mail Address: \_\_\_\_\_ Main Phone: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Town/State/Zip \_\_\_\_\_ Alternate Phone: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

**THIS APPLICATION IS FOR:**

(Check all that apply)

- |  |  |
|--|--|
| <input type="checkbox"/> Commercial    | <input type="checkbox"/> New Development           |
| <input type="checkbox"/> Industrial    | <input type="checkbox"/> Change In Use             |
| <input type="checkbox"/> Institutional | <input type="checkbox"/> Expansion of Use          |
| <input type="checkbox"/> Governmental  | <input type="checkbox"/> Expansion of Structure(s) |
| <input type="checkbox"/> Open Space    | <input type="checkbox"/> Resumption of Use         |

**EXISTING LOT CONDITIONS:**

(This page is to describe what is on your lot currently)

1. **General**Does this lot have any development? (If No, go to "Proposed Development") \_\_\_\_\_ Yes  
\_\_\_\_\_ Noa. Is there an existing Well \_\_\_\_\_ Yes  
\_\_\_\_\_ Nob. Is there an existing Septic System \_\_\_\_\_ Yes  
\_\_\_\_\_ No

i) If yes, submit a copy of a septic permit, or drawing(s) showing size &amp; location.

c. Is there an existing Road Entry \_\_\_\_\_ Yes  
\_\_\_\_\_ Noi) If yes, will there be any changes/modifications? \_\_\_\_\_ Yes  
\_\_\_\_\_ No

ii) (If no, submit copy of appropriate road entry application if entrance is onto a state or town road.)

d. Any structures to be removed \_\_\_\_\_ Yes  
\_\_\_\_\_ No

i) If yes, submit information about the structure to be removed and how any debris will be disposed of.

2. **Existing Land Development & Improvements NOT Including Buildings**a. Size of lawns \_\_\_\_\_ 0 \_\_\_\_\_ Sq. Ft.  
or Acresb. Size of fields (landscaped areas + stormwater mgmt. water surface) \_\_\_\_\_ Sq. Ft.  
or Acres

c. Size of driveways/roads (gravel, concrete, pavement) \_\_\_\_\_ Sq. Ft.

d. Size of other non-vegetated areas \_\_\_\_\_ Sq. Ft.

e. Wetlands already filled \_\_\_\_\_ Sq. Ft.

3. **Existing Main Structure** (Bark Mulch Production Bldg.)

a. Ground Footprint \_\_\_\_\_ Sq. Ft.

b. Total Gross Floor Space (exterior dimensions of all floors) \_\_\_\_\_ Sq. Ft.

c. Road Frontage Setback \_\_\_\_\_ Ft.

- d. Side Setback \_\_\_\_\_ Ft.
- e. Rear Setback \_\_\_\_\_ Ft.
- f. Distance to Great Pond \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.
- g. Distance to Stream \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.
- h. Distance to Wetlands \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.
4. **Foundation Type** \_\_\_\_\_ Full Basement \_\_\_\_\_ Frost Walls \_\_\_\_\_ Slab \_\_\_\_\_ Piers
5. **Existing Accessory Structure(s)** (E-Waste Bldg., Maintenance Bldg. Compost Bldgs., Main Office Building, Gatehouse)
- a. Total Number of Structures \_\_\_\_\_
- b. Total Ground Footprint \_\_\_\_\_ Sq. Ft.
- c. Total Floor Space \_\_\_\_\_ Sq. Ft.
- d. Closest Road Setback \_\_\_\_\_ Ft.
- e. Closest Side Setback \_\_\_\_\_ Ft.
- f. Closest Rear Setback \_\_\_\_\_ Ft.
- g. Distance to Great Pond \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.
- h. Distance to Streams \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.
- i. Distance to Wetlands \_\_\_\_\_ Not applicable (over 250') \_\_\_\_\_ Ft.
6. **Total Existing Impervious Surfaces** \_\_\_\_\_ 2,409,303.6 Sq. Ft.
- a.  $Add\ 2c + 2d + 3a + 5b$

**PROPOSED DEVELOPMENT:**

1. Wetlands to be impacted \_\_\_\_\_ Sq. Ft.
2. New footprint(s) and developed area(s): \_\_\_\_\_
- a. Changes in building footprint(s) \_\_\_\_\_ Sq. Ft.
- b. Changes in driveway/roadway (gravel, concrete, pavement) \_\_\_\_\_ Sq. Ft.
- c. Changes in patios, walkways, etc. \_\_\_\_\_ Sq. Ft.
- d. TOTAL ( $2a+2b+2c$ ) \_\_\_\_\_ Sq. Ft.
3. Percentage of lot covered by impervious surfaces: \_\_\_\_\_ %
- a.  $(Equals\ [areas\ on\ line\ 6\ page\ 2 + line\ 2d\ above] / [Total\ lot\ area\ measured\ in\ sq.\ ft.] * 100\%)$

**SUBMISSIONS:**

1. **Attach drawings and/or statements describing the following items, if applicable:**
- a. Provide a copy of deed and Tax Assessor's information card.
- b. Provide a map of the general area showing land features within at least ½ mile of this lot.
- c. Provide site plan(s) of your lot with existing development and its dimensions shown.
- d. Provide site plan(s) of your lot with proposed development and its dimensions shown.
- i. *(May be combined on existing development drawing.)*
- e. Provide detailed plans of proposed structural development and changes.
- f. Provide statements or drawings of methods of infrastructure:
- i. Water supply
- ii. Sewage disposal
- iii. Fire protection
- iv. Electricity
- v. Solid waste disposal
- g. Type, size, and location of signs.
- h. Number of parking spaces.
- i. Provide phosphorus loading calculation if in a great pond watershed area.
- j. Anticipated date for start of construction.
- k. Anticipated date for completion of construction.
- l. Standard submissions requirements shall follow Section 509.8 of the Comprehensive Land Use Code. Copies of the Code are available for viewing at the Town Office and Library. Copies are available for purchase (\$25.00) in the Code Enforcement Office.
- i. *(Use checklist starting on page 6 for summary of usual requirements.)*
- m. Other requirements unique to your project added by the Planning Board.



2. **List all state and federal approvals, permits, and licenses required, if any, for the project:**

This includes but is not limited to the following:

1. State highway entrance permit.
2. Soil disturbances involving more than one acre.
3. Impact on more than 4,300 square feet of any type wetland.
4. Soil disturbances within 100 feet of lakes, rivers or streams.
5. Activity within 75 feet, over the water, or in the water of lakes, rivers, or streams.
6. Timber harvesting.
7. Flood zones.
8. Discharges and emissions

**DISCLOSURE: (READ BEFORE SIGNING)**

1. I hereby acknowledge that I have read this application and pertinent sections of the ordinances, and state that the information in this document is to the best of my knowledge true and accurate. I agree to comply with all the Town of Poland's ordinances and the State of Maine's statutes regulating the activities sought in this application as well as any permit(s) approved for this application.
2. I understand that all construction of structures shall conform to or exceed the minimum requirements of the Maine Uniform Building and Energy Code, and the NFPA-101 Life Safety Code, 2009
3. I understand that any approval is valid for only the use(s) as specified in this application. The permitting authority must approve any change(s) made to the use(s) sought in the application. Any approval issued for this application is approved on the basis of truthful information provided by the applicant(s), and as allowed by the ordinances of the town.
4. I understand that it is my responsibility to assure that the lot description herein accurately describes its ownership, its boundary lines, and the setback measurements from the legal boundary lines.
5. I understand that I have the burden of proof as to the legal right to use the property, and that approval of this application in no way relieves me of this burden. Any approval issued does not constitute a resolution in favor of me or the landowner in any matters regarding the property boundaries, ownership, or similar titles.
6. I understand that all necessary **Building and Use Permits** shall be secured from the Code Enforcement Office after the Planning Board grants approval of this application.
7. I understand that a **Certificate of Occupancy or Compliance** shall be required prior to the start of any use or occupancy associated with this application unless a signed written waiver is issued with the permit. Fines and penalties may be issued if use or occupancy is started prior to the issuance of the certificate.
8. I understand that the **approval becomes invalid** if construction or use has not commenced within twelve (12) months of the Planning Board's approval date, construction is suspended for more than six (6) months and no notice for just cause is submitted prior to the end of the six (6) months, or it is found that false statements have been furnished in this application.
9. I understand that if I fail to comply with the aforementioned statements, a "STOP WORK" order may be issued for which I will immediately halt any construction and/or use(s) that are approved for this application. This failure may also require that I return the property to its natural state or as closely thereto before the use(s) was/were approved.
10. I understand that failure to follow these requirements will lead to Violation Notices and Citations that have fines and penalties. This in turn can lead to civil proceedings in District and/or Superior Court.
11. I understand that **all state and federal permits** are my responsibility as the applicant and/or owner and will secure the same prior to the start of the project.

Applicant's Signature(s)

Date

## Submission CHECKLIST

The following list is a short summary of the information required in Chapter 509.8 of the Comprehensive Land Use Code for the Town of Poland, Maine. Please checkmark or place an "X" in the left-hand columns if the information has been provided, if you request a waiver from submitting the information, or you believe the information is not applicable to your application. If a waiver(s) is requested, or the information is not applicable, a written explanation is required. Columns on the right are for the Planning Board's use.

For Applicant Use				For Planning Board Use			
Provided	Waiver Request	Not Applicable	Section 509.8.A Submission requirements	Received	On File	Waived	Not Applicable
			1. Site Plan Drawings				
			2. Signed copy of application				
			3.a. Name & address of owner				
			Name of development				
			Name & address of abutters within 500' of lot for development				
			Map of general location				
			Show all contiguous properties				
			Names, Map, & lot #'s on drawings				
			Copy of deeds, agreements				
			Engineer/ designer of plans				
			<b>Existing Conditions (Site Plan)</b>				
			Zoning Districts on and/or abutting project's lot shown				
			Bearings & Distances shown on drawings				
			Location of utilities, culverts, drains				
			Location, name of existing r/w				
			Location, dimensions of existing structures				
			Location, dimensions of existing roads, walks, parking, loading, etc.				
			Location of intersection within 200'				
			Location of open drains, wetlands, wildlife areas, historic sites, etc.				
			Direction of surface drainage				
			100-yr. Floodplain				
			Signs				
			Easement, covenants, restrictions				
			<b>Proposed Development (Site Plan)</b>				
			Location & dimensions of all new structures. New development delineated from existing development				
			Setback dimensions shown & met				
			Exterior lighting (Will meet full cutoff requirements)				
			Incineration devices				
			Noise of machinery and operations				
			Type of odors generated				
			Septic system and other soils reports				
			Water supply				
			Raw & finished materials stored outside				
			Contours shown at PB specified intervals				
			Curbs, sidewalks, drives, fences, retaining walls, parking, etc.				
			Landscaping plan				
			Easements, r/w, legal restrictions				
			Abutters' property lines, names				
			<b>TRAFFIC DATA</b>				

For Applicant Use				For Planning Board Use			
Provided	Waiver Request	Not Applicable	Section 509.8.A Submission requirements	Received	On File	Waived	Not Applicable
			Peak hour traffic				
			Traffic counts				
			Traffic accident data				
			Road capacities				
			Traffic signs, signals				
			<b>STORMWATER &amp; EROSION</b>				
			Method for handling stormwater shown				
			Flow direction				
			Catch basins, dry wells, ditches, etc.				
			Engineering Analysis of stormwater				
			Erosion control measures				
			Hydrologist groundwater impact				
			Utility plans for all utilities				
			Cross-section profile of roads, walks				
			Construction drawings of roads, utilities				
			Cost analysis of project and financial capability demonstrated				
			Phosphorus control plan if in watershed of a great pond				
			Submission of waiver requests				
			Copies of state, federal applications, permits, &/or licenses required for this project.				
			Condition A.				
			Condition B.				
			Condition C.				
			Condition D.				
			Condition E.				

This application was first looked at by the Planning Board on \_\_\_ / \_\_\_ / \_\_\_ but does not create vested rights in the initiation of the review process.

By vote of the Board this application requires an on-site inspection: \_\_\_\_\_ Yes \_\_\_\_\_ No

If yes, an onsite inspection is scheduled for \_\_\_ / \_\_\_ / \_\_\_ at \_\_\_ : \_\_\_ \_\_\_ AM \_\_\_ PM

By vote of the Board this application requires a public hearing: \_\_\_\_\_ Yes \_\_\_\_\_ No

If yes, public hearing is scheduled for \_\_\_ / \_\_\_ / \_\_\_ at \_\_\_ : \_\_\_ \_\_\_ AM \_\_\_ PM

**Conditions of Approval for Formal Site Review:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Planning Board Chair

\_\_\_ / \_\_\_ / \_\_\_  
Date

**Site Review and Shoreland Zoning Review Fees:**

<u>Type of fee</u>	<u>Fee</u>	<u>Units or Comments</u>
Application – sketch plans, Rough design	\$75.00	Each application (no other fees)
Application – formal <sup>3</sup>	\$150.00	Each application + fees below
Approval extension, Planning Board Approval only	\$50.00	One extension only (no other fees)
Escrow <sup>4</sup> , minimum amount	\$700.00	When required by Planning Board
Extension of approval	\$100.00	Before approval expires
Auto graveyards, recycle business	\$5.00	Per vehicle storage slot (parking space)
Junkyard, Storage Lots	\$1.50	Per ft <sup>2</sup> of outside storage
Residential Towers	\$20.00 + \$5.00 per \$1,000.00	Based on Cost of Work
Commercial Towers	\$20.00 + \$10.00 per \$1,000.00	Based on Cost of Work
Notifications	\$.75	Each Notification, First Class Mail sent by Town

1. Building and Structures may include up to five times the footprint area of the building for grounds improvements, exclusive of the building footprint, as part of the building review fee.

2. Building and Grounds Improvement Fees. The sum of these two fees may be limited to \$2,500.00 per application at the discretion of the Planning Board. (Junkyards, auto graveyards, recycling business, and towers excluded.

3. Reduced Fees: The Planning Board may, upon application therefore, allow a reduced total site review fees to \$50.00 in any case which it determines that the work for which the permit is sought will be performed within the Shoreland Zone. The project shall be intended solely for the purpose of protecting a Great Pond, Stream, River, or other Natural Resources through the implementation of Conservation, Best Management Practices, or other environmental safeguards. Also, the project shall not result in the enlargement of any building or structure or an intensification of the existing use of the property.

4. Review Escrow Funds may be used by the Town to pay for professional reviews an advice requested by the Planning Board or Code Enforcement Officer related to the applicant's proposed development. Review escrow funds deposited by the applicant not spent during the course of the Town's review shall be returned to the developer within sixty days after the Planning Board's decision on the application is final. If Professional review and advice fees exceed the amount deposited, the developer shall pay the amount outstanding before final approval or any permit is granted.

**Town of Poland, Maine**  
**PLANNING BOARD AGENDA REQUEST**

Date of meeting you are requesting to be scheduled for: 02 / 1 / 2019 Meetings are normally  
conducted from 7:00 to 10:00 PM in the Municipal Conference Room at the Town Office  
Map 004 Lot 015 & 017 Sub-lot 002

Applicant's Name: MB Bark, LLC

Mailing Address: 100 Bark Mulch Drive

Town, State, Zip: Auburn, Maine

Home Phone: \_\_\_\_\_

Hours: \_\_\_\_\_

Work Phone: 207-786-0600

Hours: \_\_\_\_\_

Type of application: Sketch Plan ☒ Site Review ☐ Shoreland ☐ Subdivision ☐ Informational

Road location for project: 100 Bark Mulch Drive, Auburn Maine 04210

Zoning: General Purpose III Lake Watershed: \_\_\_\_\_ Nature of  
business to be discussed (Brief description): Site Plan Review for improvements at recyclable  
product processing facility.

**IMPORTANT - READ CAREFULLY:**

This Office must receive the original application, plus nine (9) copies, a digital PDF copy (on either cd or usb), and appropriate fees by Friday at 1:00 p.m., eleven (11) days before the stated meeting to be put on the upcoming agenda.

- New business is scheduled on the agenda in the order this office receives this form.
- If you want your application reviewed for contents prior to the meeting, it must be in this office 14 days before the meeting.
- Should the Board choose to adjourn before all business is addressed, all remaining business will be tabled until the next available meeting.
- Unfinished business is conducted before new business is addressed.

Applicant's Signature: \_\_\_\_\_

Date: 02 / 01 / 2019

**OFFICE USE ONLY:**

Request Taken By: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Time: \_\_\_\_:\_\_\_\_ a.m. p.m.



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COVER LETTER

FORMAL SITE PLAN REVIEW APPLICATION FORM

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- Soils
- Odors
- Septic
- Water
- Fire
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- Outside Storage
- Landscaping
- Lighting
- Signs
- Schedule
- Parking

Attachment 2 – Title, Right, and Interest

- Deeds
- Tax Assessor's Information Cards
- Letter from Landowner
- Lease Agreement

Attachment 3 – Abutter Information

- List of Abutters
- Abutter Map

Attachment 4 – Soils

- Geotechnical Evaluation – Pad #1
- Pad #1 Construction Recommendations

Attachment 5 – Financial Capacity

- Letter from Bank of America Merrill Lynch

Attachment 6 – Traffic

- Maine Department of Transportation Traffic Counts
- Maine Department of Transportation Crash Summary

Attachment 7 – Stormwater and Erosion and Sediment Control

- Stormwater Management Plan

Attachment 8 – Plan Set

Attachment 9 – Copies of Required State and Federal Licenses and Permits

- Maine Department of Environmental Protection  
Solid Waste Processing Facility License Amendment  
#S-021741-WK-I-A (November 28, 2018)  
Beneficial Use of Solid Waste  
#S-021741-W4-J-N (November 28, 2018)
- Maine Department of Environmental Protection  
Wetland Alteration  
L-19467-TG-C-N and L-19467-L6-D-N (June 19, 2018)
- Army Corps of Engineers  
General Permit, Category 2  
NAE – 2018 – 00135 (June 19, 2018)

1

## **Project Description**

### **Introduction**

St.Germain Collins, on behalf of MB Bark, LLC (MB Bark) is submitting a Formal Site Plan Review Application to the Town of Poland for site improvements at their existing recycled products handling facility located at 100 Bark Mulch Drive in Poland and Auburn Maine. Proposed site improvements include the construction of two additional recycled products processing and storage areas (Pad 2 and Pad 3) in the undeveloped area of the property to the west, and extending the existing recycled products handling and storage area (Pad 1) to the north. Pads 2 and 3 will be used for asphalt shingle processing and handling operations currently conducted at CPRC Group LLC's (CPRC's) solid waste processing facility located in Scarborough, Maine, and the Pad 1 extension will provide additional area for MB Bark's existing material handling and storage activities. All site improvements will occur in Poland. The proposed site features are shown on plan C-3.0 – Overall Site Plan, provided in Attachment 8.

### **Noise**

Based upon knowledge of existing operations in Scarborough, noise from the asphalt shingle processing activities are not expected to exceed the ordinance limits.

As a condition of the Maine Department of Environmental Protection (MEDEP) Solid Waste Processing Facility license amendment, a qualified noise consultant will complete a noise survey at the facility before MB Bark begins operating in the new areas. The survey will include an assessment of MB Bark's non-exempt noise sources to estimate the maximum daytime and nighttime noise levels at nearby protected locations. The survey will be provided to the Town of Poland.

### **Soils**

Two geotechnical reports were prepared by Summit Geoengineering Services and are included in Attachment 4. The reports indicate that soil conditions are suitable to support the Pad 1 extension. A condition of the MEDEP Solid Waste Processing Facility license amendment requires additional subsurface investigation in the areas of the proposed road, Pad 2 and Pad 3. This will be provided to the Town of Poland.

### **Odors**

Nuisance odors from facility operations are not anticipated as none exist at the Scarborough facility and no new putrescible wastes will be handled on site.

### **Septic**

The MB Bark facility is currently served by the City of Auburn Water District and several existing septic systems (see 1997 Approved Site Plan). The proposed changes do not include any new structures or plumbing.

## **Water**

The MB Bark facility is currently served by the City of Auburn Water District. The proposed changes do not include any new water uses or connections.

## **Fire**

Fire protection at the facility is primarily provided by the City of Auburn Fire Department with its Central Station located approximately 3.5 miles away at 550 Minot Avenue. Facility fire protection equipment consists of a dry sprinkler system located in the bark mulch processing building and wet sprinkler systems located in the maintenance building and E-Waste building. There are portable fire extinguishers located in the office building, maintenance building, processing building, beside the 10,000-gallon diesel aboveground storage tank (AST), and on all mobile equipment. There are four fire hydrants including one dry hydrant, as well as two fire department connections (FDC-A, FDC-B) connected to a main water supply fed from Hardscrabble Road, located on the E-Waste building and bark mulch processing building.

Fire prevention best management practices at the facility include pile management techniques such as “first in, first out”, pile movement, rotation and limited residence time, and routine inspections for signs of heating. The facility addresses fires as either “incidental” or requiring an “emergency response”. An incidental fire or other event is one that is limited in extent due to a lack of flammable or combustible material, is not likely to expand quickly, and does not involve hazardous matter that could explode or ignite violently. All other events are considered to require an emergency response. Facility employees will use fire extinguishers on incidental fires only. Evacuation protocol will be initiated immediately if a fire requiring an emergency response is encountered.

Poland Fire Chief Tom Printup toured the MB Bark facility on January 16, 2019, reviewed the project with MB Bark personnel and determined MB Bark has made adequate provision for fire prevention and protection.

## **Electricity**

No additional electrical service or connections are proposed.

## **Solid Waste**

MB Bark will coordinate the removal of non-processable solid wastes from its facility to existing licensed solid waste processing, recycling and disposal facilities.

Ground asphalt shingles will primarily be shipped to various hot-mix facilities in Northern New England to be used in asphalt manufacturing. Ground shingles may also be shipped to the CPRC facility and blended into Crushed and Recycled (C+R), an aggregate-based product used in construction projects.



Non-processable by-pass material will be transported to the Riverside Recycling facility in Portland, Maine, then to the Juniper Ridge Landfill for disposal.

**Outside Storage**

The Pad 1 extension will include additional area for rail tie processing and storage, and finished product stockpiling. Pad 2 is designed to store ½" minus ground asphalt shingles and screen them to a ¼" minus finished product referred to as Recycled Asphalt Shingles (RAS) in the pavement industry. Pad 3 is designed to store incoming raw asphalt shingles and grind them to a ½" minus product. Inert material (asphalt, brick and concrete) will also be stored on a portion of Pad 3. Per the facility's Operations Manual, no waste will remain onsite longer than 2 years.

**Landscaping**

There is no landscaping planned or required for this project. Buffers will be left with natural existing vegetation.

**Lighting**

No additional facility lighting is proposed.

**Signs**

No additional signs that are visible from offsite are proposed. Signs will be added interior to the site to direct traffic and designate areas for Pads 2 and 3.

**Schedule**

Construction will begin in the spring of 2019 and is expected to be complete within 18 months.

**Parking**

No additional parking spaces are proposed.

2

DEED

No. 224, LLC, a Maine limited liability Company with a place of business in Auburn, Maine, (hereinafter referred to as the "Grantor"), being a debtor under Chapter 11 of the U.S. Bankruptcy Code, for consideration paid, grants to **MB Investment Properties, LLC** a Maine limited liability company with a place of business in Scarborough, Maine (hereinafter sometimes referred to as "Grantee") the real property, together with any improvements thereon, situated in the Towns of Auburn and Poland, Androscoggin County, Maine, more particularly described on Exhibit A attached hereto and made a part hereof.

This Deed is given pursuant to the United States Bankruptcy Code, 11 U.S.C. Sections 105, 363 and 364 and pursuant to Final Order (1) Authorizing Sale of Certain of the Debtors' Assets to JWA Holdings Corp., or its Designee, Free and Clear of All Interests, Pursuant to 11 U.S.C. Sec 363; (2) Approving Procedures for the Assumption and Assignment of Executory Contracts; and (3) Granting Other Relief in Aid of Consummation of Sale, a true copy of which has been recorded in the Androscoggin County Registry of Deeds in Book 6658, Page 1.

The real estate conveyed by this deed is hereinafter sometimes referred to as the "Premises", the "Property" or the "premises herein conveyed".


The Premises are conveyed TOGETHER WITH all rights, easements, leases, licenses, permits, privileges and appurtenances belonging thereto including those described in Exhibit A attached hereto.

All easements and rights herein granted or excepted and reserved are intended to be permanent appurtenant easements benefiting the lands so designated for the benefit of the Grantee or the Grantor as the case may be and their respective, heirs, successors and assigns.

IN WITNESS WHEREOF, the Grantor has caused this instrument to be signed and sealed this 17<sup>th</sup> day of February, 2006, by and through Randall E. Male as authorized by the Order.

GRANTOR

NO. 224, LLC



By: Randall E. Male, authorized agent

*FINANCIAL CONSULTANT*

State of Maine  
County of Cumberland, ss.

February 17, 2006

PERSONALLY APPEARED the above-named Randall E. Male, in his capacity as aforesaid on behalf of Debtor No. 224, LLC pursuant to the Order under Chapter 11 of the U.S. Bankruptcy Code, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said No. 224, LLC.

Before me,

  
Notary Public

Print Name:

Commission Expires:

SEAL

KATHLEEN L. GRIFFITH  
Notary Public, Maine  
My Commission Expires November 26, 2006

## Exhibit A

Revised 2/17/06

A certain lot or parcel of land with the buildings and improvements located thereon situated on the southwesterly side of West Hardscrabble Road in the City of Auburn and the Town of Poland, County of Androscoggin, State of Maine bounded and described as follows:

Beginning at a point on the southwesterly sideline of West Hardscrabble Road in the City of Auburn at the easterly corner of land now or formerly of Dancing Bear Realty Trust as recorded in the Androscoggin Registry of Deeds in Book 4709, Page 43 said point also being S 37°-21'-38" E along West Hardscrabble Road a distance of six hundred twenty-seven and 07/100 (627.07) feet from a 3 inch pipe found on the Auburn and Poland Town Line. Thence by the following courses and distances:

- 1) S 37°-21'-38" E along West Hardscrabble Road a distance of one hundred fifty and 43/100 (150.43) feet to an iron pin set (5/8" rebar) at land now or formerly of George H. & Kathryn H. Field as recorded in the said Registry in Book 799, Page 21 and Book 2479, Page 242.
- 2) S 56°-58'-54" W along land of said Field a distance of five hundred fifty-five and 76/100 (555.76) feet to an old axle in concrete found.
- 3) S 34°-46'-10" W along land of said Field a distance of one thousand seven hundred seventeen and 28/100 (1717.28) feet to an iron pipe found (1" pipe) at other land now or formerly of George H. & Kathryn H. Field as recorded in the said Registry in Book 2533, Page 79.
- 4) S 83°-49'-50" W along land of said Field a distance of six hundred eighty-one and 60/100 (681.60) feet to an iron pin set (5/8" rebar) on the said Auburn and Poland Town Line.
- 5) S 34°-35'-19" W along land of said Field and said Town Line a distance of one hundred nineteen and 81/100 (119.81) feet to an iron pin set (5/8" rebar) at land now or formerly of Port of Auburn, LLC as recorded in the said Registry in Book 6421, Page 120.
- 6) S 83°-49'-50" W along land of said LLC a distance of one thousand one hundred fifty-five and 95/100 (1155.95) feet to an iron pin set (5/8" rebar).
- 7) S 36°-20'-14" W along land of said LLC a distance of nine hundred eighty-three and 07/100 (983.07) feet to an iron pin found (5/8" rebar) at land now or formerly of St. Lawrence & Atlantic Railroad.
- 8) N 39°-26'-40" W along said Railroad a distance of nine hundred ninety-five and 12/100 (995.12) feet to an iron pin set at land now or formerly of Dancing Bear Realty Trust.
- 9) N 83° 49' 50" E along said land of Dancing Bear Realty Trust a distance of one hundred ninety-four and 73/100 (194.73) feet to an iron pin set;
- 10) N 34° 23' 17" E along said land of Dancing Bear Realty Trust a distance of one thousand seventy-two and 31/100 (1072.31) feet to an iron pin set at land now or formerly of William T. & Karin Turner as recorded in said Registry of Deeds in Book 1037, Page 367;



11) N 34°-23'-17" E along land of said Turner and partly along an old wire fence a distance of two thousand one hundred sixty-one and 60/100 (2161.60) feet to an iron pin set (5/8" rebar) at land now or formerly of Albert R. Tibbetts Jr. and Gay E. & Garey J. Hodgkins as recorded in the said Registry in Book 4227, Page 345.

12) N 82°-34'-54" E along land of said Tibbetts and Hodgkins a distance of nine hundred sixteen and 97/100 (916.97) feet to an iron pin set (5/8" rebar).

13) N 33°-49'-45" E along land of said Tibbetts and Hodgkins a distance of eight hundred sixty-eight and 16/100 (868.16) feet to an iron pin set (5/8" rebar) on the southwesterly sideline of West Hardscrabble Road.

14) S 37°-21'-38" E along West Hardscrabble Road a distance of two hundred eleven and 28/100 (211.28) feet to an iron pin set (5/8" rebar) at land now or formerly of the Town of Poland as recorded in the said Registry in Book 2680, Page 86.

15) S 33°-49'-45" W along land of said Town land now or formerly of Richard R. Lowell as recorded in the said Registry in Book 4547, Page 304 and land now or formerly of Alvin S. Jr. & Beverly Webster as recorded in the said Registry in Book 5832, Page 230 a distance of eight hundred and 03/100 (800.03) feet to an iron pin set (5/8" rebar).

16) S 41°-07'-04" E along land of said Webster a distance of eight hundred sixty-seven and 61/100 (867.61) feet to an iron pin set (5/8" rebar) at land of said Dancing Bear Realty Trust.

17) S 34°-27'-12" W along land of said Trust a distance of one hundred sixty-eight and 36/100 (168.36) feet to the centerline of Davis Brook.

18) Southeasterly along the centerline of Davis Brook and land of said Trust a distance of four hundred fifty-four (454) feet more or less to a point that is S 56°-58'-54" W a distance of seven hundred sixty-one and 17/100 (761.17) feet from the point of beginning.

19) N 56°-58'-54" E along land of said Trust a distance of seven hundred sixty-one and 17/100 (761.17) feet to the point of beginning

Reference is made to Plan of Property Hardscrabble Road, Auburn & Poland, Maine Made for MB Bark, LLC dated February 10, 2006 prepared by Cullenberg Land Surveying.

Also conveying rights for a driveway as reserved in deed from Granville L. Sawyer to J.F. Hammond dated April 19, 1920 and recorded in said Registry of Deeds in Book 295, Page 398.

ANDROSCOGGIN COUNTY  
*Tina R. Chaurand*  
REGISTER OF DEEDS



# Town of Poland, Maine

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**Map/Lot** 0004-0017  
**Book** 6674  
**Page** 64  
**Account** 267  
**Location** OFF HARDSCRABBLE RD.  
**Owner** MB INVESTMENT PROPERTIES, LLC  
100 BARK MULCH DR.  
AUBURN ME 04210

**Assessment**

<b>Land</b>	47,760
<b>Building</b>	0
<b>Taxable</b>	47,760

**Property Information**

<b>Type</b>	Residential
<b>Acreage</b>	31.84
<b>Zone</b>	Residential
<b>Neighborhood</b>	Table 3

**Land**

<b>Description</b>	<b>Type</b>	<b>Units</b>	<b>Value</b>
Rear Land 2	Acres	31.84	47,760
		31.84	47,760

**Tax Detail**

<b>Year</b>	<b>Original</b>	<b>Remaining</b>
2017	687.27	0.00



# Town of Poland, Maine

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**Map/Lot** 0004-0015-0002  
**Book** 6674  
**Page** 60  
**Account** 3332  
**Location** 100 BARK MULCH DR.  
**Owner** MB INVESTMENT PROPERTIES, LLC  
100 BARK MULCH DR.  
AUBURN ME 04210

#### Assessment

<b>Land</b>	896,050
<b>Building</b>	918,680
<b>Taxable</b>	1,814,730





### Property Information

<b>Type</b>	Residential
<b>Acreage</b>	119.20
<b>Zone</b>	Commercial
<b>Neighborhood</b>	Industrial

### Land

Description	Type	Units	Value
Baselot (Fract)	Fractional Acreage	1.84	200,000
Rear Land 2	Acres	45.00	67,500
Rear Land 3	Acres	54.20	40,650
Site Improvement 4	Improvements	1.00	55,000
Rear Land 1	Acres	3.16	7,900
Developed Rear	Acres	15.00	525,000
		119.20	896,050

### Building

<b>Area</b>	9999
<b>Area</b>	9999
<b>Area</b>	48100

### Tax Detail

Year	Original	Remaining
2016	25,769.17	0.00

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## MB Investments, LLC

January 14, 2019

MB Bark  
100 Bark Mulch Drive  
Auburn, Maine 04210

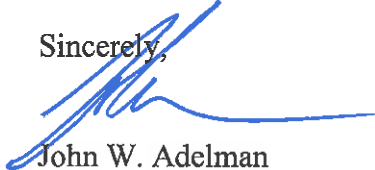
RE: Formal Notice for Approval to use and construct on MB Investment Property

Dear Sirs:

This letter will serve as the Formal Notice to allow MB Bark to use and make any necessary improvements on the property currently owned by MB Investments for its purposes.

Should MB Bark require any other approvals or permissions for its future plans associated with the use of MB Investment's land, please contact me.

Sincerely,



John W. Adelman  
Sole Manager, MB Investments, LLC

## LEASE

THIS LEASE, made and entered into effective the First day of August 1, 2007, by and between **MB Investments, LLC**, a Maine limited liability company (hereinafter referred to as "Landlord"), and **MB Bark, LLC**, a Maine limited liability company with a place of business in Brunswick Maine, (hereinafter referred to as "Tenant").

1. Premises. Landlord leases to Tenant, in consideration of the rent to be paid by Tenant and subject to the terms and conditions set forth herein, as more particularly described in **Exhibit A** attached hereto (the "Premises").

2. Commencement and Term. The term of this Lease (the "Lease Term") shall commence on the date hereof (the "Commencement Date"), and shall terminate twenty (20) years from the commencement date on July 31, 2027 (the "Termination Date").

3. Rent. Tenant covenants and agrees to pay to Landlord, during the Lease Term, an annual rental amount [REDACTED] payable in monthly installments, in advance. This is a "net" lease and the Landlord shall not be required to provide any services or do any act in connection with the Premises except as specifically provided herein.

Base rent shall escalate on each anniversary date at the rate of increase in the Consumer Price Index (CPI-W) for the prior calendar year, which rent increase shall not exceed 3% annually.

4. Security Deposit. Tenant shall deposit an amount equal to the first and last month's rental, [REDACTED] with the Landlord as a Security Deposit upon the execution of the Lease. Such deposit shall be kept in an interest bearing account by Landlord, and the original Deposit shall be returned to Tenant at the end of the Lease Term subject to the premises being left in their current "broom clean" condition with no apparent defects.

5. Renewal Option.

The Tenant shall have the option to renew this lease for ten (10) additional years at rent based on terms and conditions acceptable to both Landlord and Tenant. The Tenant's renewal option shall be exercised in writing delivered at least six (6) months prior to the end of the final year of the initial lease term.

6. Hazard Insurance. Tenant agrees to maintain during the term hereof a policy of insurance insuring the Premises against loss or damage by fire and other perils commonly insured under so-called extended coverage in the greater Auburn, Maine area,. Tenant does hereby expressly release Landlord of and from and agrees to indemnify, hold harmless, and defend Landlord from any and all claims for damages or loss to Tenant's personal property regardless of the cause thereof, including, without limitation, damage or loss due to Landlord's



negligence and damage or loss due to theft, water, fire, explosion, sewer back up or any other hazard regardless of the cause thereof

7. Holdover. If Tenant continues to occupy the Leased Premised at the completion of the Lease Term, such continued occupancy shall be deemed a tenancy-at-will under the terms and conditions stated herein and shall be subject to a Rent equal to 125% of the Rent applicable at the end of the Lease Term until Tenant shall vacate the Leased Premises. Nothing contained in this Paragraph shall be deemed to constitute consent by Landlord to such occupancy or holdover by Tenant.

8. Utilities. During the Lease Term, Tenant covenants and agrees to pay the cost of all utility services provided to or for the Premises and directly metered including but not limited to the cost of installing a separate meter or sub meter for the building. .

9. Repair and Maintenance. Tenant agrees that from and after the date that possession of the Premises is delivered to Tenant, and until the end of the Lease Term, it will maintain in the same order, condition and repair as the Premises is in as of the Commencement Date. Tenant shall be responsible for non-capital and routine maintenance of the heating, plumbing, air conditioning and lighting systems in the Premises. Should Tenant want to make any structural improvements to the building, such improvements will be done upon Landlord's consent.

10. Alterations, Renovations and Improvements. Tenant shall not make material alterations, renovations and improvements to the Premises without the prior written consent of Landlord, which consent shall not be unreasonably withheld, conditioned or delayed. Tenant shall perform such alterations, renovations and improvements in a good and workmanlike manner, and in accordance with all applicable laws and provided further that Tenant shall indemnify and hold Landlord harmless from and against all claims, demands, costs and mechanic's liens which may arise as a direct or indirect result of or in connection with such alterations, renovations and improvements, and Tenant shall assume all cost, liability and responsibility for such alterations, renovations and improvements, except for maintenance and repair of such alterations, renovations and improvements after expiration of the term of this Lease. Any and all alterations, renovations and improvements which may be made or installed by either Landlord or Tenant upon the Premises and which in any manner are attached to the floors, walls or ceilings (including, without limitation, any linoleum or other floor coverings of similar character which may be cemented or otherwise adhesively affixed to the floor) shall, remain upon the Premises, and at the expiration or termination of this Lease shall be surrendered with the Premises as a part thereof without disturbance, molestation or injury. However, the usual trade fixtures and furniture which may be installed in the Premises prior to or during the term hereof at the cost of Tenant may be removed by Tenant from the Premises upon the expiration or termination of this Lease, subject to the provisions of Paragraph 10 below.

11. Fixtures. All fixtures erected on and/or attached to the Premises by Tenant may be removed by Tenant at the termination of this Lease, provided such removal shall not permanently or substantially damage any portion of the Premises as they existed prior to the commencement of the Lease Term, and any minor damage created by such removal shall be repaired by Tenant at Tenant's expense prior to the expiration of the Lease Term.

12. Subletting and Assignment. Tenant shall not be entitled to assign this Lease or to sublet the Premises or any portion thereof, without the prior written consent of Landlord which consent shall be in Landlord's reasonable discretion. Notwithstanding the foregoing, Tenant may mortgage or collaterally assign this Lease to its Lender, and any such Lender may further assign this Lease to a third-party purchaser in the event of foreclosure, all without Landlord's consent.

13. Indemnification and Liability Insurance.

(a) Tenant shall indemnify and hold Landlord harmless and, if requested by Landlord, defend Landlord with counsel reasonably satisfactory to Landlord, from and against any and all liabilities, losses, claims, causes of action, damages, costs, and expenses (including reasonable attorneys fees) incurred by or threatened against Landlord (i) arising out any occurrence on the Leased Premise or of the use of the Leased Premises by Tenant, its employees, agents, licensees, or invitees except to the extent caused by the negligence or willful misconduct of Landlord; or (ii) arising out of any negligence, or intentional misconduct of Tenant, its employees, agents, licensees, or invitees wherever occasioned; or (iii) arising out of any actual breach of the obligations to be performed or terms to be observed by Tenant under this Lease, as determined by a final, unappealable judgment. Tenant agrees that the foregoing agreement to indemnify, defend, and hold harmless extends to liabilities, losses, claims, causes of action, damages, costs and expenses (including reasonable attorneys fees) arising out of claims of Tenant's employees without regard to any immunity, statutory or otherwise, including any immunity under the workers compensation laws of Maine or any other applicable jurisdiction. Tenant's obligations under this paragraph shall survive the termination of this Lease.

(b) Tenant agrees to maintain in full force during the Lease Term and any extension thereof a policy of Commercial General Liability Insurance on an occurrence basis, with a deductible in an amount not to exceed \$1,000.00, under which Tenant is named as an insured and Landlord by an endorsement satisfactory to Landlord or provided on ISO Form 2026 (1185) or its equivalent, without modification, are named as additional insureds with respect to this Lease, in a minimum amount of One Million Dollars (\$1,000,000.00) for injury or death of any one person or damage to property, and Two Million Dollars (\$2,000,000.00) for injury to or death of more than one person in a single accident or occurrence (the general aggregate limit shall apply on a "per location" basis). Such policy shall contain a provision requiring that written notice be given to Landlord not less than ten (10) days prior to cancellation, expiration or alteration of the policy. Tenant agrees to deliver a duplicate original insurance policy (together with evidence satisfactory to Landlord, naming Landlord as an additional insured), insurance binder (countersigned by the insurer) or Evidence of Insurance (in ACORD Form 27) for such insurance to Landlord on or before the Commencement Date and thereafter not less than thirty (30) days prior to the expiration of any such policy and at any time requested by Landlord.

14. Use and Business Operation. Tenant agrees to use and occupy the Premises for its electronic recycling business or any expansion of that business into related activities allowed by law on the Premises, and for no other purpose without the written consent of Landlord, and further agrees not to use the Premises for any purpose deemed hazardous. Tenant shall be responsible to provide all insurances necessary for the conduct of its business and be responsible for all liabilities created as a result of its business during the term of its lease

15. Permits and Licenses. Tenant agrees to attain and to maintain in full force and effect, during the Lease Term and, if applicable, any renewal term, at Tenant's cost and expense, any and all federal, state and local permits, licenses and registrations necessary for the specific use of the Premises by Tenant pursuant to Paragraph 14 hereof. Tenant further agrees that it will be responsible for all liabilities associated with such licenses and permits during its lease term. Furthermore, upon the termination of the lease, for any reason, Tenant shall release its licenses and permits to Landlord and cooperate with Landlord in the process of transferring such should it be deemed necessary by Landlord.

16. Taxes. Tenant agrees to reimburse Landlord for its prorata share all property taxes and assessments, ordinary or extraordinary, by whomsoever levied or assessed, for all tax years which fall within the Lease Term (or the portion thereof), which may be levied or assessed on the Premises, and agree to pay directly to the taxing authority any and all other taxes and assessments associated with Tenant's use of the Premises, including but not limited to personal property taxes and assessments and all federal, state and local forms of withholding and FICA taxes and assessments. In the event that any municipal betterment or special assessment is levied on the Premises during the term of this Lease, Landlord shall elect to make installment payments thereon over the longest period allowed, and Tenant shall only be responsible for those installment payments due during the term of this Lease. Upon receipt of a bill or statement for any such taxes or assessments, which are not charged, levied or otherwise assessed directly to or against Tenant by a federal, state or local taxing authority, Landlord shall pay the amount owed and forward a copy of the statement to Tenant. Tenant shall forward payment of its prorata share of such statement amount to Landlord on each such occasion within thirty (30) days of receipt of said statement from Landlord.

17. Right to Enter. Tenant agrees to permit Landlord or its duly authorized agents to enter on the Premises during Tenant's normal business hours, with at least 12 hours prior notice, to examine the condition of said Premises, provided such access to the Premises shall not unnecessarily interfere with Tenant's use of the Premises or the conduct of Tenant's business activities thereon. In the event that Landlord wishes to enter the Premises at any time other than Tenant's normal business hours, Landlord shall give Tenant written notice at least 24 hours in advance except that in case of an emergency, Landlord shall be relieved of said notice obligation.

18. Attorneys Fees. In the event either party defaults in any manner pursuant to the terms of this Lease, including but not limited the institution of bankruptcy proceedings by or against Tenant such as would constitute a default pursuant to Paragraph 22 of this Lease, the other party agrees to pay all reasonable costs, attorneys fees and expenses that shall be made and incurred by the first party in successfully enforcing the terms of this Lease.

19. Total or Partial Destruction. If the Premises shall be substantially damaged by fire or other casualty, either Landlord or Tenant may terminate this Lease within 30 days of such casualty. In the event that neither Tenant nor Landlord terminates this Lease, Landlord shall cause such damage promptly to be repaired or replaced but Landlord shall not be obligated to spend more on such repair or replacement than the insurance proceeds available to Landlord.

Rent shall be abated during the period of any repairs in proportion to the amount of the Premises rendered unusable by Tenant.

20. Eminent Domain.

(a) If the Premises shall be taken, in whole or in substantial part, by condemnation or right of eminent domain, either party, upon written notice to the other, shall be entitled to terminate this Lease provided that such notice is given not later than thirty (30) days after Tenant has been deprived of possession. Should any part of the Premises be so taken or condemned, and should this Lease not be terminated in accordance with this Paragraph, Landlord shall, after such taking or condemnation and the determination of Landlord's award therein, expend a portion or all of the net amount which may be awarded to Landlord in such condemnation proceedings as may be necessary to restore the Premises to functionally as nearly like their condition at the commencement of the Lease Term as shall be practicable. Should the net amount so awarded to Landlord be insufficient to cover the cost of restoring the Premises, Landlord may supply the amount of such insufficiency and restore the Premises as above provided with all reasonable diligence, or terminate this Lease. If Tenant has not already exercised any right of termination accorded to it under this Paragraph, Landlord shall notify Tenant of Landlord's election with respect to restoration in the event of an insufficient award not later than ninety (90) days after the final determination of the amount of the award.

(b) In the event of any award for any taking of the Premises in condemnation proceedings or by right of eminent domain, Landlord shall be entitled to receive and retain the amounts awarded for the Premises and for Landlord's business loss, and Tenant shall be entitled to receive and retain any amounts which may be specifically awarded to it in any such condemnation proceedings because of its business loss or the taking of its trade fixtures, furniture, or other property and relocation costs.

(c) In the event of any such taking of the Premises, the rent, or a fair and just proportion thereof according to the nature and extent of the damage sustained, shall be suspended or abated.

21. Limitation of Landlord's Liability. Tenant agrees to look solely to Landlord's interest in the property of which the Premises is a part or Landlord's insurance coverage thereon for recovery of any judgment from Landlord. The foregoing shall not limit Tenant's right to seek injunctive relief for Landlord's breach of this Lease.

22. Waiver of Subrogation. Insofar as and to the extent that such agreement may be effective without invalidating or making it impossible to secure insurance coverage obtainable from responsible insurance companies doing business in the State of Maine, Landlord and Tenant agree that with respect to any loss covered by insurance then carried by them, respectively, the one carrying such insurance and suffering that loss releases the other of and from any and all claims with respect to such loss; and they further agree that their respective insurance companies shall have no right of subrogation against one another on account of such agreement even though extra premiums may result therefrom. If an extra premium is payable by

Tenant as a result of these provisions, Landlord shall not reimburse Tenant for any such extra premium.

23. Default.

(a) It is covenanted and agreed that

(i) if Tenant shall neglect or fail to perform or observe, or fail or neglect diligently to attempt to so perform or observe any of the covenants, terms, provisions or conditions contained in this Lease and on Tenant's part to be performed or observed within thirty (30) days after notice of default; provided, however, that if such neglect or failure is not capable of being cured within said thirty (30) day period then Tenant shall have an additional period of time, not to exceed sixty (60) days, to cure the same provided Tenant commences to cure within said thirty (30) day period and diligently and continually prosecutes the same to completion (except for payment of Rent or other charges or sums payable by Tenant, in which case the cure period shall be five (5) days after notice thereof and except that, during any calendar year, Landlord shall be relieved of its notice obligations with respect to rent under this Paragraph if it gives any such notice twice in any calendar year);

(ii) if the estate hereby created shall be taken on execution, by attachment or by other process of law, or if a petition in U.S. Bankruptcy Court shall be filed by Tenant, or if any assignment shall be made of the property of Tenant for the benefit of creditors;

(iii) if a receiver, guardian, conservator, trustee in involuntary bankruptcy or other similar officer shall be appointed by a court of competent jurisdiction to take charge of all or any substantial part of Tenant's property;

(iv) if an involuntary petition shall be filed for the reorganization of Tenant under any provisions of the Federal Bankruptcy Code now or hereafter enacted, and such proceeding is not dismissed within sixty (60) days after it is begun, or if Tenant shall file a petition for such reorganization under any provisions of the Federal Bankruptcy Code now or hereafter enacted;

(v) if Tenant shall assign its interest in this Lease or sublet any portion of the Premises, or attempt to do either of the foregoing, except as may be expressly permitted in this Lease; or

(vi) intentionally deleted;

then, and in any of said cases (notwithstanding any license of any former breach of covenant or waiver of the benefit hereof or consent in a former instance), Landlord lawfully may, immediately or at any time thereafter, terminate this lease by sending written notice of termination to Tenant, or, in accordance with Maine law, enter into and upon the Leased Premises or any part thereof in the name of the whole and repossess the same as of its former

estate, and expel Tenant and those claiming through or under it and remove it or their effects without being deemed guilty of any manner of trespass, and without prejudice to any remedies which might otherwise be used for collection of damages for breach of covenant, and upon entry as aforesaid or upon sending of such notice, this Lease shall terminate.

(b) Without limiting other remedies of Landlord, Tenant covenants that in case of such termination under subparagraph (a) Tenant shall, notwithstanding such termination, pay to Landlord for the remainder of the Lease Term (or Renewal Term, if applicable) on the last day of each calendar month the difference, if any, between the Rent which would have been due for such month had there been no such termination and the sum of the amount being received by Landlord as rental from the then occupants of the Leased Premises, if any. Landlord shall make reasonable efforts to secure a rental equal to the prevailing local rate for the Leased Premises. In addition, Tenant agrees to pay to Landlord as damages for any above-described breach, all commercially reasonable costs of reletting the Leased Premises, including but not limited to commissions, attorneys fees, and court costs.

(c) If Tenant shall default in the performance or observance of any covenant, agreement, or condition in this Lease contained on its part to be performed or observed, other than an obligation to pay money, and shall not cure any such default as provided herein, Landlord may, at its option, without waiving any claim for damages for breach of this Lease, at any time after expiration of applicable cure period, cure such default. Any commercially reasonable amount paid or any liability incurred by Landlord in so doing shall be deemed paid or incurred for the account of Tenant, and Tenant agrees to immediately reimburse Landlord therefor, as additional Rent, or save Landlord harmless therefrom.

(d) Landlord shall in no event be in default in the performance of any of its obligations hereunder unless and until Landlord shall have failed to perform, or failed diligently to attempt to perform, such obligations within thirty (30) days or such additional time as is reasonably required to correct any such default after notice by Tenant to Landlord properly specifying wherein Landlord has failed to perform any such obligation, but in no event longer than sixty (60) days.

#### 24. Landlord's Right to Sell or Mortgage Fee.

(a) Nothing contained in this Lease shall limit or curtail Landlord's right to sell, mortgage, or otherwise deal with its fee interest in the Leased Premises, or affect Landlord's right to assign the net Rent payable under this Lease either as further collateral security under a fee mortgage or otherwise. Any such assignment of Rent shall be honored by Tenant.

(b) In the event Landlord shall sell, transfer, or otherwise convey to a purchaser the Premises, subject to the leasehold estate, Landlord, upon the written assumption thereof by the new owner, shall be entirely freed and relieved of all covenants and obligations of Landlord hereunder thereafter accruing, and it shall be deemed and construed without further agreement between the parties and the purchaser at any such sale that said purchaser has assumed and agreed to carry out any and all covenants and obligations of Landlord hereunder. Nothing herein shall be construed to affect this Lease or Tenant's quiet enjoyment of the



Premises free of any claims by, through or under Landlord, so long as Tenant performs and observes the covenants and terms of this Lease on its part to be performed and observed.

25. Notices. All notices required to be given pursuant to this Lease, to be effective, shall be in writing and shall be delivered by hand or by certified mail, postage prepaid, return receipt requested, to the following addresses:

(i) To Tenant at: MB Bark, LLC.  
100 Bark Mulch Drive  
Auburn, Maine 04210

(ii) To Landlord at: MB Investments, LLC  
70 Pleasant Hill Rd  
Scarborough, ME 04074

With a copy to: Wayne E. Tumlin, Esq.  
Bernstein, Shur, Sawyer & Nelson  
100 Middle Street, P.O. Box 9729  
Portland, Maine 04104-5029

Any notice given pursuant to this Paragraph shall be deemed to have been given upon proven receipt. Either party may, by such manner of notice, substitute persons or addresses for notice other than those listed above.

26. Hazardous Waste. Tenant covenants and agrees that it will permit no hazardous or toxic waste, substance, material or matter, as those terms may be defined from time to time by applicable state, local or federal law to be brought, used, maintained or stored upon the Premises except in compliance with applicable law. Tenant hereby covenants and agrees to protect, exonerate, defend, indemnify and save Landlord harmless from and against any and all loss, damage, cost, expense or liability, including reasonable attorneys fees, court costs and clean-up costs, and including but not limited to, such loss, damage, cost, expense or liability based on personal injury, death, loss or damage to property suffered or incurred by any person, corporation or other legal entity, which may arise out of the removal or clean-up of any such waste, substance, material or matter placed upon or within the Leased Premises by Tenant after the date of this lease, whether or not in violation of law, or as the result of a breach by Tenant of Tenant's obligations under this Paragraph.

27. Subordination. This Lease, at Landlord's option, shall be subordinate to any ground lease, mortgage, deed of trust, or any other hypothecation or security now or hereafter placed upon the Premises and to any and all advances made on the security thereof and to all renewals, modifications, consolidations, replacements and extensions thereof, provided, however, that the holder of such right agrees not to disturb Tenant's rights under this Lease so long as Tenant is not in default beyond applicable grace or cure periods. Notwithstanding such subordination, Tenant's right to quiet possession of the Premises shall not be disturbed if Tenant is not in default and so long as Tenant shall pay the Rent and observe and perform all of the

provisions of this Lease, unless this Lease is otherwise terminated pursuant to its terms. If any mortgagee, trustee, or ground lessor shall elect to have this Lease made prior to the lien of its mortgage, deed of trust or ground lease, and shall give written notice thereof to Tenant, this Lease shall be deemed prior to such mortgage, deed of trust, or ground lease, whether this Lease is dated prior to or subsequent to the date of said mortgage, deed of trust, or ground lease or the date of recording thereof. Tenant agrees to execute any reasonable documents reasonably required to effectuate an attornment, a subordination or to make this Lease prior to the lien of any mortgage, deed of trust or ground lease, as the case may be, provided that holder of such rights agrees not to disturb Tenant's rights under this Lease as provided above. Tenant's failure to execute such documents within ten (10) days after written demand shall constitute a material default by Tenant hereunder.

28. Miscellaneous Provisions.

(a) Invalidity of Particular Provisions. If any term or provision of this Lease, or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Lease, or the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term and provision of this Lease shall be valid and be enforced to the fullest extent permitted by law.

(b) Governing Law. This Lease shall be governed exclusively by the provisions hereof and by the laws in effect in the State of Maine as those laws may be amended from time to time.

(c) Recording. Landlord and Tenant agree that a Memorandum of Lease, upon the request of either party, may be recorded in the Cumberland County Registry of Deeds, as soon as possible after the execution hereof. The Memorandum shall expressly state that it is executed pursuant to the provisions contained in this Lease, and is not intended to vary the terms and conditions hereof.

(d) Paragraph Headings. The Paragraph headings throughout this instrument are for convenience and reference only, and the words contained therein shall in no way be held to explain, modify, amplify, or aid in the interpretation, construction, or meaning of the provisions of this Lease.

(e) Interpretation. Whenever in this Lease provision is made for the doing of any act by any party, it is understood and agreed that said act shall be done by such party at its own cost and expense, unless a contrary intent is expressed.

(f) Entire Agreement; Binding Effect. All negotiations, considerations, representations, and understandings between Landlord and Tenant with respect to the specific subject matter of this Lease are incorporated herein and may be modified or altered only by agreement in writing between Landlord and Tenant, and no act or omission of any employee or agent of Landlord or Tenant shall alter, change, or modify any of the provisions hereof. All rights, obligations and liabilities contained herein given to, or imposed upon, Landlord and Tenant shall extend to and bind the several respective administrators, trustees, receivers, legal

representatives, successors, heirs and permitted assigns of Landlord and Tenant, and if there shall be more than one tenant, they shall all be bound jointly and severally by the terms, covenants and agreements herein. Those portions of a previous Lease between Gibson Realty, LLC and Tenant dated April 9, 2004, related to the Premises are superseded by this Lease. The effectiveness and enforceability of this Lease is conditioned upon the purchase by Landlord of the real property located at 12 Runway Road, Scarborough, Maine, of which the leased premises is a part.

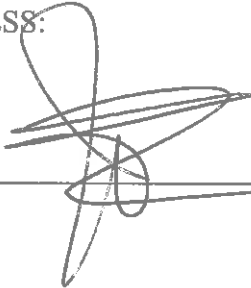
(g) Compliance with Laws. Tenant agrees to abide by and comply with all federal, state and local statutes, ordinances, rules and regulations applicable to Tenant's use of the Premises.

(h) Gender: Words of any gender used in this instrument shall be held and construed to include any other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires.

**IN WITNESS WHEREOF**, Landlord and Tenant have executed this Lease Agreement as an instrument under seal as of the day and year first above-written.

WITNESS:

By: \_\_\_\_\_



LANDLORD  
MB Investments, LLC

By: \_\_\_\_\_

  
John Adelman  
Its: Manager

TENANT  
MB Bark, LLC

By: \_\_\_\_\_



By: \_\_\_\_\_

  
John Adelman  
Its: President/CEO

**EXHIBIT A TO LEASE**

**DESCRIPTION OF PREMISES**

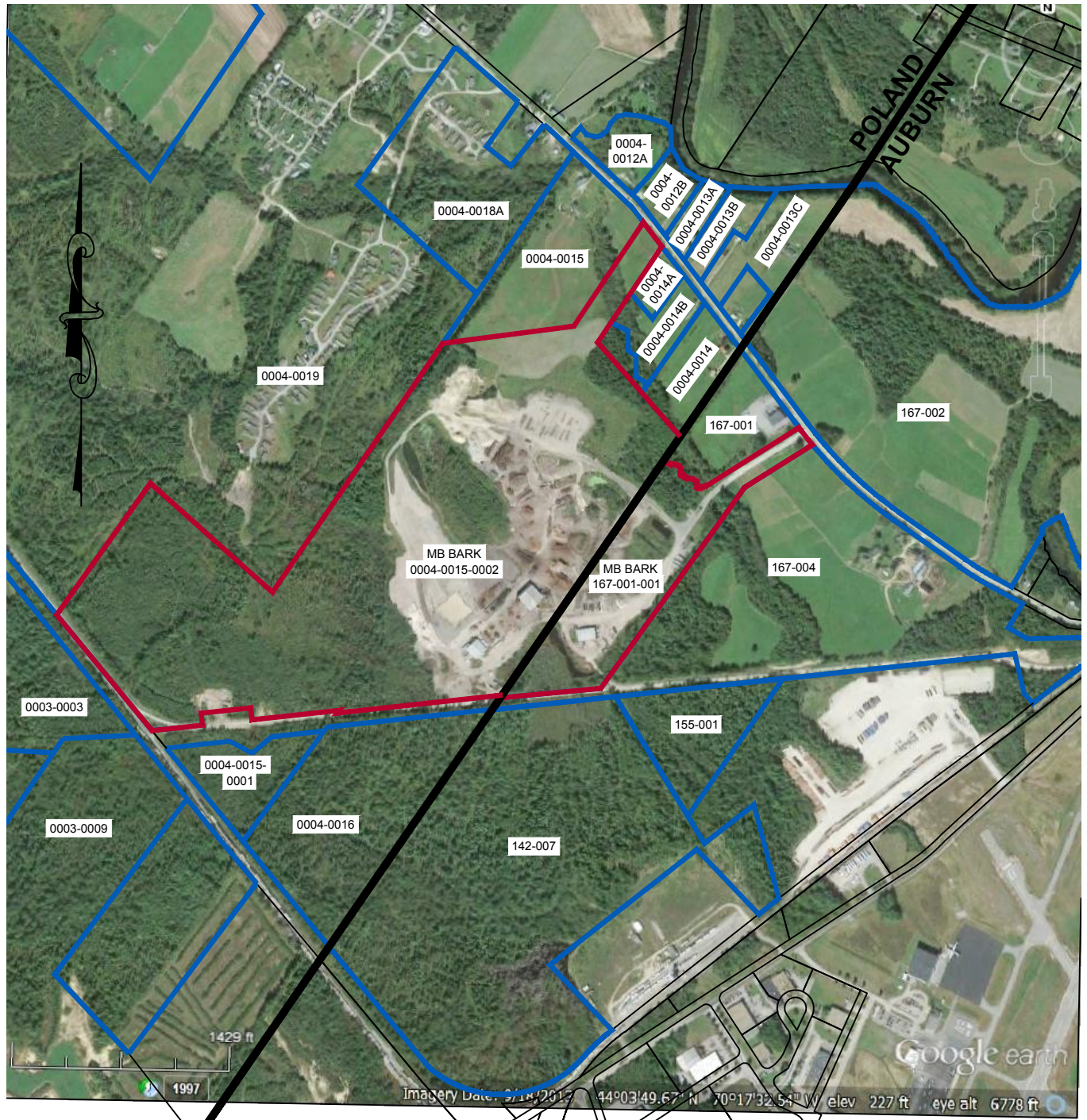
All Land, Buildings and Equipment necessary to operate a bark mulch business.

3

**Abutters within 500'**  
**MB Bark, LLC**  
**100 Bark Mulch Drive**  
**Auburn, Maine**

	Parcel Number	Property Address	Owner Name	Owner Address	Owner City	Owner State	Owner Zip
Poland	0003-0003	34 TORREY RD.	DICK, STEPHEN W. II	34 TORREY RD.	POLAND	ME	04274
	0003-0009	202 TORREY RD.	FERLAND, DENNIS R.	193 HARDSCRABBLE RD.	POLAND	ME	04274
	0004-0012A	411 HARDSCRABBLE RD.	MERCHANT, HAROLD W.	417 HARDSCRABBLE ROAD	MINOT	ME	04274
	0004-0012B	429 HARDSCRABBLE RD.	DAIGNEAULT, JOHN P.	429 HARDSCRABBLE RD.	POLAND	ME	04274
	0004-0013A	439 HARDSCRABBLE RD.	PROVOST, SETH T.	439 HARDSCRABBLE RD.	POLAND	ME	04274
	0004-0013B	449 HARDSCRABBLE RD.	HUDSON, MICHELLE	449 HARDSCRABBLE RD.	POLAND	ME	04274
	0004-0013C	469 HARDSCRABBLE RD	FIELD, CINDY L.	714 BALD HILL RD.	NEW GLOUCESTER	ME	04260
	0004-0014	470 HARDSCRABBLE RD.	WEBSTER, ALVIN S., JR.	470 HARDSCRABBLE RD.	POLAND	ME	04274
	0004-0014A	HARDSCRABBLE RD.	POLAND, TOWN OF	1231 MAINE ST.	POLAND	ME	04274
	0004-0014B	450 HARDSCRABBLE RD.	LOWELL, RICHARD R.	450 HARDSCRABBLE RD.	POLAND	ME	04274
	0004-0015	404 HARDSCRABBLE RD.	TIBBETTS, ALBERT R., JR.	404 HARDSCRABBLE RD.	POLAND	ME	04274
	0004-0015-0001	BARK MULCH DR.	LEWISTON AND AUBURN RAILROAD CO.	415 LISBON ST., SUITE 400	LEWISTON	ME	04240
	0004-0016	OFF HARDSCRABBLE RD.	PORT OF AUBURN, LLC	54 BARTOL ISLAND RD	FREEPORT	ME	04032
	0004-0018A	HARDSCRABBLE RD.	BROOKDALE VILLAGE LLC	314 CENTER ST.	AUBURN	ME	04210
Auburn	0004-0019	338 HARDSCRABBLE RD.	BROOKDALE VILLAGE, LLC	314 CENTER ST.	AUBURN	ME	04210
	167-002	WEST HARDSCRABBLE RD	FIELD GEORGE H	116 WEST HARDSCRABBLE ROAD	AUBURN	ME	04210
	167-004	116 WEST HARDSCRABBLE RD	FIELD GEORGE H	116 WEST HARDSCRABBLE ROAD	AUBURN	ME	04210
	142-007	LEWISTON JUNCTION RD	PORT OF AUBURN LLC	C/O KAREN & FORD REICHE 54 BARTOL ISLAND RD	FREEPORT	ME	04032
	155-001	LEWISTON JUNCTION RD	LEWISTON & AUBURN RAILROAD CO	415 LISBON STREET, STE 400	LEWISTON	ME	04240
	167-004-001	WEST HARDSCRABBLE RD	LEWISTON & AUBURN RAILROAD CO	415 LISBON STREET, STE 400	LEWISTON	ME	04240





SOURCE: GOOGLE EARTH

- MB BARK PROPERTY BOUNDARY
- ABUTTERS

## ABUTTER MAP

MB BARK, LLC  
100 BARK MULCH DRIVE  
AUBURN, MAINE

MB BARK, LLC  
100 BARK MULCH DRIVE  
AUBURN, MAINE

**St. Germain Collins**

846 Main St., Westbrook, ME 04092 • 207-591-7000 • StGermainCollins.com

FIGURE 1

4



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*The key to success starts with a solid foundation.*  
ENGINEERING | EXPLORATION | EXPERIENCE

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# Geotechnical Evaluation

*Proposed Pad #1 Expansion  
MB Bark Mulch, Auburn, Maine*



145 Lisbon Street (PO Box 7216) Lewiston, Maine 04243 | (207) 576-3313  
173 Pleasant Street Rockland, Maine 04841 | (207) 318-7761  
[www.summitgeoeng.com](http://www.summitgeoeng.com)

## Client

St. Germain Collins  
846 Main Street  
Westbrook, Maine 04092

Project #: 18019  
Date: 2/23/18



February 23, 2018  
SGS #18019

Peter Mohlin  
St. Germain Collins  
846 Main St.  
Westbrook, ME 04092

Reference: Geotechnical Investigation, MB Bark Recycling Facility Expansion  
Bark Mulch Drive, Auburn, Maine

Dear Peter;

Summit Geoengineering Services, Inc. (SGS) has completed a geotechnical investigation relative to the construction of three storage pads at the MB Bark Recycling Facility (MB Bark). This report addresses our evaluation of the suitability of the existing soil and the potential reuse of the various materials anticipated to be excavated at the site and used to construct the pads. Specifically this report is intended to address the following:

**MEDEP Ch. 409 Section 3(H) - Subsurface Investigation.** A subsurface investigation must be conducted whenever the proposed processing facility includes the use of in-situ soils as any part of a soil base pad for handling solid wastes, includes structures requiring foundations, or includes subsurface wastewater holding or disposal systems. The data must consist of soil test data in the proposed handling areas from a certified professional describing and evaluating the surficial geology and/or the subsurface soils. This information must demonstrate that the facility design is compatible with the site's soil characteristics, as determined by applicable engineering standards of practice.

## **Project Description**

The project consists of the expansion of one existing storage pad (Pad #1) and construction of two new storage pads (Pads #2&3) at the MB Bark site in Auburn, Maine. Pad #1 will be located directly adjacent to and north of the existing facility. Pads #2 and #3 will be located in undeveloped areas west of the existing facility.

The pads will be constructed using a combination of an existing recycled (reclaim) product and native soil excavated during construction. Based on the anticipated cuts and fills, the vast majority of the pads will be constructed using the recycled material. For Pad #1, the final embankment height is as high as 25 feet above the existing ground surface. The maximum fill height for Pads #2 and #3 is in the range of 10 to 12 feet.





This report is specifically focused on Pad #1. We anticipate that the evaluations and recommendations in this report will also be applicable to Pad #2 and Pad #3. Additional subsurface explorations will be required at the appropriate time to confirm this opinion.

## **Exploration and Subsurface Conditions**

A total of 6 test pits were excavated in the area of the proposed Pad #1 expansion to explore the existing subsurface conditions. The test pits were excavated on February 15, 2018 by MB Bark under the direction of SGS. The location of the test pits is shown on the Exploration Location Plan in Appendix A. The test pits were excavated to depths ranging from 3.5 (bedrock) to 17 feet below the existing ground surface using a large tracked excavator.

A significant geological feature in the Pad #1 area is a bedrock knoll in the west side of the site. The bedrock in this area has been partially mined and a small quarry remains. Surficial geologic maps indicate that the soil at the site consists of a sandy marine regressive deposit and silty clay (Presumpscot Formation). Based on this mapping and our observations of the test pits, we believe that soil material above approximately elevation 250 feet will consist of the marine regressive deposit and soil below approximately elevation 250 feet will consist of the Presumpscot Formation. Shallow bedrock can be anticipated in knolls present at the site above elevation 260 feet.

The marine regressive deposit, encountered in TP-4 and TP-6, is described as olive-brown silty fine sand. This soil is moist and loose and has a USCS classification of SM.

The silty clay soil was encountered in all the test pits except for TP-4. This soil is described as olive-brown silty clay. This soil is friable and blocky in the upper 10 feet and then becomes wetter and less blocky with depth. Pocket penetrometer tests (a rough measure of the soil shear strength) ranged from 3.0 to 4.5 tsf at a depth of 4 feet and 0.7 to 1.0 tsf at a depth of 16 feet. This soil has a USCS soil classification of CL.

TP-5 was excavated in the existing pad area to observe the reclaim material. This material is described as black sand with a little gravel and silt and a few cobbles. This material was dense and stable. The sidewalls of the excavation were vertical, showing no signs of sloughing.

Bedrock was encountered at the TP-4 location at a depth of 3.5 feet (approximately elevation 251.5 ft).

Groundwater was observed at the following depths and approximate elevations.



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GROUNDWATER OBSERVATIONS		
Location	Depth (ft)	Approx. Elevation (ft)
TP-1	9.5	222.5
TP-2	10	221
TP-3	None	Deeper than 224
TP-4	None	Deeper than 251.5
TP-5	None	Deeper than 247
TP-6	None	Deeper than 245

### Evaluation

In general, the bedrock, marine regressive, and silty clay soil at the site are inherently stable and will provide adequate support for the proposed reclaim pads. Silty clay soil is susceptible to circular global failures under large fill loads. We understand that up to 25 feet of fill will be placed to expand the existing Pad #1 to the east. The existing pad with an equivalent height of fill is currently stable. There are no signs of global stability issues with the existing pad. We anticipate that the stiff silty clay soil has adequate strength to support the proposed fill. A numerical global stability analysis will be performed to confirm this opinion.

Existing materials expected to be cut to achieve final pad grades include bedrock and the marine regressive deposit. With proper conditioning, both of these materials are suitable for use in constructing the proposed pads. Proper conditioning would include crushing the bedrock to the required sizes and placing the marine regressive soil in 12" to 24" compacted lifts. A grain size analysis is being conducted on a sample of the marine regressive soil collected at a depth of 3 feet at the TP-6 condition.

Based on the proposed finished grades of Pad #1, excavation into the silty clay soil is not expected. In the event that this soil is excavated it will be suitable for reuse if properly conditioned, placed and compacted. Specific recommendations for conditioning, placing, and compacting this soil may include moisture conditioning (drying), placing in relatively thin lifts, and compacting with the appropriate equipment (e.g. a sheepsfoot roller).

The reclaim material appears to be stable. The soil exposed in TP-5 was granular and dense. This material has sufficient fines to bind the larger particles together into a dense state. Grain size analyses and direct shear tests are currently being performed to further identify the physical characteristics of the reclaim material.



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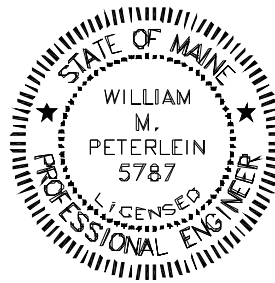
## Conclusions

In general the soil at the site is suitable to support the proposed Pad #1 construction. The existing native soil, bedrock, and reclaim materials appear to be suitable for reuse in the Pad #1 construction. Additional testing and analyses are currently being performed to determine specific material conditioning, handling, and placement and compaction procedures.

Thank you once again for this opportunity. If there are any questions, please do not hesitate to contact me.

Sincerely,  
**Summit Geoengineering Services, Inc.**

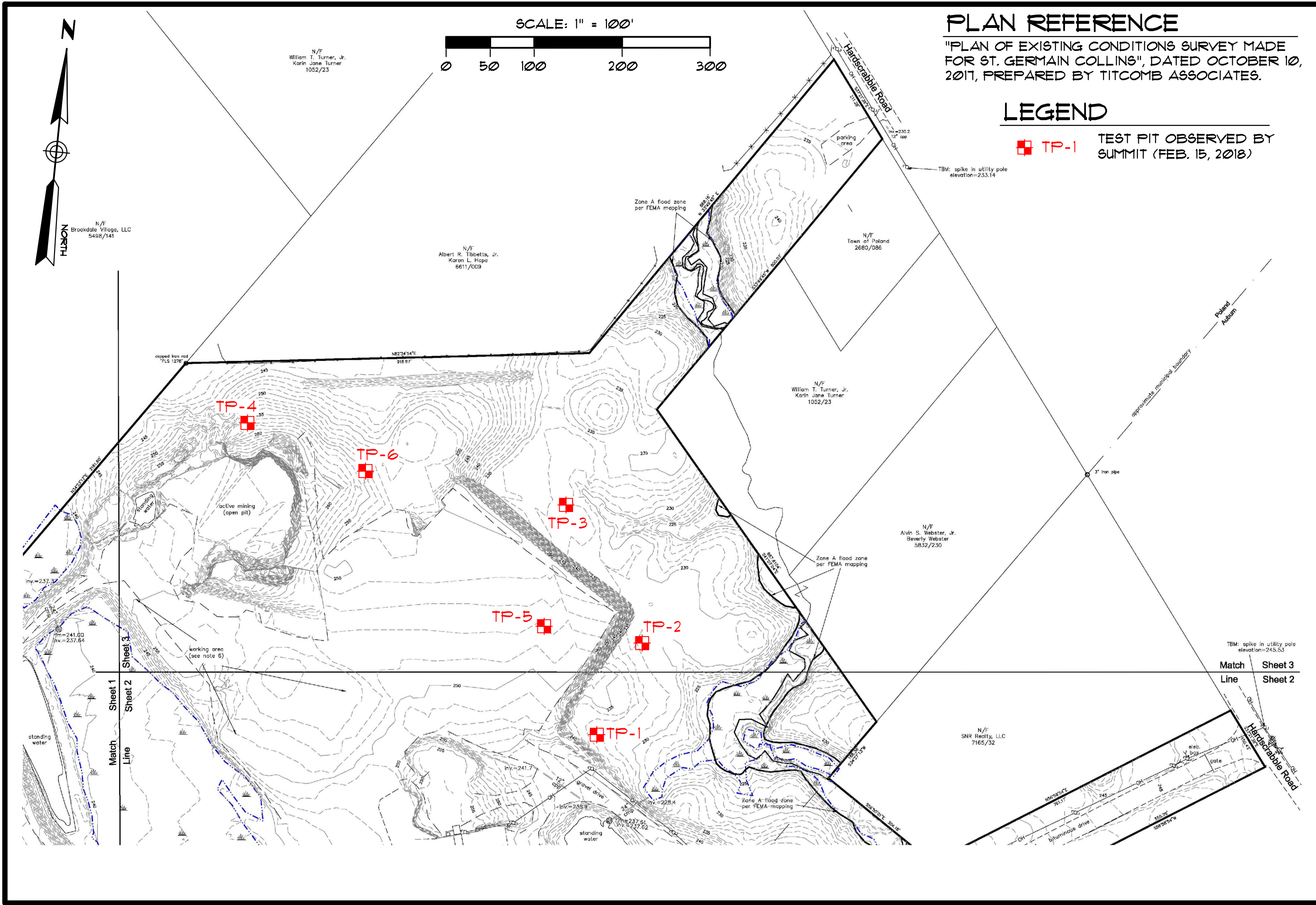
William M. Peterlein, P.E.  
President & Principal Engineer





**APPENDIX A**  
**EXPLORATION LOCATION PLAN**





PLAN REFERENCE

"PLAN OF EXISTING CONDITIONS SURVEY MADE FOR ST. GERMAIN COLLINS", DATED OCTOBER 10, 2017, PREPARED BY TITCOMB ASSOCIATES.

LEGEND

■ TP-1 TEST PIT OBSERVED BY SUMMIT (FEB. 15, 2018)

<b>PROJECT:</b> CPRC BARK MULCH FACILITY HARDSCRABBLE ROAD - AUBURN & POLAND, MAINE	<b>TITLE:</b> EXPLORATION LOCATION PLAN		<b>DATE:</b> FEBRUARY 22, 2018 <b>SCALE:</b> 1" = 200'	<b>DRAWN BY:</b> KRF <b>APPR BY:</b> WMP	<b>CLIENT:</b> ST. GERMAIN COLLINS
<b>PROJ. #:</b> 18019			<b>FIGURE:</b> 1		

**SUMMIT**  
ENGINEERING SERVICES


145 LISBON ST. - SUITE 101  
LEWISTON, ME 04240  
Tel: (207) 576-3313


173 PLEASANT STREET  
ROCKLAND, ME 04841  
Tel: (207) 318-7161




## **APPENDIX B**


### **TEST PIT LOGS**


		<b>TEST PIT LOG</b>		Test Pit # <b>TP-1</b>
		Project: Storage Pad Materials Evaluation MB Bark Mulch Auburn, Maine		Project #: 18019
				Groundwater: Slow seepage at 9.5 ft
Contractor: MB Bark Mulch		Ground Surface Elevation: 232 ft +/-		
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017		
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny	
Depth (ft)	<b>DESCRIPTION</b>			
	<b>ENGINEERING</b>		<b>GEOLOGIC/GENERAL</b>	
1	8" dark brown Silty SAND, trace organics, loose, moist, SM		TOPSOIL	
2	Olive-gray Silty CLAY, blocky, stiff, CL          seams, moist, stiff, CL		GLACIAL MARINE	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15	----- Becomes soft and gray at 15 ft			
16	End of Test Pit at 16 ft			
17				


		<b>TEST PIT LOG</b>		Test Pit # <b>TP-2</b>
		Project: Storage Pad Materials Evaluation MB Bark Mulch Auburn, Maine		Project #: 18019
				Groundwater: Slow seepage at 10 ft
Contractor: MB Bark Mulch		Ground Surface Elevation: 231 ft +/-		
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017		
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny	
Depth	<b>DESCRIPTION</b>			
(ft)	<b>ENGINEERING</b>	<b>GEOLOGIC/GENERAL</b>		
1	8" dark brown Silty SAND, trace organics, loose, moist, SM	TOPSOIL		
2	Olive-gray Silty CLAY, blocky, stiff, CL  Pocket Penetrometer = 4.0 to 4.5 tsf  seams, moist, stiff, CL  Water seepage slow in silt seams (EL 221 ft +/-)	GLACIAL MARINE		
3				
4				
5				
6				
7				
8				
9				
10				
11				
12	Pocket Penetrometer = 0.7 to 1.0 tsf			
13				
14				
15				
16				
17	End of Test Pit at 17 ft			



		<b>TEST PIT LOG</b>		Test Pit # <b>TP-3</b>
		Project: Storage Pad Materials Evaluation MB Bark Mulch Auburn, Maine		Project #: 18019
				Groundwater: None Observed
Contractor: MB Bark Mulch		Ground Surface Elevation: 232 ft +/-		
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017		
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny	
Depth (ft)	<b>DESCRIPTION</b>			
	<b>ENGINEERING</b>	<b>GEOLOGIC/GENERAL</b>		
1	Grass, dark brown Silty SAND, trace organics, loose, moist, SM	TOPSOIL		
2	Olive-brown Silty CLAY, friable, stiff, blocky, moist, stiff, CL  Pocket Penetrometer = 3.0 to 3.7 tsf    seams, moist, stiff, CL	GLACIAL MARINE		
3				
4				
5				
6				
7				
8				
9	End of Test Pit at 8 ft			
10				
11				
12				
13				
14				
15				
16				
17				

		<b>TEST PIT LOG</b>		Test Pit # <b>TP-4</b>
		Project: Storage Pad Materials Evaluation MB Bark Mulch Auburn, Maine		Project #: 18019
				Groundwater: None Observed
Contractor: MB Bark Mulch		Ground Surface Elevation: 255 ft +/-		
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017		
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny	
Depth (ft)	<b>DESCRIPTION</b>			
	<b>ENGINEERING</b>	<b>GEOLOGIC/GENERAL</b>		
1	8" to 12" Dark brown Sandy SILT, trace rootlets and organics, moist, ML	FOREST DUFF		
2	Olive-brown Silty fine SAND, loose, moist, SM	MARINE REGRESSIVE		
3				
4				
5	End of Test Pit on Bedrock at 3.5 ft (EL 251.5 ft +/-)			
6	seams, moist, stiff, CL			
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

		<b>TEST PIT LOG</b>		Test Pit # <b>TP-5</b>	
		Project: Storage Pad Materials Evaluation		Project #: 18019	
		MB Bark Mulch Auburn, Maine		Groundwater: None Observed	
Contractor: MB Bark Mulch		Ground Surface Elevation: 252 ft +/-			
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017			
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny		
Depth	<b>DESCRIPTION</b>				
(ft)	<b>ENGINEERING</b>		<b>GEOLOGIC/GENERAL</b>		
1	Dark brown Gravelly SAND, little Silt, trace bricks, loose, moist, SM		FILL		
2	Black SAND, little Gravel and Silt, few Cobbles, moist, dense, SM - RECLAIM				
3	Sidewalls vertical				
4					
5					
6	End of Test Pit at 5 ft				
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

		<b>TEST PIT LOG</b>		Test Pit # <b>TP-6</b>
		Project: Storage Pad Materials Evaluation MB Bark Mulch Auburn, Maine		Project #: 18019
				Groundwater: None Observed
Contractor: MB Bark Mulch		Ground Surface Elevation: 255 ft +/-		
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017		
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny	
Depth (ft)	<b>DESCRIPTION</b>			
	<b>ENGINEERING</b>		<b>GEOLOGIC/GENERAL</b>	
1 2 3 4	Olive-brown Silty fine SAND, moist, loose, frozen in upper 6 to 8 inches, SM		MARINE REGRESSIVE	
5 6 7 8 9 10	Olive-brown to olive-gray Silty CLAY, few fine silt seams, moist, stiff, CL		GLACIAL MARINE	
11 12 13 14 15 16 17	End of Test Pit at 10 ft			



---

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ENGINEERING | EXPLORATION | EXPERIENCE

---

## Pad #1 Construction Recommendations

*MB Bark Mulch, Auburn, Maine*



145 Lisbon Street (PO Box 7216) Lewiston, Maine 04243 | (207) 576-3313  
173 Pleasant Street Rockland, Maine 04841 | (207) 318-7761  
[www.summitgeoeng.com](http://www.summitgeoeng.com)

### Client

St. Germain Collins  
846 Main Street  
Westbrook, Maine 04092

Project #: 18019  
Date: 6/18/18



June 19, 2018  
SGS #18019

Peter Mohlin  
St. Germain Collins  
846 Main St.  
Westbrook, ME 04092

Reference: Supplemental Geotechnical Evaluation, Pad #1 Fill Placement and Slope Stability  
MB Bark Recycling Facility Expansion, Bark Mulch Drive, Auburn, Maine

Dear Peter;

This report is intended to provide additional material properties information and evaluate the overall stability of the material and site for a C&R and Reclaim fill pad. This report follows a previous report prepared by SGS titled "Geotechnical Evaluation, Proposed Pad #1 Expansion, MB Bark Mulch, Auburn Maine" and dated February 23, 2018. Included in this supplemental report are recommendations for construction of the pad expansion.

Our scope of services for this phase of the project consisted of laboratory testing of the C&R and Reclaim materials and global stability analyses of the proposed embankment.

Beyond the pad construction evaluated in this report, we believe that both the C&R and the Reclaim will be suitable to construct roadways connecting to the future Pads #2 and #3. Additional information on the existing roadway subgrade conditions, not included in our current scope, will be required to determine the most effective roadway subgrade preparation and material types and thicknesses.

## **1.0 Exploration and Laboratory Testing**

A series of test pits were excavated at the site under the direction of SGS on February 15, 2018. A detailed description of the explorations and subsurface conditions are included in the SGS February 2018 report. Logs of the test pits and a test pit location plan are included in Appendix A.

A sample of the **Reclaim** soil was obtained in test pit TP-5 on February 15, 2018. The sample was tested by SGS in our laboratory. The tests included grain size analysis and direct shear. The results of these tests are presented in Appendix B.



Two bucket samples of the C&R were delivered to SGS at the MB Bark mulch site. One sample was free of asphalt shingles and the other sample contained asphalt shingles. These samples were tested by Geotesting Express, Acton, Massachusetts, for grain size analysis and direct shear. The results of these tests are presented in Appendix C.

## 2.0 Material Description

**Reclaim** (Stabilized Petroleum Containing Soils) is a waste derived product, manufactured from 2" minus aggregate materials which are pug mill processed utilizing an asphalt emulsifier (Stabilizer Plus®). CRS manufactures two basic types of Reclaim, Virgin Petroleum Contaminated Soils (VPCS), and Non Virgin Petroleum Contaminated Soils (NVPCS). NVPCS includes sandblast grit, bottom ash, catch basin grit, and other soils containing non virgin polycyclic aromatic hydrocarbons (PAHs).

The results of the grain size analysis indicates that the **Reclaim** material consists of 21% gravel, 67% sand, and 12% silt sized particles. The direct shear test indicated a peak friction angle of 36 degrees and an assumed cohesion of 0 psf at a unit weight of 110 pcf.

**C&R** (Crushed and Recycled) is manufactured from crushed and screened demolition aggregate-based materials. This crusher processed sized material includes brick, concrete, asphalt pavement, stone tailings, ledge and similar aggregate-based demolition materials. Ground shingles may be added at different percentages to enhance the compaction of the crushed materials.

The results of the grain size analyses and direct shear tests on the C&R material are summarized in the following table.

LABORATORY TEST RESULTS C&R MATERIAL						
Material	Grain Size Properties*			Direct Shear Properties		
	Gravel	Sand	Silt	Unit Weight	Phi (degrees)	Cohesion
C&R w/o Shingles	54.8%	40.6%	4.6%	135 pcf (avg)	41.2	432 psf
C&R w/ Shingles	53.9%	40.3%	5.8%	136 pcf (avg)	47.3	285 psf

\* Refers to particle sizes only, not composition

## 3.0 Global Stability Analysis

A global stability analysis was performed using Slide 6.0 computer program. The analysis was performed at a section through the existing pad at the approximate location shown on Figure 1 in Appendix D. The intent of this analysis was to model the stability of the embankment face and



the underlying soil with the embankment fully built. The geometry, soil properties, and lowest safety factor failure circle are shown on the Slide output in Appendix D.

The C&R and Reclaim soil properties were taken from the direct shear tests and used in interchangeably in the analyses. The stiff clay soil properties were based on observations and pocket penetrometer tests taken in the February 2018 test pits. A layer of soft silty clay was encountered at a depth of 15 feet at the TP-1 location. The soft silty clay soil properties were estimated conservatively based on our knowledge and experience. A series of analyses were made with various material properties to ascertain the sensitivity of the model to these properties and the geometry. Included in the variations were the facing slope angles, which ranged from 3H:1V to 1H:1V.

The lowest safety factor for the proposed embankment was computed to be 1.32. A safety factor equal to or greater than 1.3 for this condition is acceptable. This safety factor is based on the assumption that the construction recommendations listed below are followed.

#### **4.0 Pad Construction Recommendations.**

We recommend that the pad be constructed in the following manner.

- Grub the area to be filled to remove the topsoil and vegetation. The topsoil should be salvaged for future use. Grubbing should be performed with a smoothed-edge excavator bucket or a dozer to minimize disturbance to the stiff silty clay soil. Excavate into the silty clay soil as little as possible so that the stiff supporting crust it creates is not compromised. The exposed silty clay should be protected from rain until the base material can be placed.
- Place a 6" to 8" layer of  $\frac{3}{4}$  crushed stone OR a 12" to 18" layer of crushed bedrock (8" maximum size) beneath a 4" thick  $\frac{3}{4}$  inch crushed stone choke layer. The crushed stone or rock can be placed directly on the exposed subgrade soil.
- Place the Reclaim or C&R directly on the crushed stone. These materials can be placed in 18" lifts. Each lift should be compacted with a vibratory compactor having a minimum operating weight of 10 tons and making 4 passes in each of two perpendicular directions. Both materials can be placed in their existing condition; no special conditioning is necessary. If the methods described above are used to place the material, no compaction testing will be necessary. We recommend that SGS be contacted so we can observe the initial lifts of material as they are placed to confirm the above methods are effective.



- Both the C&R and Reclaim are susceptible to erosion. Exposed slopes should be protected from runoff during construction by sloping the grade back from the crest at a minimum of 2 degrees.
- If rip rap is used, place rip rap on the face of the slope as indicated in the construction drawings as the embankment is created. If it is desirable to place all the rip rap after the pad is brought up to its final grade, we recommend that the face of the slope be protected from erosion while filling proceeds.

Based on the results of the global stability analysis, the face of the pad can be sloped as steep as 1.5H:1V in lieu of the currently proposed 3H:1V vegetated slope. This will allow for more material to be used in the embankment. If a 1.5H:1V slope is used, rip rap protection will be required on the facing to protect it from slumping and surface erosion. Details of the rip rap have been provided by others in the Site Development Plan Permit Set dated February 2018.

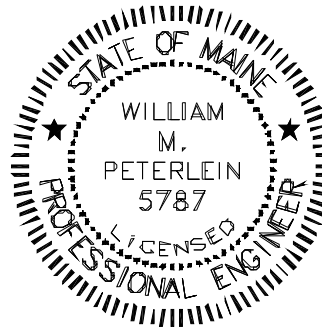
## 5.0 Closure

Our recommendations are based on professional judgment and generally accepted principles of geotechnical engineering and project and subsurface information provided by others. Some changes in subsurface conditions or material properties from those presented in this report may occur. Should these conditions differ from those described in this report, SGS should be notified so that we can re-evaluate our recommendations.

Thank you once again for this opportunity. If there are any questions, please do not hesitate to contact me.

Sincerely,  
**Summit Geoengineering Services, Inc.**

William M. Peterlein, P.E.  
President & Principal Engineer

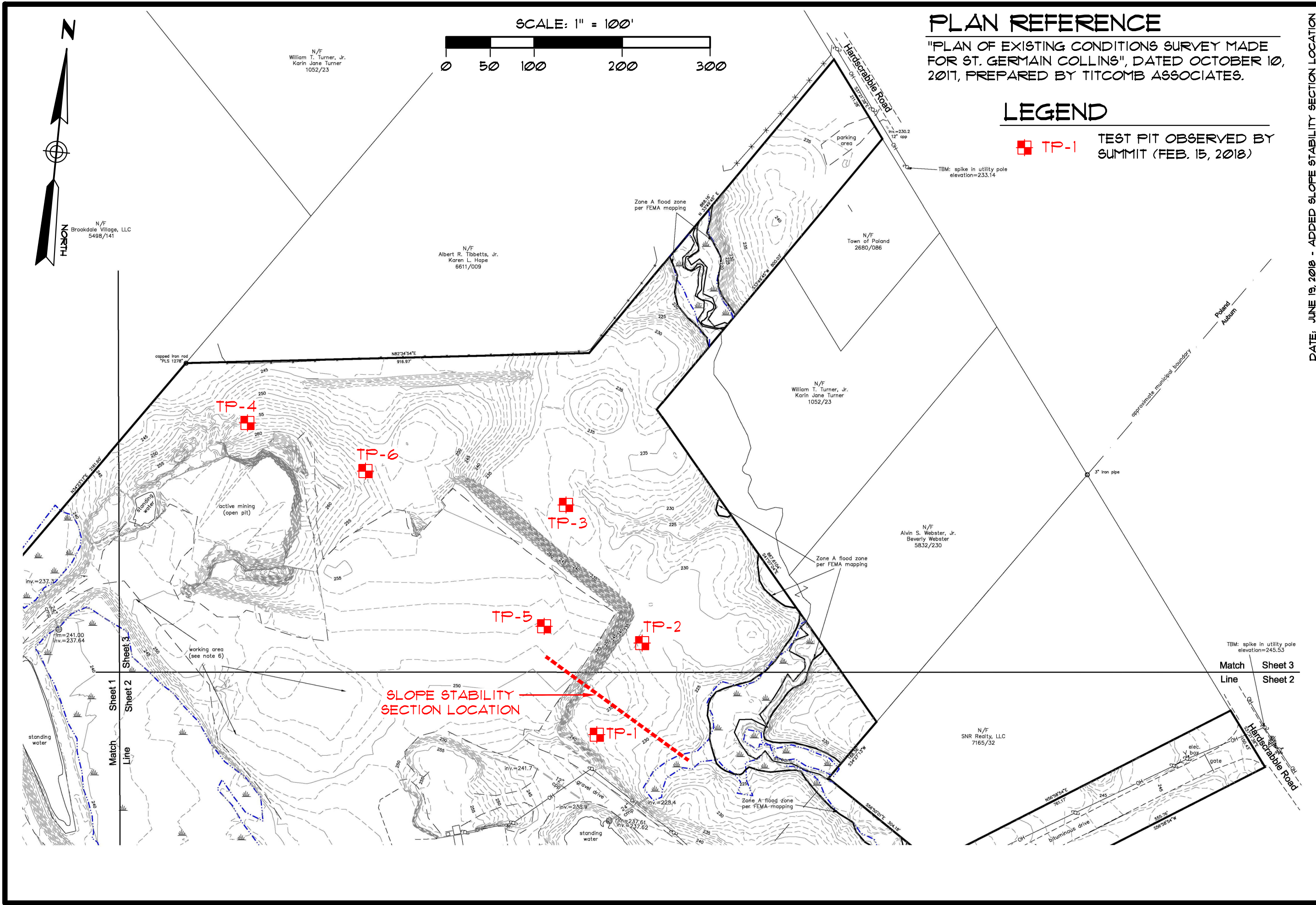






## **APPENDIX A**

### **EXPLORATION LOCATION PLAN AND TEST PIT LOGS**



PLAN REFERENCE

"PLAN OF EXISTING CONDITIONS SURVEY MADE FOR ST. GERMAIN COLLINS", DATED OCTOBER 10, 2017, PREPARED BY TITCOMB ASSOCIATES.

LEGEND

TP-1 TEST PIT OBSERVED BY SUMMIT (FEB. 15, 2018)

DATE: JUNE 19, 2018 - ADDED SLOPE STABILITY SECTION LOCATION

PROJECT:

CPRC BARK MULCH FACILITY

CLIENT:

ST. GERMAIN COLLINS

TITLE:

EXPLORATION LOCATION PLAN

SCALE: 1" = 200'

DRAWN BY: KRF

DATE: FEBRUARY 22, 2018

APPR BY: WMP

173 PLEASANT STREET  
ROCKLAND, ME 04841  
Tel: (207) 318-1161


SUMMIT


GEOENGINEERING SERVICES


145 LISBON ST. - SUITE 101  
LEWISTON, ME 04240  
Tel: (207) 516-3313

PROJ.#: 18019


FIGURE:  
1


		<b>TEST PIT LOG</b>		Test Pit # <b>TP-1</b>
		Project: Storage Pad Materials Evaluation MB Bark Mulch Auburn, Maine		Project #: 18019
				Groundwater: Slow seepage at 9.5 ft
Contractor: MB Bark Mulch		Ground Surface Elevation: 232 ft +/-		
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017		
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny	
Depth (ft)	<b>DESCRIPTION</b>			
	<b>ENGINEERING</b>		<b>GEOLOGIC/GENERAL</b>	
1	8" dark brown Silty SAND, trace organics, loose, moist, SM		TOPSOIL	
2	Olive-gray Silty CLAY, blocky, stiff, CL     seams, moist, stiff, CL		GLACIAL MARINE	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15	Becomes soft and gray at 15 ft			
16	End of Test Pit at 16 ft			
17				


		<b>TEST PIT LOG</b>		Test Pit # <b>TP-2</b>
		Project: Storage Pad Materials Evaluation MB Bark Mulch Auburn, Maine		Project #: 18019
				Groundwater: Slow seepage at 10 ft
Contractor: MB Bark Mulch		Ground Surface Elevation: 231 ft +/-		
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017		
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny	
Depth	<b>DESCRIPTION</b>			
(ft)	<b>ENGINEERING</b>	<b>GEOLOGIC/GENERAL</b>		
1	8" dark brown Silty SAND, trace organics, loose, moist, SM	TOPSOIL		
2	Olive-gray Silty CLAY, blocky, stiff, CL  Pocket Penetrometer = 4.0 to 4.5 tsf  seams, moist, stiff, CL  Water seepage slow in silt seams (EL 221 ft +/-)  Pocket Penetrometer = 0.7 to 1.0 tsf	GLACIAL MARINE		
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17	End of Test Pit at 17 ft			

		<b>TEST PIT LOG</b>		Test Pit # <b>TP-3</b>
		Project: Storage Pad Materials Evaluation MB Bark Mulch Auburn, Maine		Project #: 18019
				Groundwater: None Observed
Contractor: MB Bark Mulch		Ground Surface Elevation: 232 ft +/-		
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017		
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny	
Depth (ft)	<b>DESCRIPTION</b>			
	<b>ENGINEERING</b>	<b>GEOLOGIC/GENERAL</b>		
1	Grass, dark brown Silty SAND, trace organics, loose, moist, SM	TOPSOIL		
2	Olive-brown Silty CLAY, friable, stiff, blocky, moist, stiff, CL  Pocket Penetrometer = 3.0 to 3.7 tsf    seams, moist, stiff, CL	GLACIAL MARINE		
3				
4				
5				
6				
7				
8				
9	End of Test Pit at 8 ft			
10				
11				
12				
13				
14				
15				
16				
17				



		<b>TEST PIT LOG</b>		Test Pit # <b>TP-4</b>
		Project: Storage Pad Materials Evaluation MB Bark Mulch Auburn, Maine		Project #: 18019
				Groundwater: None Observed
Contractor: MB Bark Mulch		Ground Surface Elevation: 255 ft +/-		
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017		
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny	
Depth (ft)	<b>DESCRIPTION</b>			
	<b>ENGINEERING</b>	<b>GEOLOGIC/GENERAL</b>		
1	8" to 12" Dark brown Sandy SILT, trace rootlets and organics, moist, ML	FOREST DUFF		
2	Olive-brown Silty fine SAND, loose, moist, SM	MARINE REGRESSIVE		
3				
4				
5	End of Test Pit on Bedrock at 3.5 ft (EL 251.5 ft +/-)  seams, moist, stiff, CL			
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

		<b>TEST PIT LOG</b>		Test Pit # <b>TP-5</b>	
		Project: Storage Pad Materials Evaluation		Project #: 18019	
		MB Bark Mulch Auburn, Maine		Groundwater: None Observed	
Contractor: MB Bark Mulch		Ground Surface Elevation: 252 ft +/-			
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017			
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny		
Depth	<b>DESCRIPTION</b>				
(ft)	<b>ENGINEERING</b>		<b>GEOLOGIC/GENERAL</b>		
1	Dark brown Gravelly SAND, little Silt, trace bricks, loose, moist, SM		FILL		
2	Black SAND, little Gravel and Silt, few Cobbles, moist, dense, SM - RECLAIM				
3	Sidewalls vertical				
4					
5	End of Test Pit at 5 ft				
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

		<b>TEST PIT LOG</b>		Test Pit # <b>TP-6</b>
		Project: Storage Pad Materials Evaluation MB Bark Mulch Auburn, Maine		Project #: 18019
				Groundwater: None Observed
Contractor: MB Bark Mulch		Ground Surface Elevation: 255 ft +/-		
Equipment: Large Tracked Excavator		Reference: Topographic Survey Plan by Titcomb Associates, 2017		
Summit Staff: B. Peterlein, P.E.		Date: 2/15/2018	Weather: Sunny	
Depth (ft)	<b>DESCRIPTION</b>			
	<b>ENGINEERING</b>		<b>GEOLOGIC/GENERAL</b>	
1 2 3 4	Olive-brown Silty fine SAND, moist, loose, frozen in upper 6 to 8 inches, SM		MARINE REGRESSIVE	
5 6 7 8 9 10	Olive-brown to olive-gray Silty CLAY, few fine silt seams, moist, stiff, CL		GLACIAL MARINE	
11 12 13 14 15 16 17	End of Test Pit at 10 ft			



## **APPENDIX B**

### **RECLAIM MATERIAL LABORATORY TEST RESULTS**



## GRAIN SIZE ANALYSIS - ASTM D6913

PROJECT NAME: MB Bark Mulch Storage Pads  
 PROJECT LOCATION: Bark Mulch Drive, Auburn, Maine  
 CLIENT: St. Germain Collins  
 TECHNICIAN: Erika Stewart, P.E.  
 SOIL DESCRIPTION: SAND, some Gravel, little Silt, SW-SM to SM

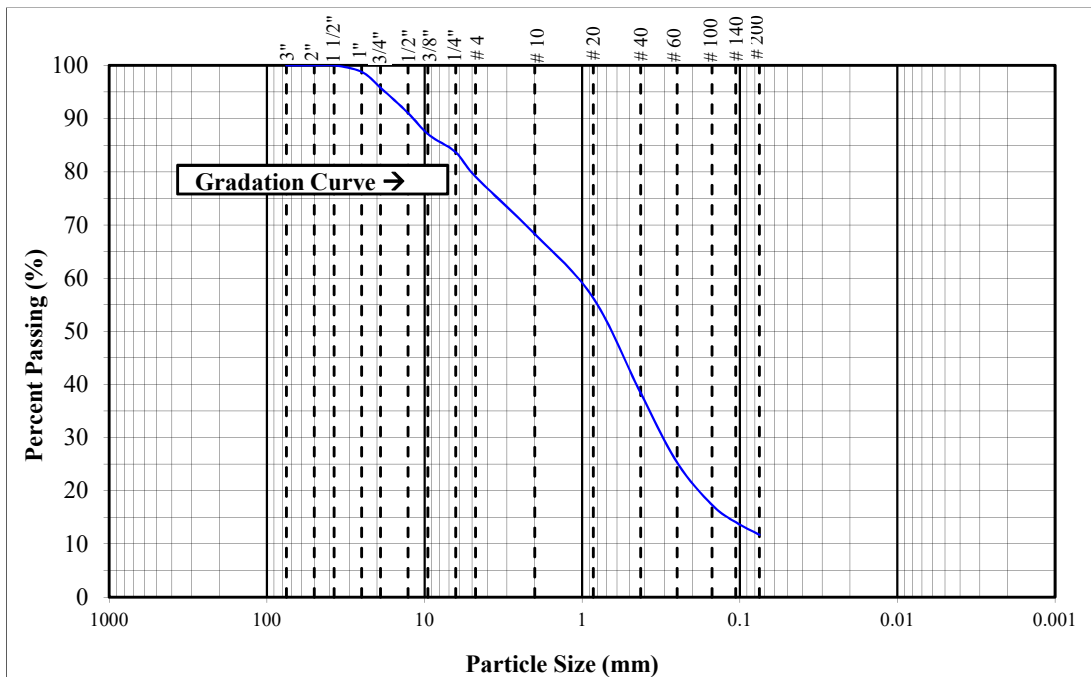
PROJECT #: 18019  
 EXPLORATION #: TP-5  
 SAMPLE #: S-1  
 SAMPLE DEPTH: 4 ft  
 TEST DATE: 3/5/2018

### TEST PROCEDURE

<b>Sample Source:</b> Test Pit	<b>Sieve Stack:</b> Composite	<b>Specimen Procedure:</b> Moist
<b>Test Method:</b> Method A	<b>Separating Sieve(s):</b> 3/8 Inch	<b>Dispersion Type:</b> Tap Water

### DATA

<u>STANDARD SIEVE</u> <u>DESIGNATION (mm)</u>	<u>ALTERNATIVE SIEVE</u> <u>DESIGNATION (in)</u>	<u>PERCENT</u> <u>PASSING</u> <u>(%)</u>
75	(3 in)	100
50	(2 in)	100
37.5	(1-1/2 in)	100
25.0	(1 in)	99
19.0	(3/4 in)	96
12.7	(1/2 in)	91
9.5	(3/8 in)	87
6.35	(1/4 in)	84
4.75	(No. 4)	79
2.00	(No. 10)	68
0.850	(No. 20)	56
0.425	(No. 40)	38
0.250	(No. 60)	25
0.150	(No. 100)	17
0.106	(No. 140)	14
0.075	(No. 200)	12



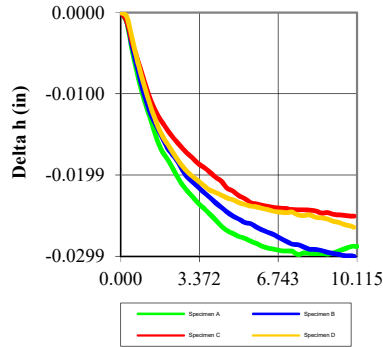
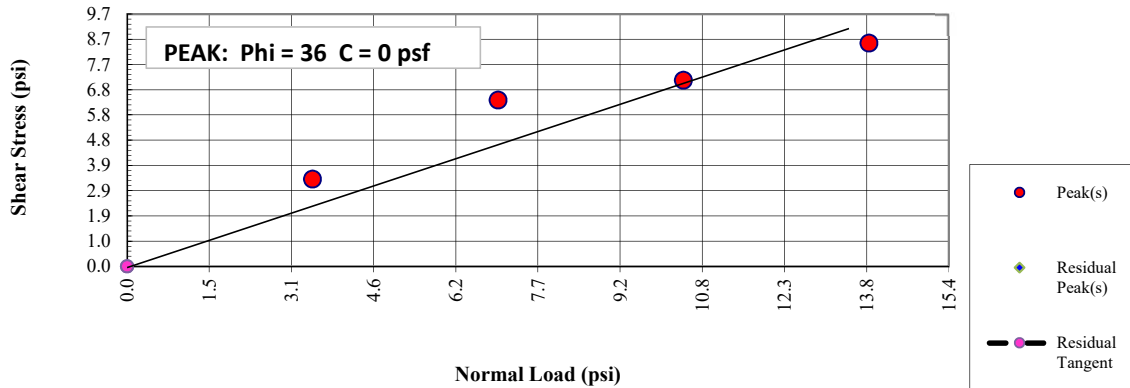
REMARKS: Moisture Content = 8.0%. Sample contains trace organics, brick, glass, and soil conglomerates from chemical treatment. Trace soil particles floating in wash water due to chemical coating.



**Summit Geotechnical Services**  
**Direct Shear Test (ASTM D3080)**

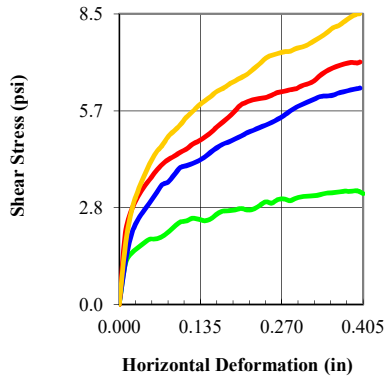


Checked By: William Peterlein, P.E. Date: 3/7/18



Specimen				
Initial	A	B	C	D
Moisture (%)	5.35	8.87	8.87	8.87
Density (pcf)	90.21	87.19	87.29	87.32
Void Ratio	0.834	0.897	0.895	0.895
Saturation (%)	16.99	26.18	26.26	26.28
Diameter (in)	4.000	4.000	4.000	4.000
Height (in)	1.000	1.000	1.000	1.000

Final	A	B	C	D
Moisture (%)	20.03	19.50	19.99	19.54
Density (pcf)	89.50	88.51	89.86	89.75
Void Ratio	0.848	0.869	0.841	0.843
Saturation (%)	91.80	95.08	100.00	61.40
Diameter (in)	4.000	4.000	4.000	4.000
Height (in)	0.854	0.826	0.819	1.000
Normal Stress (psi)	3.5	6.9	10.4	13.9
Peak Stress (psi)	3.3	6.4	7.1	8.5
Residual Stress (psi)				
Strain (%)	9.862	9.989	9.989	9.975
Rate (in/min)	0.003333	0.003333	0.003333	0.003333



Project Date	
Date	3/5/18

Tested By: Erika Stewart, P.E. Date: 3/5/18 - 3/7/18

Project:	MB Bark Mulch Storage Pads	N/A	N/A	N/A	N/A
Location:	TP-5				
Project Number:	18019				
Boring Number	TP-5				
Sample Number:	S-1				
Depth:	4 ft	Failure Photographs			
Sample Type:	Remolded				
Description:	Dark brown SAND, some Gravel, little Silt, trace debris & organics, SW-SM to SM				
Test Type:	Direct Shear				
Remarks:					



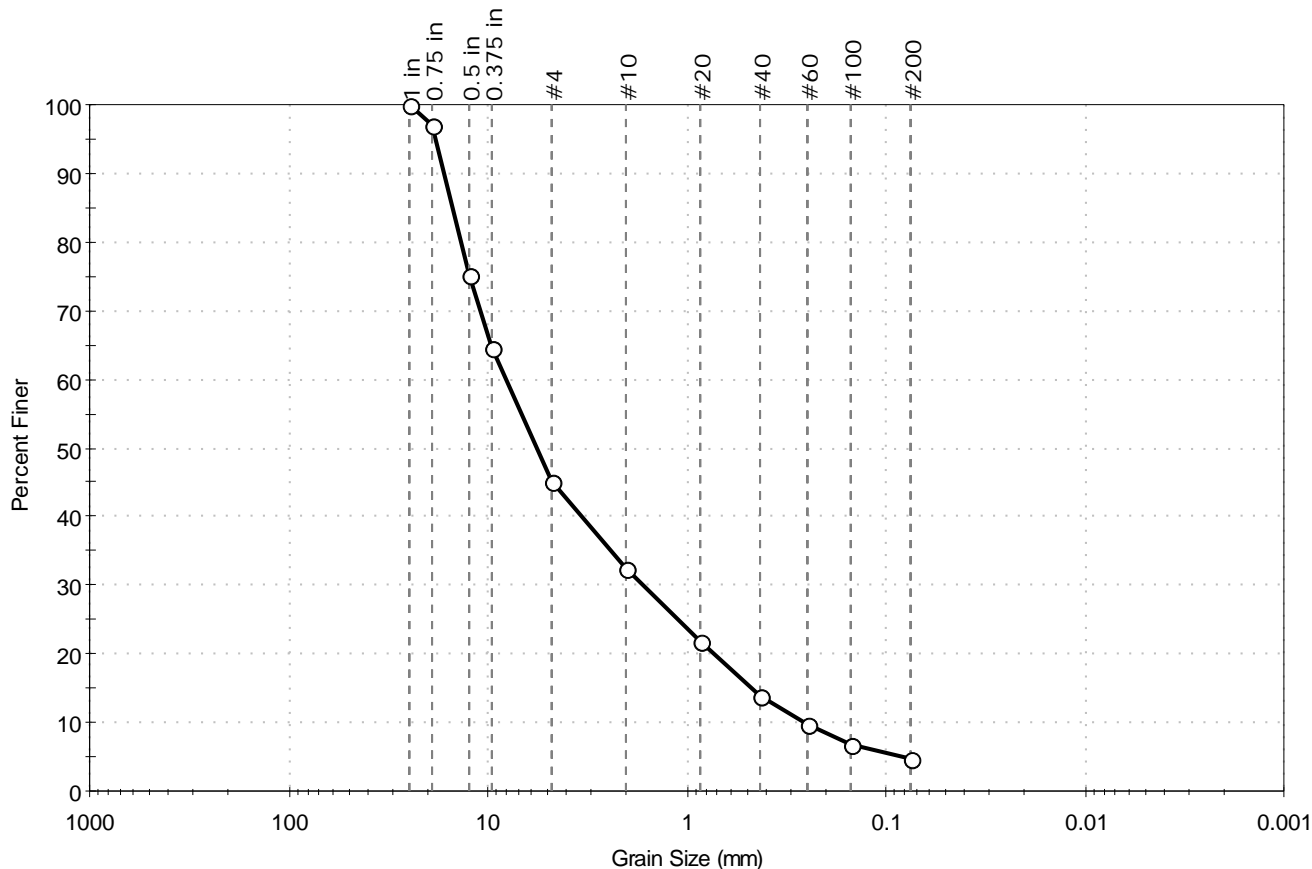
## **APPENDIX C**

### **C&R MATERIAL LABORATORY TEST RESULTS**



Client:	Summit Geoengineering Services		
Project:	MB Bark Mulch		
Location:	Auburn, ME	Project No:	GTX-308107
Boring ID:	CPRC	Sample Type:	bucket
Sample ID:	No Shingles	Test Date:	06/05/18
Depth :	Grab	Test Id:	453697
Test Comment:	---		
Visual Description:	Moist, dark brown gravel with sand		
Sample Comment:	Sample contains asphalt		

## Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	54.8	40.6	4.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	97		
0.5 in	12.50	75		
0.375 in	9.50	65		
#4	4.75	45		
#10	2.00	33		
#20	0.85	22		
#40	0.42	14		
#60	0.25	10		
#100	0.15	7		
#200	0.075	4.6		

### Coefficients

D <sub>85</sub> = 15.0606 mm	D <sub>30</sub> = 1.6258 mm
D <sub>60</sub> = 8.0608 mm	D <sub>15</sub> = 0.4634 mm
D <sub>50</sub> = 5.6312 mm	D <sub>10</sub> = 0.2558 mm
C <sub>u</sub> = 31.512	C <sub>c</sub> = 1.282

### Classification

**ASTM** Well-graded GRAVEL with Sand (GW)

**AASHTO** Stone Fragments, Gravel and Sand (A-1-a (1))

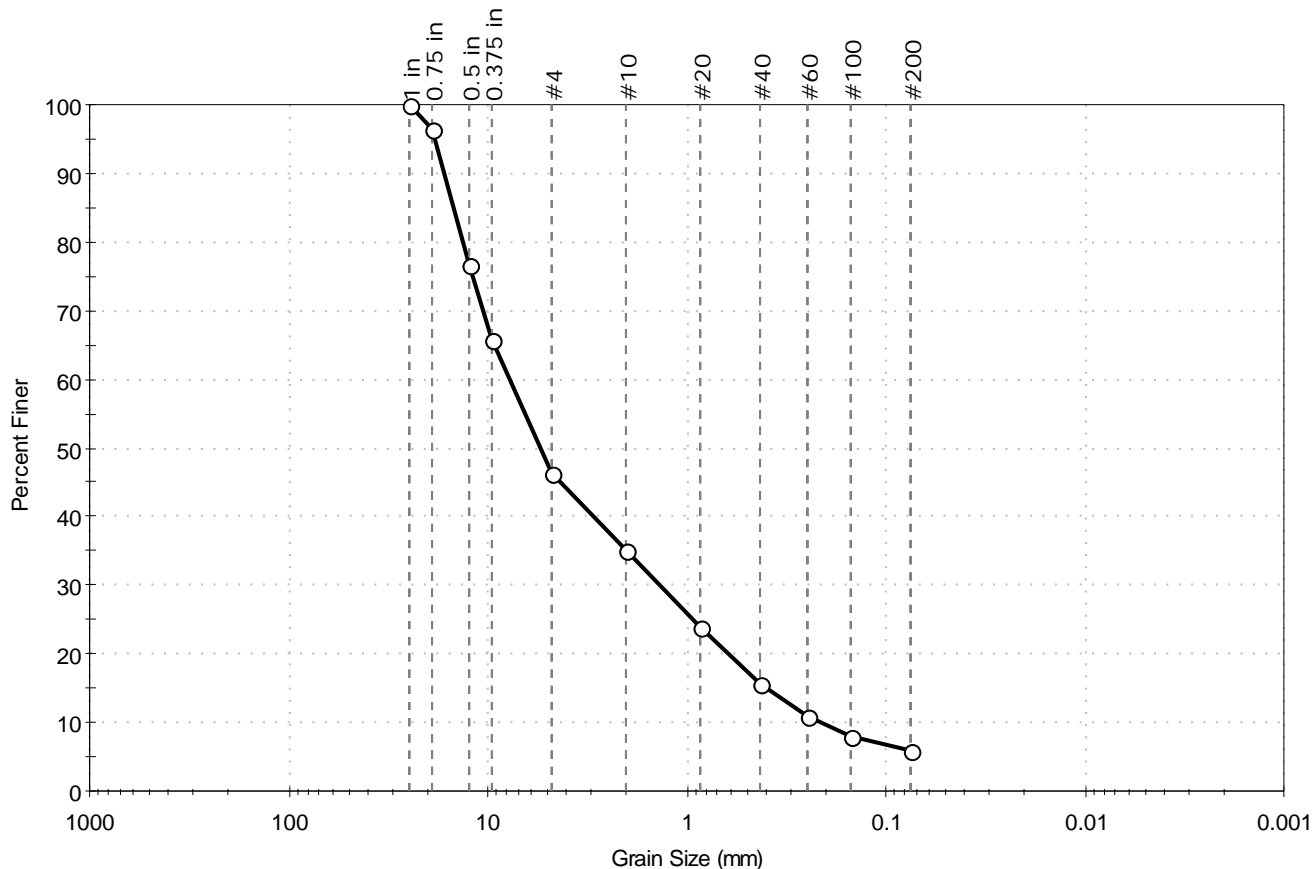
### Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Summit Geoengineering Services		
Project:	MB Bark Mulch		
Location:	Auburn, ME	Project No:	GTX-308107
Boring ID:	CPRC	Sample Type:	bucket
Sample ID:	With Shingles	Test Date:	06/05/18
Depth :	Grab	Test Id:	453698
Test Comment:	---		
Visual Description:	Moist, dark grayish brown gravel with silt and sand		
Sample Comment:	Sample contains asphalt		

## Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	53.9	40.3	5.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	96		
0.5 in	12.50	77		
0.375 in	9.50	66		
#4	4.75	46		
#10	2.00	35		
#20	0.85	24		
#40	0.42	16		
#60	0.25	11		
#100	0.15	8		
#200	0.075	5.8		

### Coefficients

$D_{85} = 14.8953 \text{ mm}$        $D_{30} = 1.3539 \text{ mm}$   
 $D_{60} = 7.7209 \text{ mm}$        $D_{15} = 0.3948 \text{ mm}$   
 $D_{50} = 5.4344 \text{ mm}$        $D_{10} = 0.2117 \text{ mm}$   
 $C_u = 36.471$        $C_c = 1.121$

### Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-a (1))

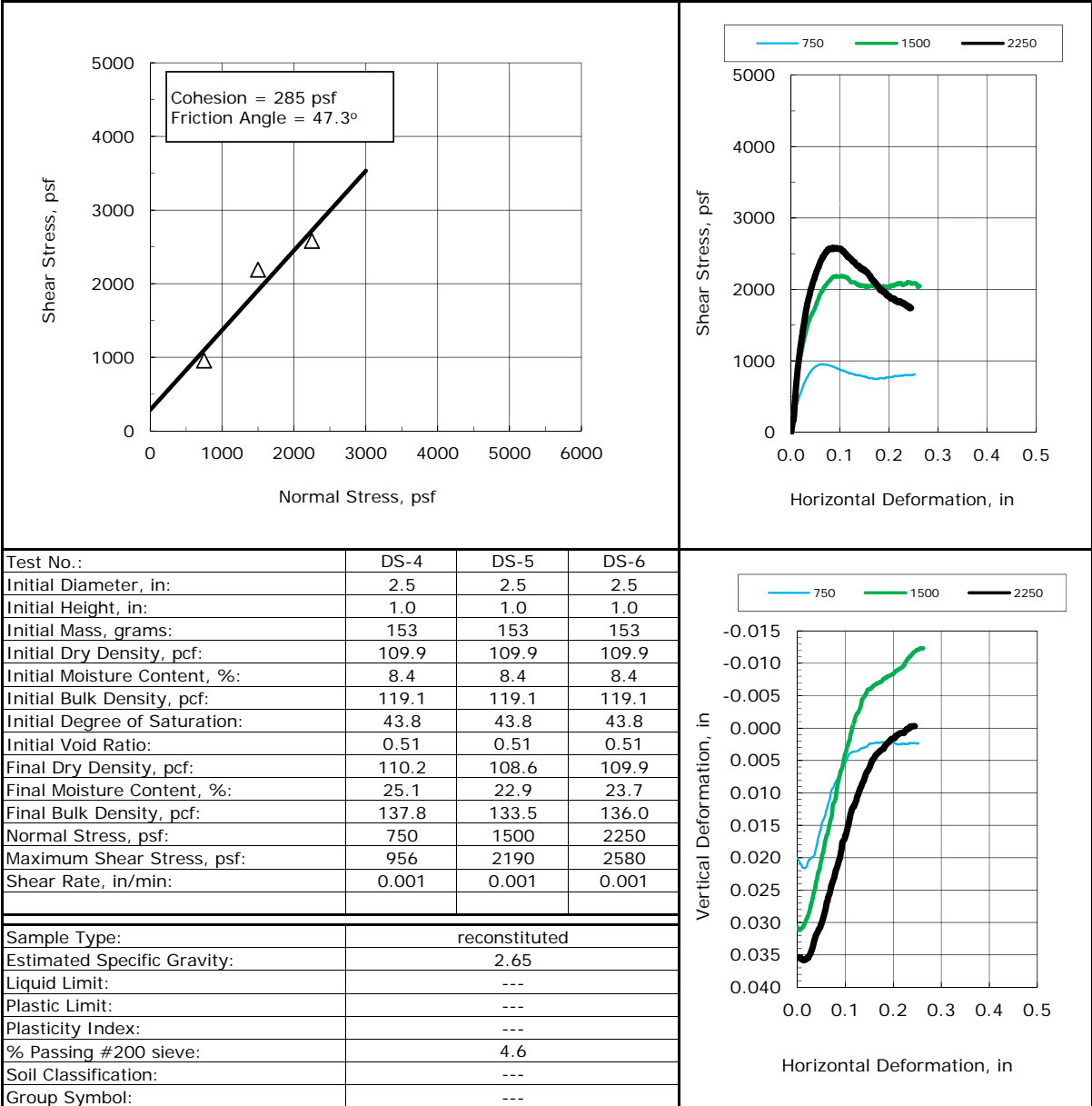
### Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR  
 Sand/Gravel Hardness : HARD



Client:	Summit Geoengineering Services
Project Name:	MB Bark Mulch
Project Location:	Auburn, ME
GTX #:	308107
Test Date:	05/31/18
Tested By:	md
Checked By:	njh
Boring ID:	CPRC
Sample ID:	No Shingles
Depth, ft:	Grab
Visual Description:	Moist, dark brown gravel with sand

## Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080



**Notes:**

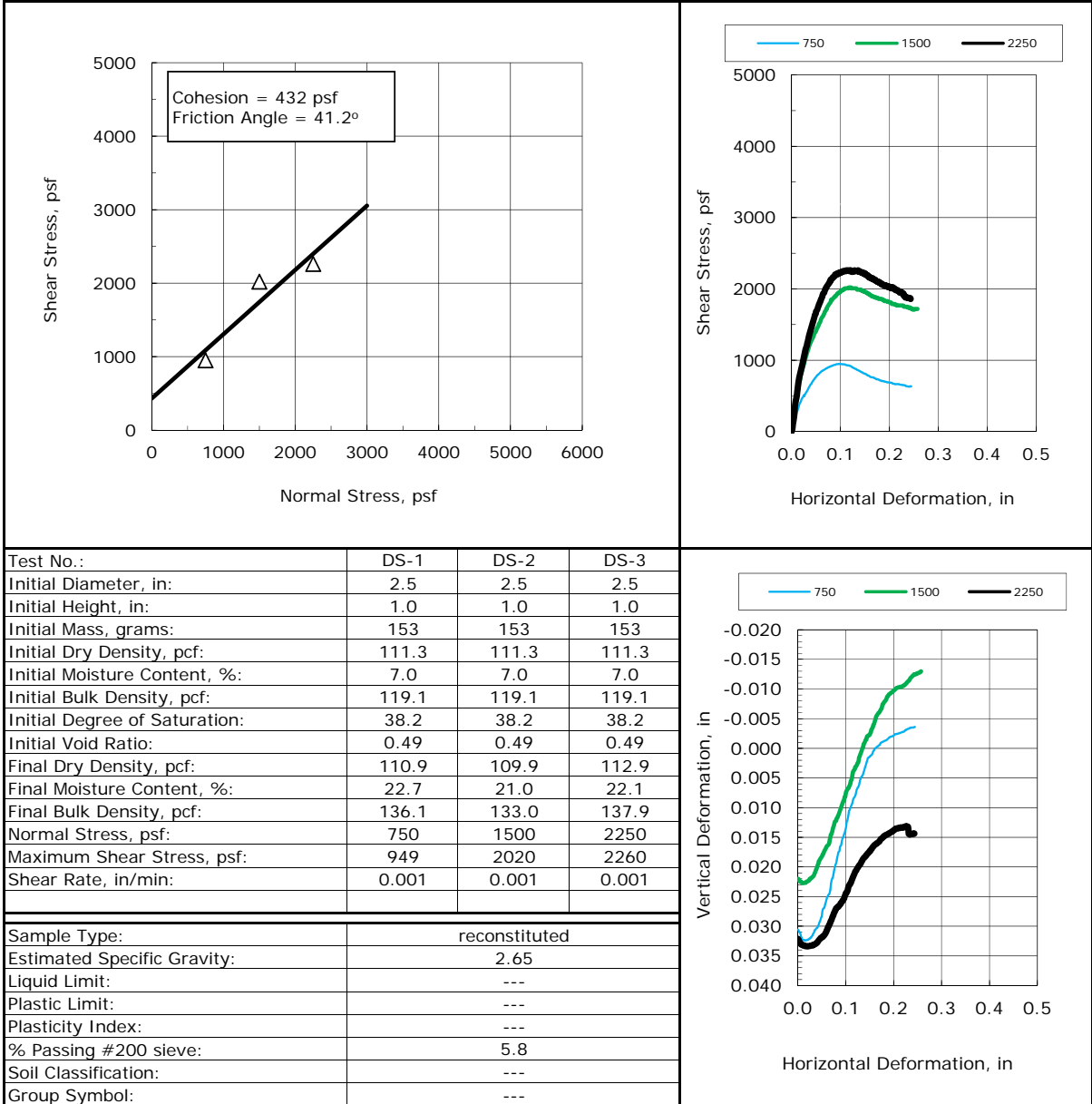
- Material greater than #5 sieve screened out of sample prior to testing
- Moisture content obtained before shear from sample trimmings
- Moisture Content determined by ASTM D2216
- Percent passing #200 sieve determined by ASTM D422
- Target Compaction: 90% of the maximum dry density (122.5 pcf) at the optimum moisture content (8.0%). Values specified by client.
- Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.
- "---" indicates testing required to determine these values was not requested.





Client:	Summit Geoengineering Services
Project Name:	MB Bark Mulch
Project Location:	Auburn, ME
GTX #:	308107
Test Date:	05/26/18
Tested By:	md
Checked By:	njh
Boring ID:	CPRC
Sample ID:	With Shingles
Depth, ft:	Grab
Visual Description:	Moist, dark grayish brown gravel with silt and sand

## Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080



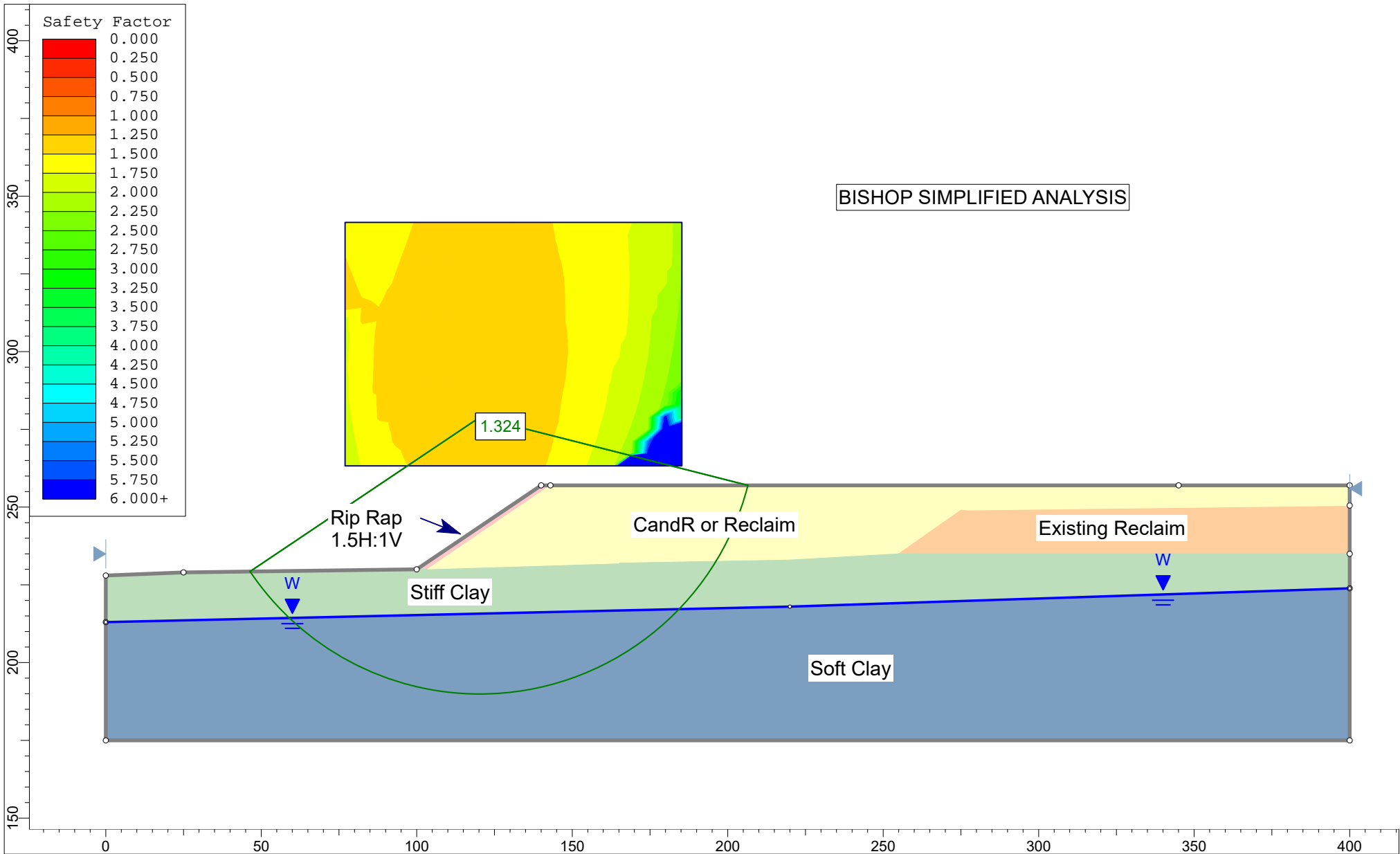
**Notes:**


- Material greater than #5 sieve screened out of sample prior to testing
- Moisture content obtained before shear from sample trimmings
- Moisture Content determined by ASTM D2216
- Percent passing #200 sieve determined by ASTM D422
- Target Compaction: 90% of the maximum dry density (122.5 pcf) at the optimum moisture content (8.0%). Values specified by client.
- Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.
- "---" indicates testing required to determine these values was not requested.



## **APPENDIX D**

### **SLOPE STABILITY ANALYSIS**



	Project			MB BARK MULCH C&R and RECLAIM FILLS	
	Analysis Description			Overall Global Stability of New Pad Using C&R or Reclaim	
	Drawn By	Scale	1:513	Company	Summit Geoengineering Services, Inc.
	Date	June 13, 2018		File	#18019

## Slide Analysis Information

### MB Bark Mulch Embankment Stability Auburn ME

#### Project Summary

File Name: Proposed slope with C&R 1H to 1V.slim  
Last saved with Slide version: 6.029  
Project Title: MB Bark Mulch Embankment Stability Auburn ME  
Analysis: Reclaim Stability  
Date Created: 5/30/2018, 2:46:23 PM

#### General Settings

Units of Measurement: Imperial Units  
Time Units: days  
Permeability Units: feet/second  
Failure Direction: Right to Left  
Data Output: Standard  
Maximum Material Properties: 20  
Maximum Support Properties: 20

#### Analysis Options


##### Analysis Methods Used

Bishop simplified  
Janbu simplified

Number of slices: 25  
Tolerance: 0.005  
Maximum number of iterations: 50  
Check malpha < 0.2: Yes  
Initial trial value of FS: 1  
Steffensen Iteration: Yes

#### Groundwater Analysis






Groundwater Method: Water Surfaces  
Pore Fluid Unit Weight: 62.4 lbs/ft<sup>3</sup>  
Advanced Groundwater Method: None

	Project			MB BARK MULCH C&R and RECLAIM FILLS		
	Analysis Description			Overall Global Stability of ENw Pad Using C&R or Reclaim		
	Drawn By		Scale	Company	Summit Geoengineering Services, Inc.	
	Date		June 13, 2018		File Name	#18019

Surface Options

Surface Type: Circular  
Search Method: Grid Search  
Radius Increment: 10  
Composite Surfaces: Disabled  
Reverse Curvature: Invalid Surfaces  
Minimum Elevation: Not Defined  
Minimum Depth: Not Defined

Material Properties

Property	C&R	Stiff Clay	Existing Reclaim	Soft Clay	Rip rap
Color					
Strength Type	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb	Undrained	Mohr-Coulomb
Unit Weight [lbs/ft3]	135	120	125	120	115
Cohesion [psf]	0	1500	0		0
Friction Angle [deg]	41	0	36		50
Cohesion Type				Function Of Depth	
Cohesion (Top) [psf]				520	
Cohesion Change [psf/ft]				12	
Water Surface	None	None	None	None	None
Ru Value	0	0	0	0	0

Probabilistic Analysis Input

General Settings

Sensitivity Analysis: On  
Probabilistic Analysis: Off

Variables

Material	Property	Distribution	Mean	Min	Max
Soft Clay	Cohesion	Normal	520	520	1520

List Of Coordinates



External Boundary

X	Y
400	175
400	223.868
400	235
400	250.5
400	257
345	257
143	257
140	257
100	230
25	229
0	228
0	213
0	175

Material Boundary

X	Y
103.529	230.109
165	232
220	233
255	235
275	249
400	250.5

Material Boundary

X	Y
0	213
220	218
400	223.868

Material Boundary

X	Y
255	235
400	235

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## Financial Capacity

Construction of the site expansion will be conducted primarily by MB Bark personnel in three phases. The first phase will include extending Pad 1. Phase two will consist of tree clearing, road and Pad 3 construction in the undeveloped portion of the site. The third phase will include the construction of Pad 2. See sheet C-3.1 – Construction Phasing Plan.

When the third phase is complete, MB Bark will be able to increase operating capacity to accommodate the asphalt shingle processing operation from Scarborough and conduct current site activities simultaneously.

Project Aspect	Estimate
Wetland Impact Compensation Fee	\$101,000
Construction	
Labor @50\$/hour = 4,000 hours/4 employees = 100 hours per employee over 2 years.	\$200,000
Tree Clearing	\$30,000
Blasting	\$12,000
Materials (manholes, piping and box culverts)	\$45,000
Construction Oversight	\$15,000
<b>Total</b>	<b>\$403,000</b>

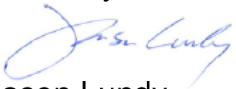
The majority of the cost will be internal as the project's construction materials and labor will be provided by MB Bark. The applicant will fund the project out of operational cash flow, and the letter in Attachment 5 indicates the ability to fund such costs.

To Whom It May Concern,

Please accept this letter as conformation that our client CPRC Group/ MB Bark has the financial wherewithal to undertake the MB Bark Recycling Permit Project in Poland/Auburn ME. Between its own cash flow generation and its access to 2.5 million dollars of working capital, CPRC/MB Bark has plenty of available capital to undertake this project.

Please contact me with any further questions.

Sincerely,



Jason Lundy  
Senior Vice President, Senior Relationship Manager  
Business Banking  
Bank of America Merrill Lynch  
Bank of America, N.A.  
1 Monument Square, 9th Floor  
ME9-001-09-01, Portland, Maine 04101  
Office 207.253.7444, Mobile 207.317.1821

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## **Traffic**

























No new entrances or exits are proposed. Vehicles accessing the expansion areas will enter through the existing MB Bark facility via controlled access. Two 10 mph gravel surface access drives connecting to existing internal roadways are proposed in the westerly portion of the facility. The gravel drives will be 24-feet wide to allow for two lane traffic and will be maintained on an as needed basis by onsite equipment. See sheet C-3.0 - Overall Site Plan for drive details, including traffic circulation patterns.

The average number of vehicle trips (incoming or outgoing) is expected to be 68 per day after the expansion, and peak hour is estimated to be 22 trips per hour. No traffic accidents occurred on roads or intersections within 0.25 miles of the facility entrance within the last three years. Maine Department of Transportation traffic counts and crash summary reports are provided in Attachment 6.

MAINE DEPARTMENT OF TRANSPORTATION  
TRAFFIC ENGINEERING DIVISION  
TRAFFIC MONITORING SECTION

Town Auburn  
County Androscoggin  
Location **W HARDSCRABBLE RD W/O LEWISTON JCT RD**  
Start Date 09/18/17 Counter # 596

Map U/1B Sta. **230101017807**  
Town # 01010  
County # 01

Date	09/17/17	09/18/17	09/19/17	09/20/17	09/21/17	09/22/17	09/23/17	week day	
Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	average	
0:00			19					19	
1:00			14					14	
2:00			11					11	
3:00			21					21	
4:00			28					28	
5:00			107					107	
6:00			124					124	
7:00			169					169	
8:00			150					150	
9:00			143					143	
10:00		107	127					117	
11:00		99	122					111	
12:00		152	128					140	
13:00		122	130					126	
14:00		182						182	
15:00		137						137	
16:00		168						168	
17:00		138						138	
18:00		117						117	
19:00		63						63	
20:00		37						37	
21:00		30						30	
22:00		20						20	
23:00		17						17	
Total	0	1389	1293	0	0	0	0	2189	

AM Peak 107 169  
PM Peak 182 130  
Peak hour count 182  
DHV Factor 1.04  
DHV % of AADT = 0.10 10%

28 Duration

Week # 38  
Old Group I  
New Group I  
Factor 0.87  
2017 AADT 1900

## Crash Summary Report

### Report Selections and Input Parameters

#### REPORT SELECTIONS

☒ Crash Summary I      ☐ Section Detail      ☒ Crash Summary II      ☐ 1320 Public      ☐ 1320 Private      ☐ 1320 Summary

#### REPORT DESCRIPTION

W Hardscrabble Rd in Auburn and Poland

#### REPORT PARAMETERS

Year 2014, Start Month 1 through Year 2016 End Month: 12

Route: 0100766

Start Node: 1274

Start Offset: 0

☐ Exclude First Node

End Node: 1276

End Offset: 0

☐ Exclude Last Node

Route: 0110511

Start Node: 1276

Start Offset: 0

☒ Exclude First Node

End Node: 4039

End Offset: 0

☐ Exclude Last Node

## Crash Summary I

Nodes														
Node	Route - MP	Node Description	U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Annual M Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
1274	0100766 - 1.60	Int of HARDSCRABBLE RD LEVINE RD	1	0	0	0	0	0	0	0.0	0.596	0.00	0.54	0.00
												Statewide Crash Rate:	0.13	
1276	0100766 - 2.24	TL Auburn Poland	1	0	0	0	0	0	0	0.0	0.741	0.00	0.53	0.00
												Statewide Crash Rate:	0.13	
4039	0110511 - 0.68	Int of LEWISTON JUNCTION RD W HARDSCRABBLE RD	1	2	0	0	0	2	0	100.0	1.732	0.39	0.44	0.00
												Statewide Crash Rate:	0.13	
Study Years:	3.00	NODE TOTALS:		2	0	0	0	2	0	100.0	3.069	0.22	0.38	0.57

## Crash Summary I

Sections																	
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
1274	1276	169060	0 - 0.64	0100766 - 1.60	0.64	1	1	0	0	0	0	1	0.0	0.00462	72.18	521.04	0.00
Int of HARDSCRABBLE RD LEVINE RD				RD INV 01 00766											Statewide Crash Rate: 227.23		
1276	4039	4333014	0 - 0.68	0110511 - 0	0.68	1	1	0	0	0	0	1	0.0	0.00517	64.54	506.91	0.00
TL Auburn Poland				RD INV 01 10511											Statewide Crash Rate: 227.23		
Study Years:		3.00		Section Totals:			1.32	2	0	0	0	2	0.0	0.00978	68.14	436.85	0.16
				Grand Totals:			1.32	4	0	0	0	2	50.0	0.00978	136.29	472.52	0.29



## Crash Summary

### Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	K	Injury Crashes				Crash Report	Crash Date	Crash Mile Point	Injury Degree
							A	B	C	PD				
1274	1276	169060	0 - 0.64	0100766 - 1.60	1	0	0	0	0	1	<a href="#">2015-50745</a>	<a href="#">12/07/2015</a>	<a href="#">1.75</a>	<a href="#">PD</a>
1276	4039	4333014	0 - 0.68	0110511 - 0	1	0	0	0	0	1	<a href="#">2016-14720</a>	<a href="#">05/31/2016</a>	<a href="#">0.56</a>	<a href="#">PD</a>
Totals:					2	0	0	0	0	2				

## Crash Summary II - Characteristics

## Crashes by Day and Hour

Day Of Week	AM											Hour of Day											PM											Un	Tot
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11											
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1								
TUESDAY	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2								
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
SATURDAY	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1								
Totals	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4								

## Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	3	23-Bicyclist	0
2-(Sport) Utility Vehicle	4	24-Witness	0
3-Passenger Van	0	25-Other	0
4-Cargo Van (10K lbs or Less)	0	Total	7
5-Pickup	0		
6-Motor Home	0		
7-School Bus	0		
8-Transit Bus	0		
9-Motor Coach	0		
10-Other Bus	0		
11-Motorcycle	0		
12-Moped	0		
13-Low Speed Vehicle	0		
14-Autocycle	0		
15-Experimental	0		
16-Other Light Trucks (10,000 lbs or Less)	0		
17-Medium/Heavy Trucks (More than 10,000 lbs)	0		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	0		

## Crash Summary II - Characteristics

## Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	2	1	0	0	0	4
Ran Off Roadway	1	0	0	0	0	0	1
Failed to Yield Right-of-Way	1	0	0	0	0	0	1
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	1	0	0	0	0	0	1
Improper Turn	0	0	0	0	0	0	0
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	0	0	0	0	0	0	0
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0
<b>Total</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>

## Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	4	2	1	0	0	0	7
Physically Impaired or Handicapped	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
<b>Total</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>

## Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	1	0	0	0	0	1
30-39	2	0	0	0	0	2
40-49	3	0	0	0	0	3
50-59	0	0	0	0	0	0
60-69	1	0	0	0	0	1
70-79	0	0	0	0	0	0
80-Over	0	0	0	0	0	0
Unknown	0	0	0	0	0	0
<b>Total</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>

## Crash Summary II - Characteristics

Most Harmful Event			
Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	7
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	1		
13-Motor Vehicle in Transport	6		
14-Parked Motor Vehicle	0		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Traffic Control Devices		
Traffic Control Device	Total	
1-Traffic Signals (Stop & Go)	0	
2-Traffic Signals (Flashing)	0	
3-Advisory/Warning Sign	1	
4-Stop Signs - All Approaches	0	
5-Stop Signs - Other	2	
6-Yield Sign	0	
7-Curve Warning Sign	0	
8-Officer, Flagman, School Patrol	0	
9-School Bus Stop Arm	0	
10-School Zone Sign	0	
11-R.R. Crossing Device	0	
12-No Passing Zone	0	
13-None	0	
14-Other	1	
Total	4	

Injury Data		
Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	2	2
PD	2	0
Total	4	2

Road Character	
Road Grade	Total
1-Level	3
2-On Grade	0
3-Top of Hill	0
4-Bottom of Hill	1
5-Other	0
Total	4

Light	
Light Condition	Total
1-Daylight	3
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	1
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	4

## Crash Summary II - Characteristics

## Crashes by Year and Month

Month	2014	2015	2016	Total
JANUARY	1	0	0	1
FEBRUARY	0	1	0	1
MARCH	0	0	0	0
APRIL	0	0	0	0
MAY	0	0	1	1
JUNE	0	0	0	0
JULY	0	0	0	0
AUGUST	0	0	0	0
SEPTEMBER	0	0	0	0
OCTOBER	0	0	0	0
NOVEMBER	0	0	0	0
DECEMBER	0	1	0	1
Total	1	2	1	4

Report is limited to the last 10 years of data.



## Crash Summary II - Characteristics

## Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	1	2	0	0	0	0	0	0	0	0	0	0	0	4

## Crash Summary II - Characteristics

## Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
<b>Blowing Sand, Soil, Dirt</b>												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
<b>Blowing Snow</b>												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
<b>Clear</b>												
Dark - Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	1	0	0	0	0	0	0	1	0	0	0	2
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
<b>Cloudy</b>												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

## Crash Summary II - Characteristics

## Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
<b>Fog, Smog, Smoke</b>												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
<b>Other</b>												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
<b>Rain</b>												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
<b>Severe Crosswinds</b>												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

## Crash Summary II - Characteristics

## Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
<b>Sleet, Hail (Freezing Rain or Drizzle)</b>												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	1	0	0	0	0	0	0	0	0	0	1
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
<b>Snow</b>												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>

7



# **STORMWATER MANAGEMENT REPORT**

**MB BARK, LLC  
RECYCLING FACILITY EXPANSION  
100 BARK MULCH DRIVE  
AUBURN, MAINE/POLAND, MAINE**

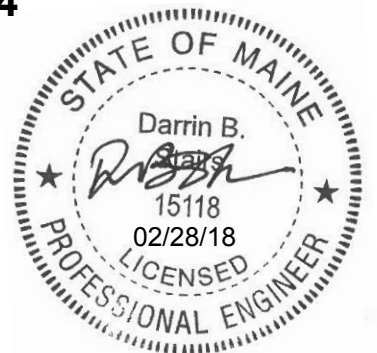
**PREPARED FOR**

**ST. GERMAIN COLLINS  
846 MAIN STREET  
WESTBROOK, MAINE 04092**

**PREPARED BY**

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**FEBRUARY 2018**



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### **Attachments**

Attachment A – Predevelopment HydroCAD Computations  
Attachment B – Post Development HydroCAD Computations  
Attachment C – Water Quality Treatment Summary  
Attachment D – Redevelopment Computations and Figures  
Attachment E – Wet Pond Computations Summary  
Attachment F – Wet Pond Stage Storage Computations

## **1.0 INTRODUCTION**

Stantec Consulting Services, Inc. has been retained by St. Germain Collins to prepare the following Stormwater Management analysis. The analysis is included as part of a Maine Department of Environmental Protection (MeDEP) Chapter 409 Solid Waste Processing Facility Amendment for the expansion of the recycling facility located at 100 Bark Mulch Drive. The facility is split between the municipalities of Auburn and Poland, Maine.

This Stormwater Management analysis has been prepared in accordance with the MeDEP Chapter 500 Rules for Stormwater Management, last revised June 2014. Specifically, this project meets the Basic, General, and Flooding Standards.

The purpose of this analysis is to identify what measures will be implemented to provide stormwater management for the proposed development specifically for water quality improvement, water quantity control, and erosion and sedimentation control. The analysis was prepared to ensure that the development will not result in any adverse effects to the environment, any natural resources, or to properties or infrastructure located downstream of the project site.

## **2.0 EXISTING SITE CONDITIONS**

The project site, located at 100 Bark Mulch Drive, is split between two municipalities with approximately 24.08 acres in Auburn, Maine and approximately 148.10 acres in Poland, Maine. From approximately 1998 to 2006, the site functioned as a bark mulch manufacturing facility, owned and operated by Morse Brothers, Inc. In 2006, the site was purchased out of bankruptcy and has since been referred to as MB Bark, LLC, the current Owner/Operator. The site is located off Hardscrabble Road approximately 2,500 feet northwesterly of the Auburn-Lewiston Airport and approximately 1,000 feet southwesterly of the Little Androscoggin River and has a single gated entrance. The Lewiston and Auburn Railroad and Saint Lawrence Railroad run along the southerly and southwesterly property lines respectively.

The site currently functions as a solid waste recycling and staging facility which handles materials like wood waste, composted waste, inert materials such as brick, rip rap, pavement and concrete and other aggregates. The facility processes and recycles the waste products to produce usable material in the form of bark mulch, loam, fuel and base aggregates typically for construction use.

The site is located within the Little Androscoggin River watershed. Stormwater runoff is handled through a series of onsite controls and conveyances including ditches, swales, stormwater management ponds, stormwater management filters, natural wetlands, and tributary streams and brooks. Two streams bisect the site; a perennial tributary of Davis Brook flows through the easterly portion of the site and an intermittent stream located in the westerly undeveloped portion of the site. Each stream is a tributary of the Little Androscoggin River. There are two stormwater management ponds that appear to have been designed specifically for flood control rather than water quality treatment. They are located in the interior of the site and have existing gravel pad areas draining to them. They both discharge through control structures into channels tributary to the Davis Brook tributary. Two stormwater management filters have been recently constructed to provide water quality treatment and flood control to the compost processing area. The two filters discharge through control structures into the large natural wetland area in the interior of

the site. The natural wetland provides the majority of the flood control for the site. The westerly undeveloped portion of the site consists of primarily wooded area with many forested wetlands and the intermittent stream described above.

There are four Points of Interest for stormwater discharge from the project site. Two are the downstream points of the streams bisecting the site. The third is the outlet point from the large wetland area in the interior of the site. The last is a small culvert crossing Hardscrabble Road, which will not be impacted by development from this project. See the attached watershed plans for the numbering and location of each Point of Interest.

Of the 172-acre site, approximately 94 acres are currently developed consisting of roof area, gravel surfaces, hard surfaces, landscaped areas, and stormwater management areas. Table 18-1 below details the land cover breakdown for the existing site:

<b>Table 1 Existing Land Cover Areas</b>	
<b>Land Cover</b>	<b>Area (ac.)</b>
Impervious Surface (roof, gravel, concrete, pavement)	55.31
Stormwater Management Water Surface	1.78
Landscaped Area	36.82
Wooded Area	78.28
<b>Total</b>	<b>172.18</b>

The site is essentially split into two portions with the easterly portion being the developed portion and the westerly portion being the primarily wooded undeveloped portion. For the purpose of this report the two areas will be analyzed separately.

The site consists of a wide variety of soil types ranging from Hydrologic Soil Group A to Hydrologic Soil Group D. Table 2 below breaks down the soil type for landscaped and wooded areas. Soil type was not analyzed for impervious surfaces.

<b>Table 2 Soil Type Summary for Landscaped and Wooded Areas</b>	
<b>Hydrologic Soil Group</b>	<b>Area (ac.)</b>
HSG A	65.40
HSG B	5.49
HSG C	20.45
HSG D	28.73
<b>Total</b>	<b>120.07</b>

### **3.0 PROPOSED SITE CONDITIONS**

The proposed development for the undeveloped westerly portion of the site includes an expansion of the existing recycling facility to provide two additional gravel pad areas for material staging and processing. The two pads are approximately 2.75 acres and 5.42 acres in size respectively. The development includes two 24' wide gravel surface access drives (approximately 1,650 LF and 950 LF respectively) to each of the pads, as well as stormwater management controls and conveyances required for the project. The access drives at wetland crossings will apply a low impact development permeable road base, or

“rock sandwich” technique to allow hydraulic connectivity of the wetland through the base course of the roadway. The access drives have been aligned to minimize the natural resource impact for the project.

Development within the easterly portion of the site is primarily redevelopment activity that will combine various pad and handling areas into a large, better drained, and more functional processing area. The development activity for this portion of the project consists of filling and regrading, as well as providing stormwater management to meet current regulatory standards.

The existing drainage patterns will remain the same in the post development condition. There are still four Points of Interest as described above. Conveyances and controls for stormwater runoff will be constructed or modified in order to ensure there is no adverse impacts from the development.

#### **4.0 NATURAL RESOURCES**

There are various natural resources located within the project site including natural wetlands, potential significant vernal pools, streams, and protected species. A natural resource report has been prepared separately and should be reviewed for further information. The proposed development has been designed to limit or prevent impact to natural resources on site.

#### **5.0 REFERENCES**

The following reference sources were used in preparation of the stormwater analysis:

1. MaineDEP Stormwater Management for Maine Volume III – BMP Technical Design Manual
2. HydroCAD Stormwater Modeling Software, Version 10.00, build 20
3. MaineDEP Erosion and Sediment Maine Erosion and Sediment Control BMP's, October 2016 revision
4. MaineDEP Chapter 500 Rules for Stormwater Management, June 2014 revision
5. U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey

#### **6.0 METHOD OF ANALYSIS**

The hydrologic analysis for predevelopment and post development conditions was conducted based upon the methodology contained in the USDA Soil Conservation Service's Technical Releases Nos. 20 and 55 (SCS TR-20 and TR-55). For Androscoggin County Maine, a 24-hour SCS Type III storm distribution was used for the analysis with the following storm frequencies and rainfall amounts:

Table 3 Hydrologic Analysis Parameters	
Storm Event	24-Hour Rainfall
2-Year Storm	3.0 inches
10-Year Storm	4.3 inches
25-Year Storm	5.4 inches

The HydroCAD computer program was used in the analysis. This program allows critical points of the watershed to be analyzed using the SCS TR-20 methodology to calculate the anticipated conditions at these points. Drainage areas are defined with runoff curve numbers, times of concentration, and travel time data based on methods outlined in the USDA TR-55 manual. To assess storage and kinematic effects of runoff, the model uses reservoirs and pipes to imitate actual conditions. Specific hydrologic characteristics including travel times, storage capacity, and the effects of hydraulic head are considered for analysis with this program.

To model the watersheds, the drainage system is represented by a network consisting of three basic components:

- **Subcatchment:** A relatively homogenous area of land that drains into a single reach or pond. Each subcatchment generates a runoff hydrograph.
- **Reach:** A uniform stream, channel, or pipe that conveys water from one point to another reach or pond. The outflow of each reach is determined by a hydrograph routing calculation.
- **Pond:** A pond, swamp, dam, or other impoundment which fills with water from one or more sources and empties in a manner determined by a weir, culvert or other device(s) at its outlet. A pond may empty into a reach or into another pond. The outflow of each pond is also determined by a hydrograph routing calculation.

## 7.0 EROSION AND SEDIMENTATION CONTROL (BASIC STANDARD)

Erosion and sedimentation control (ESC) will be accomplished for this project through the application of various temporary construction and permanent ESC BMPs as described in the MeDEP Erosion and Sediment Control BMP Manual. BMPs proposed include but are not limited to the following:

- Stabilized construction entrance
- Siltation fence
- Temporary construction stabilization
- Slope stabilization

The contractor will also be required to employ ESC BMPs for any material stockpiles as well as any areas left denuded for extended periods of time during construction.

The ESC plan for this project complies with the requirements detailed in Appendix A of MeDEP's Chapter 500 Rules for Stormwater Management.



## **8.0 WATER QUALITY MEASURES (GENERAL STANDARD)**

The development associated with this project is broken into two areas for computations in relation to the General Standard. Each area will apply different sections of the Chapter 500 rules; one follows guidelines for new development while the second follows the rules for redevelopment projects. The two areas and water quality measures associated with each are described below:

### **New Development – Westerly Portion of the Project Site:**

The westerly portion of the project includes development of two new material processing and staging pads and access drives to each. This portion of the project is considered new development and therefore Section 4.C.2.a of MeDEP Chapter 500 applies. Table 1 of that section has been applied to prorate the required treatment level based on the ratio of developed land to land available for development. This calculation allows a reduction from the standard treatment levels of 95% of impervious area and 80% of developed area down to 90% of impervious area, and 75% of developed area.

Two BMPs will be utilized to provide treatment to stormwater runoff for this portion of the project: wet ponds and forested buffers. BMPs proposed for the project have been designed in accordance with the MeDEP BMP Design Manual. Computations for each BMP are provided in Attachment E & F. A water quality summary describing how the project meets the General Standard has been provided as Attachment C.

### **Redevelopment – Easterly Portion of the Project Site:**

The easterly portion of the project includes development of one new material processing and staging pad. This area combines a number of existing “work” areas into a larger more uniform work area as well as develop previously unusable areas. Because the majority of this portion of the project is currently developed, rules from MeDEP Chapter 500 section 4.C.2.d.i have been applied. The computation described in the referenced section results in a required treatment level of 50% of total redeveloped area. Treatment will be provided through two wet ponds. The design of the ponds is described in Attachment E & F. A summary of water quality treatment for the redeveloped portion of the project is included as Attachment C.

The BMPs described above have been designed per MeDEP’s BMP Design Manual to meet the requirements of the General Standard.

## **9.0 STORMWATER MANAGEMENT FOR FLOOD CONTROL (FLOODING STANDARD)**

The stormwater system for this project has been designed to provide detention, and in turn, reduce peak discharge rates from stormwater runoff. Specifically, the 2, 10, and 25-year storm events have been analyzed for this project. Table 3 above summarizes rainfall amounts for each of the storm events analyzed. Table 4 below summarizes peak discharge rates for each storm event for the predevelopment and post development conditions:

<b>Table 4 Comparison of Peak Discharge Rates at Points of Interest</b>				
<b>Storm Event &amp; Condition</b>	<b>POI 301 (cfs)</b>	<b>POI 401 (cfs)</b>	<b>POI 501 (cfs)</b>	<b>POI 601 (cfs)</b>
2-Yr Predevelopment	1.54	30.36	1.23	1.02
2-Yr Post Development	0.93	19.03	1.23	0.95
<b>Change in 2-Yr Peak Discharge Rate</b>	<b>-0.61</b>	<b>-11.33</b>	<b>0.00</b>	<b>-0.07</b>
10-Yr Predevelopment	4.55	56.67	2.32	6.85
10-Yr Post Development	3.06	38.23	2.32	5.98
<b>Change in 10-Yr Peak Discharge Rate</b>	<b>-1.49</b>	<b>-18.44</b>	<b>0.00</b>	<b>-0.87</b>
25-Yr Predevelopment	7.66	88.24	3.31	16.23
25-Yr Post Development	6.31	55.98	3.31	14.82
<b>Change in 25-Yr Peak Discharge Rate</b>	<b>-1.35</b>	<b>-32.26</b>	<b>0.00</b>	<b>-1.41</b>

Peak discharge rates for each storm event have been decreased from predevelopment to post development conditions for this project. Therefore, the Flooding Standard has been met.

#### **10.0 MAINTENANCE AND GOOD HOUSEKEEPING MEASURES**

The Owner or the Owner's Representative will be responsible for maintenance of permanent stormwater conveyance and treatment systems constructed as part of this project. Inspection, maintenance, and housekeeping action will comply with Appendix B of MeDEP's Chapter 500 Rules for Stormwater Management and includes, but is not limited to:

- Inspection of infrastructure at regular intervals as established within Appendix B
- Removal and proper disposal of sediment build up in conveyance systems and BMPs
- Replacement of any BMP or portion of BMP that is not operating correctly
- Proper documentation of all maintenance activity

The erosion and sediment control plan and maintenance plan meet the Basic Standard.

#### **11.0 CONCLUSIONS**

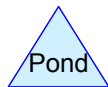
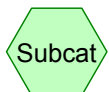
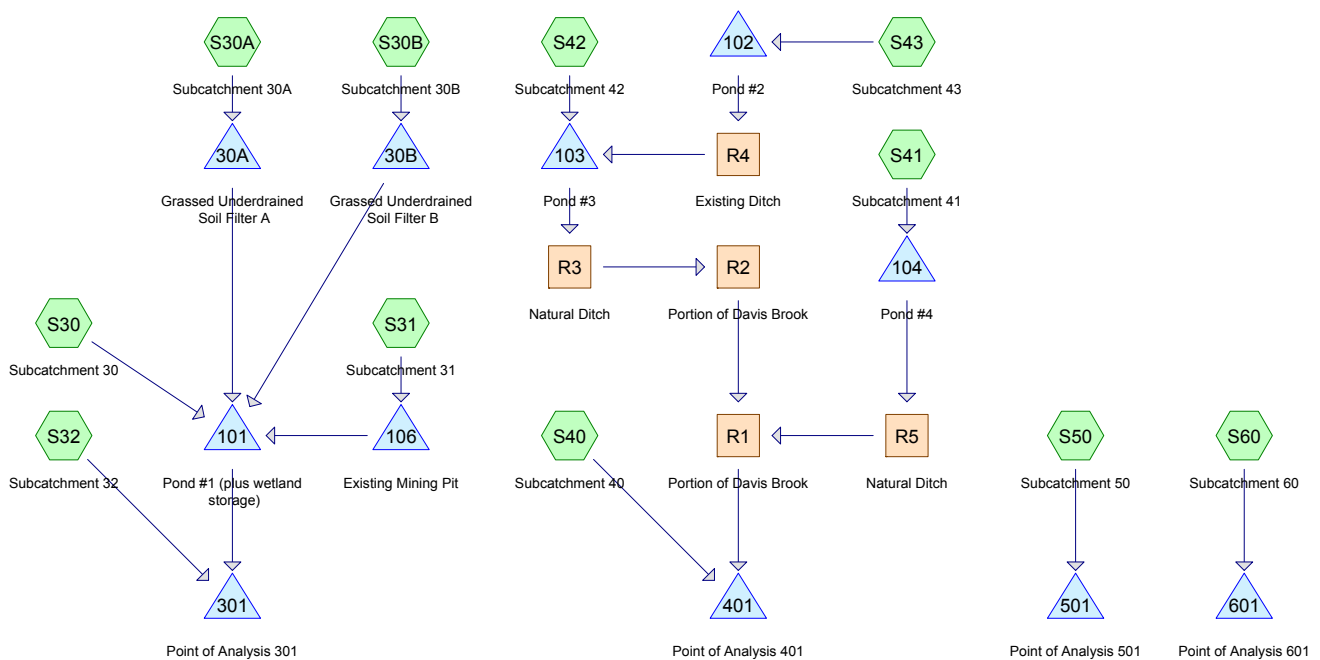
The stormwater management system for the proposed development will mitigate negative effects of stormwater runoff generated from the development by reducing peak discharge rates, improving water quality of stormwater runoff discharged from the project site, and minimizing potential erosion and sedimentation due to the development. There will be no adverse effects to downstream conveyance systems or properties anticipated due to stormwater runoff from this project.

## **12.0 ATTACHMENTS**

- Attachment A – Predevelopment HydroCAD Computations
- Attachment B – Post Development HydroCAD Computations
- Attachment C – Water Quality Treatment Summary
- Attachment D – Redevelopment Computations and Figures
- Attachment E – Wet Pond Computations Summary
- Attachment F – Wet Pond Stage Storage Computations

**ATTACHMENT A**

**PREDEVELOPMENT HYDROCAD COMPUTATIONS**



**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
55.307	98	(S30, S30A, S30B, S31, S32, S40, S41, S42, S43, S50, S60)
11.573	49	50-75% Grass cover, Fair, HSG A (S30, S30A, S30B, S42, S43, S60)
0.860	69	50-75% Grass cover, Fair, HSG B (S42, S43)
4.616	79	50-75% Grass cover, Fair, HSG C (S30, S30A, S30B, S41, S42, S43)
0.872	84	50-75% Grass cover, Fair, HSG D (S41)
2.580	39	>75% Grass cover, Good, HSG A (S32, S40)
3.275	61	>75% Grass cover, Good, HSG B (S32, S40, S50)
4.140	74	>75% Grass cover, Good, HSG C (S32, S40, S50)
8.904	80	>75% Grass cover, Good, HSG D (S32, S40)
1.263	98	Water Surface (S41, S42, S43)
0.514	98	Water Surface, HSG C (S30)
46.348	36	Woods, Fair, HSG A (S43, S60)
0.136	60	Woods, Fair, HSG B (S43)
3.109	73	Woods, Fair, HSG C (S60)
14.168	79	Woods, Fair, HSG D (S60)
4.903	30	Woods, Good, HSG A (S30, S32, S40)
1.215	55	Woods, Good, HSG B (S40)
7.831	70	Woods, Good, HSG C (S30, S32, S40)
4.784	77	Woods, Good, HSG D (S32, S40)
0.242	77	Woods, Poor, HSG C (S43)
<b>176.641</b>	<b>69</b>	<b>TOTAL AREA</b>



**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
65.404	HSG A	S30, S30A, S30B, S32, S40, S42, S43, S60
5.486	HSG B	S32, S40, S42, S43, S50
20.452	HSG C	S30, S30A, S30B, S32, S40, S41, S42, S43, S50, S60
28.728	HSG D	S32, S40, S41, S60
56.570	Other	S30, S30A, S30B, S31, S32, S40, S41, S42, S43, S50, S60
<b>176.641</b>		<b>TOTAL AREA</b>

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**Ground Covers (all nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	55.307	55.307		S30, S30A, S30B, S31, S32, S40, S41, S42, S43, S50, S60
11.573	0.860	4.616	0.872	0.000	17.922	50-75% Grass cover, Fair	S30, S30A, S30B, S41, S42, S43, S60
2.580	3.275	4.140	8.904	0.000	18.900	>75% Grass cover, Good	S32, S40, S50
0.000	0.000	0.514	0.000	1.263	1.778	Water Surface	S30, S41, S42, S43
46.348	0.136	3.109	14.168	0.000	63.761	Woods, Fair	S43, S60
4.903	1.215	7.831	4.784	0.000	18.732	Woods, Good	S30, S32, S40
0.000	0.000	0.242	0.000	0.000	0.242	Woods, Poor	S43
<b>65.404</b>	<b>5.486</b>	<b>20.452</b>	<b>28.728</b>	<b>56.570</b>	<b>176.641</b>	<b>TOTAL AREA</b>	

**Summary for Subcatchment S30: Subcatchment 30**

Runoff = 14.85 cfs @ 12.77 hrs, Volume= 2.583 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

Area (sf)	CN	Description
151,673	30	Woods, Good, HSG A
129,474	70	Woods, Good, HSG C
108,224	79	50-75% Grass cover, Fair, HSG C
39,615	49	50-75% Grass cover, Fair, HSG A
22,394	98	Water Surface, HSG C
* 576,689	98	
1,028,069	81	Weighted Average
428,986		41.73% Pervious Area
599,083		58.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	75	0.0400	1.66		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
4.9	481	0.0104	1.64		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
49.2	1,094	0.0055	0.37		<b>Shallow Concentrated Flow, C to D</b> Woodland Kv= 5.0 fps
54.9	1,650	Total			

**Summary for Subcatchment S30A: Subcatchment 30A**

Runoff = 8.49 cfs @ 12.09 hrs, Volume= 0.642 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

Area (sf)	CN	Description
* 115,960	98	
24,290	79	50-75% Grass cover, Fair, HSG C
2,477	49	50-75% Grass cover, Fair, HSG A
142,727	94	Weighted Average
26,767		18.75% Pervious Area
115,960		81.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.8	333	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.9	408	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S30B: Subcatchment 30B**

Runoff = 12.82 cfs @ 12.09 hrs, Volume= 0.982 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	197,982	98	
	947	79	50-75% Grass cover, Fair, HSG C
	10,676	49	50-75% Grass cover, Fair, HSG A
	209,605	95	Weighted Average
	11,623		5.55% Pervious Area
	197,982		94.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.9	312	0.0300	2.79		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
2.9	387	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S31: Subcatchment 31**

Runoff = 10.59 cfs @ 12.09 hrs, Volume= 0.862 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	162,835	98	
	162,835		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
5.1	700	0.0200	2.28		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
6.1	775	Total			

**Summary for Subcatchment S32: Subcatchment 32**

Runoff = 0.29 cfs @ 12.78 hrs, Volume= 0.100 af, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	10,665	98	
	61,121	30	Woods, Good, HSG A
	4,060	70	Woods, Good, HSG C
	8,302	77	Woods, Good, HSG D
	86,042	39	>75% Grass cover, Good, HSG A
	3,152	61	>75% Grass cover, Good, HSG B
	35,319	74	>75% Grass cover, Good, HSG C
	58,471	80	>75% Grass cover, Good, HSG D
	267,132	55	Weighted Average
	256,467		96.01% Pervious Area
	10,665		3.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	75	0.0080	0.07		<b>Sheet Flow, A to B</b>
					Grass: Dense n= 0.240 P2= 3.00"
16.0	600	0.0080	0.63		<b>Shallow Concentrated Flow, B to C</b>
					Short Grass Pasture Kv= 7.0 fps
32.9	675	Total			

### Summary for Subcatchment S40: Subcatchment 40

Runoff = 30.35 cfs @ 12.36 hrs, Volume= 3.592 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	429,894	98	
	200,076	77	Woods, Good, HSG D
	207,565	70	Woods, Good, HSG C
	52,912	55	Woods, Good, HSG B
	765	30	Woods, Good, HSG A
	329,379	80	>75% Grass cover, Good, HSG D
	120,178	74	>75% Grass cover, Good, HSG C
	135,075	61	>75% Grass cover, Good, HSG B
	26,357	39	>75% Grass cover, Good, HSG A
	1,502,201	80	Weighted Average
	1,072,307		71.38% Pervious Area
	429,894		28.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
6.0	776	0.0180	2.16		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
4.1	368	0.0462	1.50		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
13.6	1,500	0.0030	1.84	55.08	<b>Channel Flow, D to E</b> Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.040 Earth, cobble bottom, clean sides
25.0	2,719	Total			

### Summary for Subcatchment S41: Subcatchment 41

Runoff = 17.48 cfs @ 12.10 hrs, Volume= 1.376 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	225,409	98	
	22,827	79	50-75% Grass cover, Fair, HSG C
	37,988	84	50-75% Grass cover, Fair, HSG D
*	7,519	98	Water Surface
	293,743	95	Weighted Average
	60,815		20.70% Pervious Area
	232,928		79.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
3.3	383	0.0143	1.93		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
2.5	243	0.0535	1.62		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
7.1	701	Total			

### Summary for Subcatchment S42: Subcatchment 42

Runoff = 16.43 cfs @ 12.15 hrs, Volume= 1.398 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 2-Yr Rainfall=3.00"



	Area (sf)	CN	Description
*	278,726	98	
*	11,139	98	Water Surface
	26,977	49	50-75% Grass cover, Fair, HSG A
	29,325	69	50-75% Grass cover, Fair, HSG B
	6,630	79	50-75% Grass cover, Fair, HSG C
	352,797	91	Weighted Average
	62,932		17.84% Pervious Area
	289,865		82.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
6.1	700	0.0140	1.90		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.4	225	0.0250	1.11		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
10.8	1,000	Total			

### Summary for Subcatchment S43: Subcatchment 43

Runoff = 7.28 cfs @ 12.41 hrs, Volume= 0.938 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	232,052	98	
*	36,376	98	Water Surface
	122,740	49	50-75% Grass cover, Fair, HSG A
	38,160	79	50-75% Grass cover, Fair, HSG C
	8,153	69	50-75% Grass cover, Fair, HSG B
	86,000	36	Woods, Fair, HSG A
	5,923	60	Woods, Fair, HSG B
	10,549	77	Woods, Poor, HSG C
	539,953	74	Weighted Average
	271,525		50.29% Pervious Area
	268,428		49.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	75	0.0100	0.12		<b>Sheet Flow, A to B</b> Grass: Short n= 0.150 P2= 3.00"
16.3	488	0.0100	0.50		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
26.9	563	Total			

**Summary for Subcatchment S50: Subcatchment 50**

Runoff = 1.23 cfs @ 12.10 hrs, Volume= 0.091 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	10,546	98	
	4,431	61	>75% Grass cover, Good, HSG B
	24,859	74	>75% Grass cover, Good, HSG C
	39,836	79	Weighted Average
	29,290		73.53% Pervious Area
	10,546		26.47% Impervious Area

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

**Summary for Subcatchment S60: Subcatchment 60**

Runoff = 1.02 cfs @ 15.68 hrs, Volume= 0.657 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	168,411	98	
	301,647	49	50-75% Grass cover, Fair, HSG A
	1,932,915	36	Woods, Fair, HSG A
	135,432	73	Woods, Fair, HSG C
	617,169	79	Woods, Fair, HSG D
	3,155,574	51	Weighted Average
	2,987,163		94.66% Pervious Area
	168,411		5.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.2	75	0.0100	0.05		<b>Sheet Flow, A to B</b> Woods: Light underbrush n= 0.400 P2= 3.00"
83.4	1,640	0.0043	0.33		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
1.1	330	0.0100	5.10	122.30	<b>Channel Flow, C to D</b> Area= 24.0 sf Perim= 23.0' r= 1.04' n= 0.030 Earth, grassed & winding
107.7	2,045	Total			

**Summary for Reach R1: Portion of Davis Brook**

Inflow Area = 27.238 ac, 66.69% Impervious, Inflow Depth > 0.31" for 2-Yr event  
Inflow = 4.27 cfs @ 12.57 hrs, Volume= 0.706 af  
Outflow = 1.56 cfs @ 13.68 hrs, Volume= 0.698 af, Atten= 63%, Lag= 66.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.80 fps, Min. Travel Time= 33.1 min  
Avg. Velocity = 0.28 fps, Avg. Travel Time= 96.2 min

Peak Storage= 3,105 cf @ 13.13 hrs  
Average Depth at Peak Storage= 0.30'  
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 176.49 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
Length= 1,600.0' Slope= 0.0031 '/'  
Inlet Invert= 221.00', Outlet Invert= 216.00'

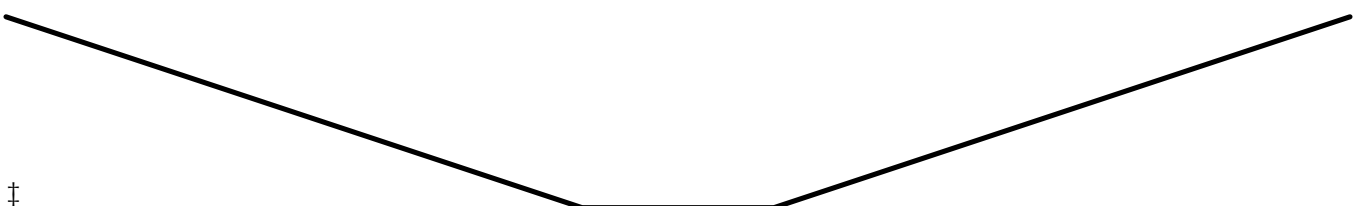
**Summary for Reach R2: Portion of Davis Brook**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.05" for 2-Yr event  
Inflow = 0.02 cfs @ 24.55 hrs, Volume= 0.086 af  
Outflow = 0.02 cfs @ 27.25 hrs, Volume= 0.084 af, Atten= 0%, Lag= 162.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.20 fps, Min. Travel Time= 49.3 min  
Avg. Velocity = 0.20 fps, Avg. Travel Time= 49.3 min

Peak Storage= 53 cf @ 26.43 hrs  
Average Depth at Peak Storage= 0.02'  
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 182.28 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
Length= 600.0' Slope= 0.0033 '/'  
Inlet Invert= 223.00', Outlet Invert= 221.00'



**Summary for Reach R3: Natural Ditch**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.05" for 2-Yr event  
Inflow = 0.02 cfs @ 24.29 hrs, Volume= 0.086 af  
Outflow = 0.02 cfs @ 24.55 hrs, Volume= 0.086 af, Atten= 0%, Lag= 15.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.84 fps, Min. Travel Time= 5.9 min  
Avg. Velocity = 0.84 fps, Avg. Travel Time= 5.9 min

Peak Storage= 6 cf @ 24.45 hrs  
Average Depth at Peak Storage= 0.00'  
Bank-Full Depth= 3.00' Flow Area= 75.0 sf, Capacity= 998.06 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
Side Slope Z-value= 5.0 '/' Top Width= 40.00'  
Length= 300.0' Slope= 0.0433 '/'  
Inlet Invert= 236.00', Outlet Invert= 223.00'

**Summary for Reach R4: Existing Ditch**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 0.00" for 2-Yr event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min  
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs  
Average Depth at Peak Storage= 0.00'  
Bank-Full Depth= 2.00' Flow Area= 28.0 sf, Capacity= 168.09 cfs

8.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight  
Side Slope Z-value= 3.0 '/' Top Width= 20.00'  
Length= 190.0' Slope= 0.0053 '/'  
Inlet Invert= 244.00', Outlet Invert= 243.00'



**Summary for Reach R5: Natural Ditch**

Inflow Area = 6.743 ac, 79.30% Impervious, Inflow Depth > 1.11" for 2-Yr event  
 Inflow = 5.22 cfs @ 12.49 hrs, Volume= 0.623 af  
 Outflow = 4.27 cfs @ 12.57 hrs, Volume= 0.623 af, Atten= 18%, Lag= 4.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.60 fps, Min. Travel Time= 2.6 min  
 Avg. Velocity = 0.74 fps, Avg. Travel Time= 5.6 min

Peak Storage= 677 cf @ 12.52 hrs  
 Average Depth at Peak Storage= 0.10'  
 Bank-Full Depth= 3.00' Flow Area= 165.0 sf, Capacity= 1,945.52 cfs

25.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
 Side Slope Z-value= 10.0 '/' Top Width= 85.00'  
 Length= 250.0' Slope= 0.0320 '/'  
 Inlet Invert= 229.00', Outlet Invert= 221.00'

**Summary for Pond 30A: Grassed Underdrained Soil Filter A**

Inflow Area = 3.277 ac, 81.25% Impervious, Inflow Depth = 2.35" for 2-Yr event  
 Inflow = 8.49 cfs @ 12.09 hrs, Volume= 0.642 af  
 Primary = 8.49 cfs @ 12.09 hrs, Volume= 0.642 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 30B: Grassed Underdrained Soil Filter B**

Inflow Area = 4.812 ac, 94.45% Impervious, Inflow Depth = 2.45" for 2-Yr event  
 Inflow = 12.82 cfs @ 12.09 hrs, Volume= 0.982 af  
 Primary = 12.82 cfs @ 12.09 hrs, Volume= 0.982 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 101: Pond #1 (plus wetland storage)**

Inflow Area = 35.428 ac, 69.71% Impervious, Inflow Depth = 1.43" for 2-Yr event  
 Inflow = 24.15 cfs @ 12.09 hrs, Volume= 4.207 af  
 Outflow = 1.46 cfs @ 18.02 hrs, Volume= 2.342 af, Atten= 94%, Lag= 355.7 min  
 Primary = 1.46 cfs @ 18.02 hrs, Volume= 2.342 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**50465\_predev**

Type III 24-hr 2-Yr Rainfall=3.00"

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Peak Elev= 241.50' @ 18.02 hrs Surf.Area= 168,133 sf Storage= 139,682 cf

Plug-Flow detention time= 958.9 min calculated for 2.342 af (56% of inflow)

Center-of-Mass det. time= 838.2 min ( 1,686.8 - 848.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	835,458 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	22,686	0	0
241.00	115,923	69,305	69,305
242.00	221,289	168,606	237,911
243.00	313,044	267,167	505,077
244.00	347,717	330,381	835,458

Device	Routing	Invert	Outlet Devices
#1	Primary	237.64'	<b>24.0" Round Culvert</b> L= 87.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.64' / 237.30' S= 0.0039 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.00'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=1.45 cfs @ 18.02 hrs HW=241.50' (Free Discharge)

1=Culvert (Passes 1.45 cfs of 15.37 cfs potential flow)

2=Orifice/Grate (Orifice Controls 1.45 cfs @ 2.40 fps)

**Summary for Pond 102: Pond #2**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 0.91" for 2-Yr event  
 Inflow = 7.28 cfs @ 12.41 hrs, Volume= 0.938 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 243.45' @ 25.60 hrs Surf.Area= 31,188 sf Storage= 40,866 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	190,120 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	25,000	0	0
244.68	36,400	82,276	82,276
246.00	127,000	107,844	190,120



Device	Routing	Invert	Outlet Devices
#1	Primary	246.53'	<b>18.0" Round Culvert</b> L= 165.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 246.53' / 244.00' S= 0.0153 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf
#2	Device 1	248.05'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=242.00' (Free Discharge)

↑ **1=Culvert** ( Controls 0.00 cfs)

↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

### Summary for Pond 103: Pond #3

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth = 0.82" for 2-Yr event  
 Inflow = 16.43 cfs @ 12.15 hrs, Volume= 1.398 af  
 Outflow = 0.02 cfs @ 24.29 hrs, Volume= 0.086 af, Atten= 100%, Lag= 728.1 min  
 Primary = 0.02 cfs @ 24.29 hrs, Volume= 0.086 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 240.55' @ 24.29 hrs Surf.Area= 18,229 sf Storage= 60,150 cf

Plug-Flow detention time= 1,976.8 min calculated for 0.086 af (6% of inflow)  
 Center-of-Mass det. time= 1,727.2 min ( 2,536.5 - 809.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	94,130 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	4,000	0	0
236.00	7,000	11,000	11,000
238.92	11,139	26,483	37,483
240.00	14,287	13,730	51,213
242.00	28,630	42,917	94,130

Device	Routing	Invert	Outlet Devices
#1	Primary	234.22'	<b>24.0" Round Culvert</b> L= 95.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 234.22' / 233.90' S= 0.0034 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.29'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	236.00'	<b>0.5" W x 0.5" H Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.02 cfs @ 24.29 hrs HW=240.55' (Free Discharge)

↑ **1=Culvert** (Passes 0.02 cfs of 21.70 cfs potential flow)

↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

↑ **3=Orifice/Grate** (Orifice Controls 0.02 cfs @ 10.25 fps)

**Summary for Pond 104: Pond #4**

Inflow Area = 6.743 ac, 79.30% Impervious, Inflow Depth = 2.45" for 2-Yr event  
 Inflow = 17.48 cfs @ 12.10 hrs, Volume= 1.376 af  
 Outflow = 5.22 cfs @ 12.49 hrs, Volume= 0.623 af, Atten= 70%, Lag= 23.3 min  
 Primary = 5.22 cfs @ 12.49 hrs, Volume= 0.623 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 238.00' @ 12.50 hrs Surf.Area= 16,786 sf Storage= 36,018 cf

Plug-Flow detention time= 501.8 min calculated for 0.622 af (45% of inflow)  
 Center-of-Mass det. time= 382.6 min ( 1,166.6 - 784.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	36,018 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	620	0	0
232.00	3,391	4,011	4,011
234.05	7,519	11,183	15,194
235.00	9,087	7,888	23,082
236.00	16,786	12,937	36,018

Device	Routing	Invert	Outlet Devices
#1	Primary	230.62'	<b>24.0" Round Culvert</b> L= 96.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 230.62' / 228.40' S= 0.0231 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	237.61'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	231.00'	<b>0.5" W x 0.5" H Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=4.88 cfs @ 12.49 hrs HW=237.99' (Free Discharge)

1=Culvert (Passes 4.88 cfs of 27.62 cfs potential flow)  
 2=Orifice/Grate (Weir Controls 4.85 cfs @ 2.02 fps)  
 3=Orifice/Grate (Orifice Controls 0.02 cfs @ 12.71 fps)

**Summary for Pond 106: Existing Mining Pit**

Inflow Area = 3.738 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-Yr event  
 Inflow = 10.59 cfs @ 12.09 hrs, Volume= 0.862 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 246.95' @ 24.40 hrs Surf.Area= 40,414 sf Storage= 37,563 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	245.00'	215,850 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
245.00	327	0	0
246.00	18,653	9,490	9,490
247.00	41,546	30,100	39,590
248.00	62,315	51,931	91,520
249.00	73,054	67,685	159,205
249.75	78,000	56,645	215,850

Device	Routing	Invert	Outlet Devices
#1	Primary	249.75'	<b>90.0' long x 25.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=245.00' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Summary for Pond 301: Point of Analysis 301

Inflow Area = 41.560 ac, 60.02% Impervious, Inflow Depth > 0.70" for 2-Yr event  
 Inflow = 1.54 cfs @ 17.66 hrs, Volume= 2.441 af  
 Primary = 1.54 cfs @ 17.66 hrs, Volume= 2.441 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Summary for Pond 401: Point of Analysis 401

Inflow Area = 61.724 ac, 45.42% Impervious, Inflow Depth > 0.83" for 2-Yr event  
 Inflow = 30.36 cfs @ 12.36 hrs, Volume= 4.291 af  
 Primary = 30.36 cfs @ 12.36 hrs, Volume= 4.291 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Summary for Pond 501: Point of Analysis 501

Inflow Area = 0.915 ac, 26.47% Impervious, Inflow Depth = 1.19" for 2-Yr event  
 Inflow = 1.23 cfs @ 12.10 hrs, Volume= 0.091 af  
 Primary = 1.23 cfs @ 12.10 hrs, Volume= 0.091 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Summary for Pond 601: Point of Analysis 601

Inflow Area = 72.442 ac, 5.34% Impervious, Inflow Depth = 0.11" for 2-Yr event  
 Inflow = 1.02 cfs @ 15.68 hrs, Volume= 0.657 af  
 Primary = 1.02 cfs @ 15.68 hrs, Volume= 0.657 af, Atten= 0%, Lag= 0.0 min

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Type III 24-hr 2-Yr Rainfall=3.00"

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Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Subcatchment S30: Subcatchment 30**

Runoff = 27.28 cfs @ 12.75 hrs, Volume= 4.673 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

Area (sf)	CN	Description
151,673	30	Woods, Good, HSG A
129,474	70	Woods, Good, HSG C
108,224	79	50-75% Grass cover, Fair, HSG C
39,615	49	50-75% Grass cover, Fair, HSG A
22,394	98	Water Surface, HSG C
* 576,689	98	
1,028,069	81	Weighted Average
428,986		41.73% Pervious Area
599,083		58.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	75	0.0400	1.66		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
4.9	481	0.0104	1.64		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
49.2	1,094	0.0055	0.37		<b>Shallow Concentrated Flow, C to D</b> Woodland Kv= 5.0 fps
54.9	1,650	Total			

**Summary for Subcatchment S30A: Subcatchment 30A**

Runoff = 12.75 cfs @ 12.09 hrs, Volume= 0.988 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

Area (sf)	CN	Description
* 115,960	98	
24,290	79	50-75% Grass cover, Fair, HSG C
2,477	49	50-75% Grass cover, Fair, HSG A
142,727	94	Weighted Average
26,767		18.75% Pervious Area
115,960		81.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.8	333	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.9	408	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S30B: Subcatchment 30B**

Runoff = 19.04 cfs @ 12.09 hrs, Volume= 1.495 af, Depth= 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	197,982	98	
	947	79	50-75% Grass cover, Fair, HSG C
	10,676	49	50-75% Grass cover, Fair, HSG A
	209,605	95	Weighted Average
	11,623		5.55% Pervious Area
	197,982		94.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.9	312	0.0300	2.79		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
2.9	387	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S31: Subcatchment 31**

Runoff = 15.29 cfs @ 12.09 hrs, Volume= 1.266 af, Depth= 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	162,835	98	
	162,835		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
5.1	700	0.0200	2.28		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
6.1	775	Total			

**Summary for Subcatchment S32: Subcatchment 32**

Runoff = 1.83 cfs @ 12.59 hrs, Volume= 0.334 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"



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Type III 24-hr 10-Yr Rainfall=4.30"

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	Area (sf)	CN	Description
*	10,665	98	
	61,121	30	Woods, Good, HSG A
	4,060	70	Woods, Good, HSG C
	8,302	77	Woods, Good, HSG D
	86,042	39	>75% Grass cover, Good, HSG A
	3,152	61	>75% Grass cover, Good, HSG B
	35,319	74	>75% Grass cover, Good, HSG C
	58,471	80	>75% Grass cover, Good, HSG D
	267,132	55	Weighted Average
	256,467		96.01% Pervious Area
	10,665		3.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	75	0.0080	0.07		<b>Sheet Flow, A to B</b>
					Grass: Dense n= 0.240 P2= 3.00"
16.0	600	0.0080	0.63		<b>Shallow Concentrated Flow, B to C</b>
					Short Grass Pasture Kv= 7.0 fps
32.9	675	Total			

**Summary for Subcatchment S40: Subcatchment 40**

Runoff = 56.65 cfs @ 12.35 hrs, Volume= 6.587 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	429,894	98	
	200,076	77	Woods, Good, HSG D
	207,565	70	Woods, Good, HSG C
	52,912	55	Woods, Good, HSG B
	765	30	Woods, Good, HSG A
	329,379	80	>75% Grass cover, Good, HSG D
	120,178	74	>75% Grass cover, Good, HSG C
	135,075	61	>75% Grass cover, Good, HSG B
	26,357	39	>75% Grass cover, Good, HSG A
	1,502,201	80	Weighted Average
	1,072,307		71.38% Pervious Area
	429,894		28.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
6.0	776	0.0180	2.16		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
4.1	368	0.0462	1.50		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
13.6	1,500	0.0030	1.84	55.08	<b>Channel Flow, D to E</b> Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.040 Earth, cobble bottom, clean sides
25.0	2,719	Total			

### Summary for Subcatchment S41: Subcatchment 41

Runoff = 25.97 cfs @ 12.10 hrs, Volume= 2.094 af, Depth= 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	225,409	98	
	22,827	79	50-75% Grass cover, Fair, HSG C
	37,988	84	50-75% Grass cover, Fair, HSG D
*	7,519	98	Water Surface
	293,743	95	Weighted Average
	60,815		20.70% Pervious Area
	232,928		79.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
3.3	383	0.0143	1.93		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
2.5	243	0.0535	1.62		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
7.1	701	Total			

### Summary for Subcatchment S42: Subcatchment 42

Runoff = 25.71 cfs @ 12.15 hrs, Volume= 2.231 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	278,726	98	
*	11,139	98	Water Surface
	26,977	49	50-75% Grass cover, Fair, HSG A
	29,325	69	50-75% Grass cover, Fair, HSG B
	6,630	79	50-75% Grass cover, Fair, HSG C
	352,797	91	Weighted Average
	62,932		17.84% Pervious Area
	289,865		82.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
6.1	700	0.0140	1.90		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.4	225	0.0250	1.11		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
10.8	1,000	Total			

### Summary for Subcatchment S43: Subcatchment 43

Runoff = 15.40 cfs @ 12.39 hrs, Volume= 1.880 af, Depth= 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	232,052	98	
*	36,376	98	Water Surface
	122,740	49	50-75% Grass cover, Fair, HSG A
	38,160	79	50-75% Grass cover, Fair, HSG C
	8,153	69	50-75% Grass cover, Fair, HSG B
	86,000	36	Woods, Fair, HSG A
	5,923	60	Woods, Fair, HSG B
	10,549	77	Woods, Poor, HSG C
	539,953	74	Weighted Average
	271,525		50.29% Pervious Area
	268,428		49.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	75	0.0100	0.12		<b>Sheet Flow, A to B</b> Grass: Short n= 0.150 P2= 3.00"
16.3	488	0.0100	0.50		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
26.9	563	Total			

**Summary for Subcatchment S50: Subcatchment 50**

Runoff = 2.32 cfs @ 12.09 hrs, Volume= 0.168 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	10,546	98	
	4,431	61	>75% Grass cover, Good, HSG B
	24,859	74	>75% Grass cover, Good, HSG C
	39,836	79	Weighted Average
	29,290		73.53% Pervious Area
	10,546		26.47% Impervious Area

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

**Summary for Subcatchment S60: Subcatchment 60**

Runoff = 6.85 cfs @ 13.88 hrs, Volume= 2.849 af, Depth= 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	168,411	98	
	301,647	49	50-75% Grass cover, Fair, HSG A
	1,932,915	36	Woods, Fair, HSG A
	135,432	73	Woods, Fair, HSG C
	617,169	79	Woods, Fair, HSG D
	3,155,574	51	Weighted Average
	2,987,163		94.66% Pervious Area
	168,411		5.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.2	75	0.0100	0.05		<b>Sheet Flow, A to B</b> Woods: Light underbrush n= 0.400 P2= 3.00"
83.4	1,640	0.0043	0.33		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
1.1	330	0.0100	5.10	122.30	<b>Channel Flow, C to D</b> Area= 24.0 sf Perim= 23.0' r= 1.04' n= 0.030 Earth, grassed & winding
107.7	2,045	Total			

**Summary for Reach R1: Portion of Davis Brook**

Inflow Area = 27.238 ac, 66.69% Impervious, Inflow Depth > 0.84" for 10-Yr event  
Inflow = 23.24 cfs @ 12.17 hrs, Volume= 1.904 af  
Outflow = 9.50 cfs @ 12.74 hrs, Volume= 1.896 af, Atten= 59%, Lag= 33.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 1.37 fps, Min. Travel Time= 19.4 min  
Avg. Velocity = 0.33 fps, Avg. Travel Time= 80.3 min

Peak Storage= 11,137 cf @ 12.41 hrs  
Average Depth at Peak Storage= 0.78'  
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 176.49 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
Length= 1,600.0' Slope= 0.0031 '/'  
Inlet Invert= 221.00', Outlet Invert= 216.00'

**Summary for Reach R2: Portion of Davis Brook**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.33" for 10-Yr event  
Inflow = 0.99 cfs @ 15.95 hrs, Volume= 0.565 af  
Outflow = 0.98 cfs @ 16.37 hrs, Volume= 0.563 af, Atten= 1%, Lag= 25.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.71 fps, Min. Travel Time= 14.1 min  
Avg. Velocity = 0.27 fps, Avg. Travel Time= 37.0 min

Peak Storage= 831 cf @ 16.13 hrs  
Average Depth at Peak Storage= 0.23'  
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 182.28 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
Length= 600.0' Slope= 0.0033 '/'  
Inlet Invert= 223.00', Outlet Invert= 221.00'



**Summary for Reach R3: Natural Ditch**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.33" for 10-Yr event  
Inflow = 0.99 cfs @ 15.85 hrs, Volume= 0.565 af  
Outflow = 0.99 cfs @ 15.95 hrs, Volume= 0.565 af, Atten= 0%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 1.44 fps, Min. Travel Time= 3.5 min  
Avg. Velocity = 0.90 fps, Avg. Travel Time= 5.6 min

Peak Storage= 206 cf @ 15.89 hrs  
Average Depth at Peak Storage= 0.07'  
Bank-Full Depth= 3.00' Flow Area= 75.0 sf, Capacity= 998.06 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
Side Slope Z-value= 5.0 '/' Top Width= 40.00'  
Length= 300.0' Slope= 0.0433 '/'  
Inlet Invert= 236.00', Outlet Invert= 223.00'

**Summary for Reach R4: Existing Ditch**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 0.00" for 10-Yr event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min  
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs  
Average Depth at Peak Storage= 0.00'  
Bank-Full Depth= 2.00' Flow Area= 28.0 sf, Capacity= 168.09 cfs

8.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight  
Side Slope Z-value= 3.0 '/' Top Width= 20.00'  
Length= 190.0' Slope= 0.0053 '/'  
Inlet Invert= 244.00', Outlet Invert= 243.00'





**Summary for Reach R5: Natural Ditch**

Inflow Area = 6.743 ac, 79.30% Impervious, Inflow Depth > 2.39" for 10-Yr event  
 Inflow = 33.14 cfs @ 12.11 hrs, Volume= 1.341 af  
 Outflow = 23.24 cfs @ 12.17 hrs, Volume= 1.341 af, Atten= 30%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 3.16 fps, Min. Travel Time= 1.3 min  
 Avg. Velocity = 0.76 fps, Avg. Travel Time= 5.5 min

Peak Storage= 2,075 cf @ 12.15 hrs  
 Average Depth at Peak Storage= 0.30'  
 Bank-Full Depth= 3.00' Flow Area= 165.0 sf, Capacity= 1,945.52 cfs

25.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
 Side Slope Z-value= 10.0 '/' Top Width= 85.00'  
 Length= 250.0' Slope= 0.0320 '/'  
 Inlet Invert= 229.00', Outlet Invert= 221.00'

**Summary for Pond 30A: Grassed Underdrained Soil Filter A**

Inflow Area = 3.277 ac, 81.25% Impervious, Inflow Depth = 3.62" for 10-Yr event  
 Inflow = 12.75 cfs @ 12.09 hrs, Volume= 0.988 af  
 Primary = 12.75 cfs @ 12.09 hrs, Volume= 0.988 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 30B: Grassed Underdrained Soil Filter B**

Inflow Area = 4.812 ac, 94.45% Impervious, Inflow Depth = 3.73" for 10-Yr event  
 Inflow = 19.04 cfs @ 12.09 hrs, Volume= 1.495 af  
 Primary = 19.04 cfs @ 12.09 hrs, Volume= 1.495 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 101: Pond #1 (plus wetland storage)**

Inflow Area = 35.428 ac, 69.71% Impervious, Inflow Depth = 2.42" for 10-Yr event  
 Inflow = 38.13 cfs @ 12.09 hrs, Volume= 7.156 af  
 Outflow = 4.20 cfs @ 15.81 hrs, Volume= 5.257 af, Atten= 89%, Lag= 222.9 min  
 Primary = 4.20 cfs @ 15.81 hrs, Volume= 5.257 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

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Type III 24-hr 10-Yr Rainfall=4.30"

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Peak Elev= 241.87' @ 15.81 hrs Surf.Area= 208,056 sf Storage= 210,950 cf

Plug-Flow detention time= 735.7 min calculated for 5.253 af (73% of inflow)

Center-of-Mass det. time= 645.8 min ( 1,483.3 - 837.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	835,458 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	22,686	0	0
241.00	115,923	69,305	69,305
242.00	221,289	168,606	237,911
243.00	313,044	267,167	505,077
244.00	347,717	330,381	835,458

Device	Routing	Invert	Outlet Devices
#1	Primary	237.64'	<b>24.0" Round Culvert</b> L= 87.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.64' / 237.30' S= 0.0039 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.00'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=4.20 cfs @ 15.81 hrs HW=241.87' (Free Discharge)

1=Culvert (Passes 4.20 cfs of 16.64 cfs potential flow)

2=Orifice/Grate (Orifice Controls 4.20 cfs @ 3.18 fps)

**Summary for Pond 102: Pond #2**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 1.82" for 10-Yr event  
 Inflow = 15.40 cfs @ 12.39 hrs, Volume= 1.880 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 244.67' @ 25.60 hrs Surf.Area= 36,354 sf Storage= 81,885 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	190,120 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	25,000	0	0
244.68	36,400	82,276	82,276
246.00	127,000	107,844	190,120

Device	Routing	Invert	Outlet Devices
#1	Primary	246.53'	<b>18.0" Round Culvert</b> L= 165.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 246.53' / 244.00' S= 0.0153 '/ Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf
#2	Device 1	248.05'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=242.00' (Free Discharge)

↑ **1=Culvert** ( Controls 0.00 cfs)

↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

### Summary for Pond 103: Pond #3

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth = 1.31" for 10-Yr event  
 Inflow = 25.71 cfs @ 12.15 hrs, Volume= 2.231 af  
 Outflow = 0.99 cfs @ 15.85 hrs, Volume= 0.565 af, Atten= 96%, Lag= 222.3 min  
 Primary = 0.99 cfs @ 15.85 hrs, Volume= 0.565 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 241.42' @ 15.85 hrs Surf.Area= 24,457 sf Storage= 78,686 cf

Plug-Flow detention time= 725.6 min calculated for 0.565 af (25% of inflow)  
 Center-of-Mass det. time= 567.8 min ( 1,364.2 - 796.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	94,130 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	4,000	0	0
236.00	7,000	11,000	11,000
238.92	11,139	26,483	37,483
240.00	14,287	13,730	51,213
242.00	28,630	42,917	94,130

Device	Routing	Invert	Outlet Devices
#1	Primary	234.22'	<b>24.0" Round Culvert</b> L= 95.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 234.22' / 233.90' S= 0.0034 '/ Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.29'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	236.00'	<b>0.5" W x 0.5" H Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.96 cfs @ 15.85 hrs HW=241.42' (Free Discharge)

↑ **1=Culvert** (Passes 0.96 cfs of 23.64 cfs potential flow)

↑ **2=Orifice/Grate** (Weir Controls 0.94 cfs @ 1.17 fps)

↑ **3=Orifice/Grate** (Orifice Controls 0.02 cfs @ 11.19 fps)

**Summary for Pond 104: Pond #4**

Inflow Area = 6.743 ac, 79.30% Impervious, Inflow Depth = 3.73" for 10-Yr event  
 Inflow = 25.97 cfs @ 12.10 hrs, Volume= 2.094 af  
 Outflow = 33.14 cfs @ 12.11 hrs, Volume= 1.341 af, Atten= 0%, Lag= 0.5 min  
 Primary = 33.14 cfs @ 12.11 hrs, Volume= 1.341 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 242.32' @ 12.11 hrs Surf.Area= 16,786 sf Storage= 36,018 cf

Plug-Flow detention time= 298.7 min calculated for 1.341 af (64% of inflow)  
 Center-of-Mass det. time= 199.0 min ( 972.3 - 773.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	36,018 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	620	0	0
232.00	3,391	4,011	4,011
234.05	7,519	11,183	15,194
235.00	9,087	7,888	23,082
236.00	16,786	12,937	36,018

Device	Routing	Invert	Outlet Devices
#1	Primary	230.62'	<b>24.0" Round Culvert</b> L= 96.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 230.62' / 228.40' S= 0.0231 '/ Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	237.61'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	231.00'	<b>0.5" W x 0.5" H Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=30.43 cfs @ 12.11 hrs HW=241.65' (Free Discharge)

1=Culvert (Passes 30.43 cfs of 33.62 cfs potential flow)  
 2=Orifice/Grate (Orifice Controls 30.41 cfs @ 9.68 fps)  
 3=Orifice/Grate (Orifice Controls 0.03 cfs @ 15.70 fps)

**Summary for Pond 106: Existing Mining Pit**

Inflow Area = 3.738 ac, 100.00% Impervious, Inflow Depth = 4.06" for 10-Yr event  
 Inflow = 15.29 cfs @ 12.09 hrs, Volume= 1.266 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 247.34' @ 24.40 hrs Surf.Area= 48,706 sf Storage= 55,147 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	245.00'	215,850 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
245.00	327	0	0
246.00	18,653	9,490	9,490
247.00	41,546	30,100	39,590
248.00	62,315	51,931	91,520
249.00	73,054	67,685	159,205
249.75	78,000	56,645	215,850

Device	Routing	Invert	Outlet Devices
#1	Primary	249.75'	<b>90.0' long x 25.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=245.00' (Free Discharge)

↑1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

### Summary for Pond 301: Point of Analysis 301

Inflow Area = 41.560 ac, 60.02% Impervious, Inflow Depth > 1.61" for 10-Yr event  
 Inflow = 4.55 cfs @ 15.40 hrs, Volume= 5.591 af  
 Primary = 4.55 cfs @ 15.40 hrs, Volume= 5.591 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Summary for Pond 401: Point of Analysis 401

Inflow Area = 61.724 ac, 45.42% Impervious, Inflow Depth > 1.65" for 10-Yr event  
 Inflow = 56.67 cfs @ 12.35 hrs, Volume= 8.483 af  
 Primary = 56.67 cfs @ 12.35 hrs, Volume= 8.483 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Summary for Pond 501: Point of Analysis 501

Inflow Area = 0.915 ac, 26.47% Impervious, Inflow Depth = 2.21" for 10-Yr event  
 Inflow = 2.32 cfs @ 12.09 hrs, Volume= 0.168 af  
 Primary = 2.32 cfs @ 12.09 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Summary for Pond 601: Point of Analysis 601

Inflow Area = 72.442 ac, 5.34% Impervious, Inflow Depth = 0.47" for 10-Yr event  
 Inflow = 6.85 cfs @ 13.88 hrs, Volume= 2.849 af  
 Primary = 6.85 cfs @ 13.88 hrs, Volume= 2.849 af, Atten= 0%, Lag= 0.0 min

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Type III 24-hr 10-Yr Rainfall=4.30"

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Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



**Summary for Subcatchment S30: Subcatchment 30**

Runoff = 38.36 cfs @ 12.74 hrs, Volume= 6.572 af, Depth= 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

Area (sf)	CN	Description
151,673	30	Woods, Good, HSG A
129,474	70	Woods, Good, HSG C
108,224	79	50-75% Grass cover, Fair, HSG C
39,615	49	50-75% Grass cover, Fair, HSG A
22,394	98	Water Surface, HSG C
* 576,689	98	
1,028,069	81	Weighted Average
428,986		41.73% Pervious Area
599,083		58.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	75	0.0400	1.66		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
4.9	481	0.0104	1.64		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
49.2	1,094	0.0055	0.37		<b>Shallow Concentrated Flow, C to D</b>
					Woodland Kv= 5.0 fps
54.9	1,650	Total			

**Summary for Subcatchment S30A: Subcatchment 30A**

Runoff = 16.32 cfs @ 12.09 hrs, Volume= 1.284 af, Depth= 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

Area (sf)	CN	Description
* 115,960	98	
24,290	79	50-75% Grass cover, Fair, HSG C
2,477	49	50-75% Grass cover, Fair, HSG A
142,727	94	Weighted Average
26,767		18.75% Pervious Area
115,960		81.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
2.8	333	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
3.9	408	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S30B: Subcatchment 30B**

Runoff = 24.25 cfs @ 12.09 hrs, Volume= 1.931 af, Depth= 4.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	197,982	98	
	947	79	50-75% Grass cover, Fair, HSG C
	10,676	49	50-75% Grass cover, Fair, HSG A
	209,605	95	Weighted Average
	11,623		5.55% Pervious Area
	197,982		94.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.9	312	0.0300	2.79		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
2.9	387	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S31: Subcatchment 31**

Runoff = 19.26 cfs @ 12.09 hrs, Volume= 1.608 af, Depth= 5.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	162,835	98	
	162,835		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
5.1	700	0.0200	2.28		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
6.1	775	Total			

**Summary for Subcatchment S32: Subcatchment 32**

Runoff = 3.92 cfs @ 12.54 hrs, Volume= 0.606 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	10,665	98	
	61,121	30	Woods, Good, HSG A
	4,060	70	Woods, Good, HSG C
	8,302	77	Woods, Good, HSG D
	86,042	39	>75% Grass cover, Good, HSG A
	3,152	61	>75% Grass cover, Good, HSG B
	35,319	74	>75% Grass cover, Good, HSG C
	58,471	80	>75% Grass cover, Good, HSG D
	267,132	55	Weighted Average
	256,467		96.01% Pervious Area
	10,665		3.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	75	0.0080	0.07		<b>Sheet Flow, A to B</b>
					Grass: Dense n= 0.240 P2= 3.00"
16.0	600	0.0080	0.63		<b>Shallow Concentrated Flow, B to C</b>
					Short Grass Pasture Kv= 7.0 fps
32.9	675	Total			

### Summary for Subcatchment S40: Subcatchment 40

Runoff = 80.22 cfs @ 12.35 hrs, Volume= 9.324 af, Depth= 3.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	429,894	98	
	200,076	77	Woods, Good, HSG D
	207,565	70	Woods, Good, HSG C
	52,912	55	Woods, Good, HSG B
	765	30	Woods, Good, HSG A
	329,379	80	>75% Grass cover, Good, HSG D
	120,178	74	>75% Grass cover, Good, HSG C
	135,075	61	>75% Grass cover, Good, HSG B
	26,357	39	>75% Grass cover, Good, HSG A
	1,502,201	80	Weighted Average
	1,072,307		71.38% Pervious Area
	429,894		28.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
6.0	776	0.0180	2.16		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
4.1	368	0.0462	1.50		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
13.6	1,500	0.0030	1.84	55.08	<b>Channel Flow, D to E</b> Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.040 Earth, cobble bottom, clean sides
25.0	2,719	Total			

### Summary for Subcatchment S41: Subcatchment 41

Runoff = 33.08 cfs @ 12.10 hrs, Volume= 2.706 af, Depth= 4.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	225,409	98	
	22,827	79	50-75% Grass cover, Fair, HSG C
	37,988	84	50-75% Grass cover, Fair, HSG D
*	7,519	98	Water Surface
	293,743	95	Weighted Average
	60,815		20.70% Pervious Area
	232,928		79.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
3.3	383	0.0143	1.93		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
2.5	243	0.0535	1.62		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
7.1	701	Total			

### Summary for Subcatchment S42: Subcatchment 42

Runoff = 33.51 cfs @ 12.15 hrs, Volume= 2.950 af, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	278,726	98	
*	11,139	98	Water Surface
	26,977	49	50-75% Grass cover, Fair, HSG A
	29,325	69	50-75% Grass cover, Fair, HSG B
	6,630	79	50-75% Grass cover, Fair, HSG C
	352,797	91	Weighted Average
	62,932		17.84% Pervious Area
	289,865		82.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
6.1	700	0.0140	1.90		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.4	225	0.0250	1.11		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
10.8	1,000	Total			

### Summary for Subcatchment S43: Subcatchment 43

Runoff = 23.05 cfs @ 12.38 hrs, Volume= 2.776 af, Depth= 2.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	232,052	98	
*	36,376	98	Water Surface
	122,740	49	50-75% Grass cover, Fair, HSG A
	38,160	79	50-75% Grass cover, Fair, HSG C
	8,153	69	50-75% Grass cover, Fair, HSG B
	86,000	36	Woods, Fair, HSG A
	5,923	60	Woods, Fair, HSG B
	10,549	77	Woods, Poor, HSG C
	539,953	74	Weighted Average
	271,525		50.29% Pervious Area
	268,428		49.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	75	0.0100	0.12		<b>Sheet Flow, A to B</b> Grass: Short n= 0.150 P2= 3.00"
16.3	488	0.0100	0.50		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
26.9	563	Total			

**Summary for Subcatchment S50: Subcatchment 50**

Runoff = 3.31 cfs @ 12.09 hrs, Volume= 0.240 af, Depth= 3.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	10,546	98	
	4,431	61	>75% Grass cover, Good, HSG B
	24,859	74	>75% Grass cover, Good, HSG C
	39,836	79	Weighted Average
	29,290		73.53% Pervious Area
	10,546		26.47% Impervious Area

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

**Summary for Subcatchment S60: Subcatchment 60**

Runoff = 16.23 cfs @ 13.74 hrs, Volume= 5.582 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	168,411	98	
	301,647	49	50-75% Grass cover, Fair, HSG A
	1,932,915	36	Woods, Fair, HSG A
	135,432	73	Woods, Fair, HSG C
	617,169	79	Woods, Fair, HSG D
	3,155,574	51	Weighted Average
	2,987,163		94.66% Pervious Area
	168,411		5.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.2	75	0.0100	0.05		<b>Sheet Flow, A to B</b> Woods: Light underbrush n= 0.400 P2= 3.00"
83.4	1,640	0.0043	0.33		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
1.1	330	0.0100	5.10	122.30	<b>Channel Flow, C to D</b> Area= 24.0 sf Perim= 23.0' r= 1.04' n= 0.030 Earth, grassed & winding
107.7	2,045	Total			

**Summary for Reach R1: Portion of Davis Brook**

Inflow Area = 27.238 ac, 66.69% Impervious, Inflow Depth > 1.43" for 25-Yr event  
Inflow = 31.35 cfs @ 12.14 hrs, Volume= 3.235 af  
Outflow = 17.56 cfs @ 12.57 hrs, Volume= 3.227 af, Atten= 44%, Lag= 26.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 1.62 fps, Min. Travel Time= 16.5 min  
Avg. Velocity = 0.36 fps, Avg. Travel Time= 75.0 min

Peak Storage= 17,396 cf @ 12.29 hrs  
Average Depth at Peak Storage= 1.06'  
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 176.49 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
Length= 1,600.0' Slope= 0.0031 '/'  
Inlet Invert= 221.00', Outlet Invert= 216.00'

**Summary for Reach R2: Portion of Davis Brook**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.75" for 25-Yr event  
Inflow = 3.52 cfs @ 13.12 hrs, Volume= 1.284 af  
Outflow = 3.44 cfs @ 13.44 hrs, Volume= 1.282 af, Atten= 2%, Lag= 19.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 1.05 fps, Min. Travel Time= 9.5 min  
Avg. Velocity = 0.31 fps, Avg. Travel Time= 32.4 min

Peak Storage= 1,971 cf @ 13.28 hrs  
Average Depth at Peak Storage= 0.45'  
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 182.28 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
Length= 600.0' Slope= 0.0033 '/'  
Inlet Invert= 223.00', Outlet Invert= 221.00'





**Summary for Reach R3: Natural Ditch**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.75" for 25-Yr event  
Inflow = 3.53 cfs @ 13.05 hrs, Volume= 1.284 af  
Outflow = 3.52 cfs @ 13.12 hrs, Volume= 1.284 af, Atten= 0%, Lag= 3.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 2.31 fps, Min. Travel Time= 2.2 min  
Avg. Velocity = 0.97 fps, Avg. Travel Time= 5.2 min

Peak Storage= 457 cf @ 13.08 hrs  
Average Depth at Peak Storage= 0.14'  
Bank-Full Depth= 3.00' Flow Area= 75.0 sf, Capacity= 998.06 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
Side Slope Z-value= 5.0 '/' Top Width= 40.00'  
Length= 300.0' Slope= 0.0433 '/'  
Inlet Invert= 236.00', Outlet Invert= 223.00'

**Summary for Reach R4: Existing Ditch**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 0.00" for 25-Yr event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min  
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs  
Average Depth at Peak Storage= 0.00'  
Bank-Full Depth= 2.00' Flow Area= 28.0 sf, Capacity= 168.09 cfs

8.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight  
Side Slope Z-value= 3.0 '/' Top Width= 20.00'  
Length= 190.0' Slope= 0.0053 '/'  
Inlet Invert= 244.00', Outlet Invert= 243.00'



**Summary for Reach R5: Natural Ditch**

Inflow Area = 6.743 ac, 79.30% Impervious, Inflow Depth > 3.47" for 25-Yr event  
 Inflow = 40.34 cfs @ 12.05 hrs, Volume= 1.952 af  
 Outflow = 31.35 cfs @ 12.14 hrs, Volume= 1.952 af, Atten= 22%, Lag= 5.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 3.40 fps, Min. Travel Time= 1.2 min  
 Avg. Velocity = 0.77 fps, Avg. Travel Time= 5.4 min

Peak Storage= 2,390 cf @ 12.11 hrs  
 Average Depth at Peak Storage= 0.34'  
 Bank-Full Depth= 3.00' Flow Area= 165.0 sf, Capacity= 1,945.52 cfs

25.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
 Side Slope Z-value= 10.0 '/' Top Width= 85.00'  
 Length= 250.0' Slope= 0.0320 '/'  
 Inlet Invert= 229.00', Outlet Invert= 221.00'

**Summary for Pond 30A: Grassed Underdrained Soil Filter A**

Inflow Area = 3.277 ac, 81.25% Impervious, Inflow Depth = 4.70" for 25-Yr event  
 Inflow = 16.32 cfs @ 12.09 hrs, Volume= 1.284 af  
 Primary = 16.32 cfs @ 12.09 hrs, Volume= 1.284 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 30B: Grassed Underdrained Soil Filter B**

Inflow Area = 4.812 ac, 94.45% Impervious, Inflow Depth = 4.82" for 25-Yr event  
 Inflow = 24.25 cfs @ 12.09 hrs, Volume= 1.931 af  
 Primary = 24.25 cfs @ 12.09 hrs, Volume= 1.931 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 101: Pond #1 (plus wetland storage)**

Inflow Area = 35.428 ac, 69.71% Impervious, Inflow Depth = 3.32" for 25-Yr event  
 Inflow = 50.23 cfs @ 12.09 hrs, Volume= 9.787 af  
 Outflow = 6.99 cfs @ 15.07 hrs, Volume= 7.871 af, Atten= 86%, Lag= 178.4 min  
 Primary = 6.99 cfs @ 15.07 hrs, Volume= 7.871 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**50465\_predev**

Type III 24-hr 25-Yr Rainfall=5.40"

Prepared by Stantec Consulting Services, Inc.

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Peak Elev= 242.17' @ 15.07 hrs Surf.Area= 236,476 sf Storage= 275,795 cf

Plug-Flow detention time= 652.8 min calculated for 7.871 af (80% of inflow)

Center-of-Mass det. time= 576.1 min ( 1,406.8 - 830.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	835,458 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	22,686	0	0
241.00	115,923	69,305	69,305
242.00	221,289	168,606	237,911
243.00	313,044	267,167	505,077
244.00	347,717	330,381	835,458

Device	Routing	Invert	Outlet Devices
#1	Primary	237.64'	<b>24.0" Round Culvert</b> L= 87.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.64' / 237.30' S= 0.0039 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.00'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=6.98 cfs @ 15.07 hrs HW=242.17' (Free Discharge)

1=Culvert (Passes 6.98 cfs of 17.56 cfs potential flow)

2=Orifice/Grate (Orifice Controls 6.98 cfs @ 3.68 fps)

**Summary for Pond 102: Pond #2**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 2.69" for 25-Yr event  
 Inflow = 23.05 cfs @ 12.38 hrs, Volume= 2.776 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 245.34' @ 25.60 hrs Surf.Area= 81,374 sf Storage= 120,862 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	190,120 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	25,000	0	0
244.68	36,400	82,276	82,276
246.00	127,000	107,844	190,120

Device	Routing	Invert	Outlet Devices
#1	Primary	246.53'	<b>18.0" Round Culvert</b> L= 165.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 246.53' / 244.00' S= 0.0153 '/ Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf
#2	Device 1	248.05'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=242.00' (Free Discharge)

↑ **1=Culvert** ( Controls 0.00 cfs)

↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

### Summary for Pond 103: Pond #3

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth = 1.73" for 25-Yr event  
 Inflow = 33.51 cfs @ 12.15 hrs, Volume= 2.950 af  
 Outflow = 3.53 cfs @ 13.05 hrs, Volume= 1.284 af, Atten= 89%, Lag= 54.4 min  
 Primary = 3.53 cfs @ 13.05 hrs, Volume= 1.284 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 241.60' @ 13.05 hrs Surf.Area= 25,745 sf Storage= 83,192 cf

Plug-Flow detention time= 426.6 min calculated for 1.283 af (43% of inflow)  
 Center-of-Mass det. time= 305.3 min ( 1,094.1 - 788.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	94,130 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	4,000	0	0
236.00	7,000	11,000	11,000
238.92	11,139	26,483	37,483
240.00	14,287	13,730	51,213
242.00	28,630	42,917	94,130

Device	Routing	Invert	Outlet Devices
#1	Primary	234.22'	<b>24.0" Round Culvert</b> L= 95.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 234.22' / 233.90' S= 0.0034 '/ Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.29'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	236.00'	<b>0.5" W x 0.5" H Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=3.53 cfs @ 13.05 hrs HW=241.60' (Free Discharge)

↑ **1=Culvert** (Passes 3.53 cfs of 24.02 cfs potential flow)

↑ **2=Orifice/Grate** (Weir Controls 3.51 cfs @ 1.81 fps)

↑ **3=Orifice/Grate** (Orifice Controls 0.02 cfs @ 11.37 fps)

**Summary for Pond 104: Pond #4**

Inflow Area = 6.743 ac, 79.30% Impervious, Inflow Depth = 4.82" for 25-Yr event  
 Inflow = 33.08 cfs @ 12.10 hrs, Volume= 2.706 af  
 Outflow = 40.34 cfs @ 12.05 hrs, Volume= 1.952 af, Atten= 0%, Lag= 0.0 min  
 Primary = 40.34 cfs @ 12.05 hrs, Volume= 1.952 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 246.59' @ 12.05 hrs Surf.Area= 16,786 sf Storage= 36,018 cf

Plug-Flow detention time= 239.6 min calculated for 1.952 af (72% of inflow)  
 Center-of-Mass det. time= 150.0 min ( 917.3 - 767.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	36,018 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	620	0	0
232.00	3,391	4,011	4,011
234.05	7,519	11,183	15,194
235.00	9,087	7,888	23,082
236.00	16,786	12,937	36,018

Device	Routing	Invert	Outlet Devices
#1	Primary	230.62'	<b>24.0" Round Culvert</b> L= 96.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 230.62' / 228.40' S= 0.0231 '/ Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	237.61'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	231.00'	<b>0.5" W x 0.5" H Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=40.34 cfs @ 12.05 hrs HW=246.59' (Free Discharge)

1=Culvert (Barrel Controls 40.34 cfs @ 12.84 fps)  
 2=Orifice/Grate (Passes < 45.33 cfs potential flow)  
 3=Orifice/Grate (Passes < 0.03 cfs potential flow)

**Summary for Pond 106: Existing Mining Pit**

Inflow Area = 3.738 ac, 100.00% Impervious, Inflow Depth = 5.16" for 25-Yr event  
 Inflow = 19.26 cfs @ 12.09 hrs, Volume= 1.608 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 247.63' @ 24.40 hrs Surf.Area= 54,693 sf Storage= 70,048 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	245.00'	215,850 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
245.00	327	0	0
246.00	18,653	9,490	9,490
247.00	41,546	30,100	39,590
248.00	62,315	51,931	91,520
249.00	73,054	67,685	159,205
249.75	78,000	56,645	215,850

Device	Routing	Invert	Outlet Devices
#1	Primary	249.75'	<b>90.0' long x 25.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=245.00' (Free Discharge)

↑1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

### Summary for Pond 301: Point of Analysis 301

Inflow Area = 41.560 ac, 60.02% Impervious, Inflow Depth > 2.45" for 25-Yr event  
 Inflow = 7.66 cfs @ 14.72 hrs, Volume= 8.477 af  
 Primary = 7.66 cfs @ 14.72 hrs, Volume= 8.477 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Summary for Pond 401: Point of Analysis 401

Inflow Area = 61.724 ac, 45.42% Impervious, Inflow Depth > 2.44" for 25-Yr event  
 Inflow = 88.24 cfs @ 12.41 hrs, Volume= 12.552 af  
 Primary = 88.24 cfs @ 12.41 hrs, Volume= 12.552 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Summary for Pond 501: Point of Analysis 501

Inflow Area = 0.915 ac, 26.47% Impervious, Inflow Depth = 3.15" for 25-Yr event  
 Inflow = 3.31 cfs @ 12.09 hrs, Volume= 0.240 af  
 Primary = 3.31 cfs @ 12.09 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Summary for Pond 601: Point of Analysis 601

Inflow Area = 72.442 ac, 5.34% Impervious, Inflow Depth = 0.92" for 25-Yr event  
 Inflow = 16.23 cfs @ 13.74 hrs, Volume= 5.582 af  
 Primary = 16.23 cfs @ 13.74 hrs, Volume= 5.582 af, Atten= 0%, Lag= 0.0 min

**50465\_predev**

Prepared by Stantec Consulting Services, Inc.

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Type III 24-hr 25-Yr Rainfall=5.40"

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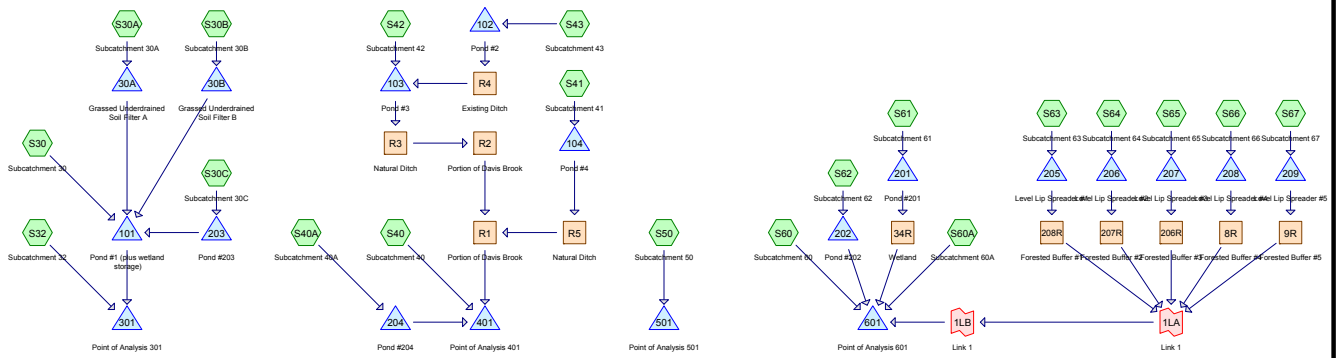
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Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



**ATTACHMENT B**

**POST DEVELOPMENT HYDROCAD COMPUTATIONS**



**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
60.504	98	(S30, S30A, S30B, S30C, S32, S40, S40A, S41, S42, S43, S50, S60, S61, S62, S63, S64, S65)
4.311	49	50-75% Grass cover, Fair, HSG A (S30A, S30B, S42, S43, S61, S62)
0.860	69	50-75% Grass cover, Fair, HSG B (S42, S43)
2.132	79	50-75% Grass cover, Fair, HSG C (S30A, S30B, S41, S42, S43)
1.338	84	50-75% Grass cover, Fair, HSG D (S41, S62)
0.033	86	<50% Grass cover, Poor, HSG C (S61)
7.484	39	>75% Grass cover, Good, HSG A (S30, S30C, S32, S40, S40A, S60, S60A, S63, S64, S65, S66, S67)
2.345	61	>75% Grass cover, Good, HSG B (S40, S50)
8.983	74	>75% Grass cover, Good, HSG C (S30, S30C, S32, S40, S40A, S50, S60A)
7.572	80	>75% Grass cover, Good, HSG D (S32, S40, S40A, S60, S66, S67)
2.907	98	Water Surface (S30, S30C, S40A, S41, S42, S43, S61, S62)
1.974	36	Woods, Fair, HSG A (S43)
0.136	60	Woods, Fair, HSG B (S43)
40.765	30	Woods, Good, HSG A (S30, S32, S40, S60, S60A)
0.728	55	Woods, Good, HSG B (S40)
10.227	70	Woods, Good, HSG C (S30, S32, S40, S60, S60A)
13.309	77	Woods, Good, HSG D (S32, S40, S60, S60A)
0.242	77	Woods, Poor, HSG C (S43)
<b>165.848</b>	<b>70</b>	<b>TOTAL AREA</b>

**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
54.534	HSG A	S30, S30A, S30B, S30C, S32, S40, S40A, S42, S43, S60, S60A, S61, S62, S63, S64, S65, S66, S67
4.069	HSG B	S40, S42, S43, S50
21.617	HSG C	S30, S30A, S30B, S30C, S32, S40, S40A, S41, S42, S43, S50, S60, S60A, S61
22.219	HSG D	S32, S40, S40A, S41, S60, S60A, S62, S66, S67
63.410	Other	S30, S30A, S30B, S30C, S32, S40, S40A, S41, S42, S43, S50, S60, S61, S62, S63, S64, S65
<b>165.848</b>		<b>TOTAL AREA</b>

**Ground Covers (all nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	60.504	60.504		S30, S30A, S30B, S30C, S32, S40, S40A, S41, S42, S43, S50, S60, S61, S62, S63, S64, S65
4.311	0.860	2.132	1.338	0.000	8.641	50-75% Grass cover, Fair	S30A, S30B, S41, S42, S43, S61, S62
0.000	0.000	0.033	0.000	0.000	0.033	<50% Grass cover, Poor	S61
7.484	2.345	8.983	7.572	0.000	26.383	>75% Grass cover, Good	S30, S30C, S32, S40, S40A, S50, S60, S60A, S63, S64, S65, S66, S67
0.000	0.000	0.000	0.000	2.907	2.907	Water Surface	S30, S30C, S40A, S41, S42, S43, S61, S62
1.974	0.136	0.000	0.000	0.000	2.110	Woods, Fair	S43
40.765	0.728	10.227	13.309	0.000	65.028	Woods, Good	S30, S32, S40, S60, S60A
0.000	0.000	0.242	0.000	0.000	0.242	Woods, Poor	S43
<b>54.534</b>	<b>4.069</b>	<b>21.617</b>	<b>22.219</b>	<b>63.410</b>	<b>165.848</b>	<b>TOTAL AREA</b>	

**Summary for Subcatchment S30: Subcatchment 30**

Runoff = 7.70 cfs @ 12.82 hrs, Volume= 1.447 af, Depth= 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	379,829	98	
	151,673	30	Woods, Good, HSG A
	129,474	70	Woods, Good, HSG C
*	22,394	98	Water Surface
	99,405	39	>75% Grass cover, Good, HSG A
	99,405	74	>75% Grass cover, Good, HSG C
	882,180	73	Weighted Average
	479,957		54.41% Pervious Area
	402,223		45.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	75	0.0400	1.66		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
4.9	481	0.0104	1.64		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
49.2	1,094	0.0055	0.37		<b>Shallow Concentrated Flow, C to D</b> Woodland Kv= 5.0 fps
54.9	1,650	Total			

**Summary for Subcatchment S30A: Subcatchment 30A**

Runoff = 8.49 cfs @ 12.09 hrs, Volume= 0.642 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	115,960	98	
	24,290	79	50-75% Grass cover, Fair, HSG C
	2,477	49	50-75% Grass cover, Fair, HSG A
	142,727	94	Weighted Average
	26,767		18.75% Pervious Area
	115,960		81.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.8	333	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.9	408	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S30B: Subcatchment 30B**

Runoff = 12.82 cfs @ 12.09 hrs, Volume= 0.982 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	197,982	98	
	947	79	50-75% Grass cover, Fair, HSG C
	10,676	49	50-75% Grass cover, Fair, HSG A
	209,605	95	Weighted Average
	11,623		5.55% Pervious Area
	197,982		94.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.9	312	0.0300	2.79		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
2.9	387	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S30C: Subcatchment 30C**

Runoff = 22.69 cfs @ 12.13 hrs, Volume= 1.878 af, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	360,000	98	
	24,598	39	>75% Grass cover, Good, HSG A
	34,063	74	>75% Grass cover, Good, HSG C
*	16,903	98	Water Surface
	435,564	93	Weighted Average
	58,661		13.47% Pervious Area
	376,903		86.53% Impervious Area



Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.2	300	0.0200	2.28		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
1.8	200	0.0150	1.84		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
0.6	30	0.0100	0.79		<b>Sheet Flow, D to E</b> Smooth surfaces n= 0.011 P2= 3.00"
3.5	46	0.0600	0.22		<b>Sheet Flow, E to F</b> Grass: Short n= 0.150 P2= 3.00"
9.1	651	Total			

**Summary for Subcatchment S32: Subcatchment 32**

Runoff = 0.47 cfs @ 12.64 hrs, Volume= 0.113 af, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

Area (sf)	CN	Description
* 19,706	98	
30,613	74	>75% Grass cover, Good, HSG C
59,971	39	>75% Grass cover, Good, HSG A
46,847	80	>75% Grass cover, Good, HSG D
46,898	30	Woods, Good, HSG A
4,056	70	Woods, Good, HSG C
8,274	77	Woods, Good, HSG D
216,365	58	Weighted Average
196,659		90.89% Pervious Area
19,706		9.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	75	0.0080	0.07		<b>Sheet Flow, A to B</b> Grass: Dense n= 0.240 P2= 3.00"
12.1	360	0.0050	0.49		<b>Shallow Concentrated Flow, B to C</b> Short Grass Pasture Kv= 7.0 fps
29.0	435	Total			

**Summary for Subcatchment S40: Subcatchment 40**

Runoff = 18.72 cfs @ 12.32 hrs, Volume= 2.141 af, Depth= 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	158,513	98	
	31,707	55	Woods, Good, HSG B
	217,840	70	Woods, Good, HSG C
	189,606	77	Woods, Good, HSG D
	950	30	Woods, Good, HSG A
	26,357	39	>75% Grass cover, Good, HSG A
	97,705	61	>75% Grass cover, Good, HSG B
	190,000	74	>75% Grass cover, Good, HSG C
	190,000	80	>75% Grass cover, Good, HSG D
	1,102,678	76	Weighted Average
	944,165		85.62% Pervious Area
	158,513		14.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
4.4	550	0.0164	2.06		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
1.6	325	0.0500	3.35		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
14.3	2,100	0.0030	2.45	73.44	<b>Channel Flow, D to E</b> Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.030 Earth, grassed & winding
21.4	3,050	Total			

### Summary for Subcatchment S40A: Subcatchment 40A

Runoff = 16.55 cfs @ 12.18 hrs, Volume= 1.586 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	275,000	98	
	4,986	39	>75% Grass cover, Good, HSG A
	43,462	80	>75% Grass cover, Good, HSG D
	3,315	74	>75% Grass cover, Good, HSG C
*	11,757	98	Water Surface
	338,520	95	Weighted Average
	51,763		15.29% Pervious Area
	286,757		84.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
1.7	204	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
7.0	629	0.0100	1.50		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
0.2	148	0.0400	14.40	45.24	<b>Pipe Channel, D to E</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
1.9	37	0.0010	0.33		<b>Sheet Flow, E to F</b> Smooth surfaces n= 0.011 P2= 3.00"
1.8	32	0.1600	0.30		<b>Sheet Flow, F to G</b> Grass: Short n= 0.150 P2= 3.00"
13.7	1,125	Total			

### Summary for Subcatchment S41: Subcatchment 41

Runoff = 14.77 cfs @ 12.10 hrs, Volume= 1.148 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

Area (sf)	CN	Description
* 187,081	98	
22,827	79	50-75% Grass cover, Fair, HSG C
37,988	84	50-75% Grass cover, Fair, HSG D
* 7,519	98	Water Surface
255,415	94	Weighted Average
60,815		23.81% Pervious Area
194,600		76.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
3.3	383	0.0143	1.93		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
2.5	243	0.0535	1.62		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
7.1	701	Total			

### Summary for Subcatchment S42: Subcatchment 42

Runoff = 16.43 cfs @ 12.15 hrs, Volume= 1.398 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

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Type III 24-hr 2-Yr Rainfall=3.00"

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	Area (sf)	CN	Description
*	278,726	98	
*	11,139	98	Water Surface
	26,977	49	50-75% Grass cover, Fair, HSG A
	29,325	69	50-75% Grass cover, Fair, HSG B
	6,630	79	50-75% Grass cover, Fair, HSG C
	352,797	91	Weighted Average
	62,932		17.84% Pervious Area
	289,865		82.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
6.1	700	0.0140	1.90		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.4	225	0.0250	1.11		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
10.8	1,000	Total			

**Summary for Subcatchment S43: Subcatchment 43**

Runoff = 7.28 cfs @ 12.41 hrs, Volume= 0.938 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	232,052	98	
*	36,376	98	Water Surface
	122,740	49	50-75% Grass cover, Fair, HSG A
	38,160	79	50-75% Grass cover, Fair, HSG C
	8,153	69	50-75% Grass cover, Fair, HSG B
	86,000	36	Woods, Fair, HSG A
	5,923	60	Woods, Fair, HSG B
	10,549	77	Woods, Poor, HSG C
	539,953	74	Weighted Average
	271,525		50.29% Pervious Area
	268,428		49.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	75	0.0100	0.12		<b>Sheet Flow, A to B</b> Grass: Short n= 0.150 P2= 3.00"
16.3	488	0.0100	0.50		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
26.9	563	Total			

**Summary for Subcatchment S50: Subcatchment 50**

Runoff = 1.23 cfs @ 12.10 hrs, Volume= 0.091 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	10,546	98	
	4,431	61	>75% Grass cover, Good, HSG B
	24,859	74	>75% Grass cover, Good, HSG C
	39,836	79	Weighted Average
	29,290		73.53% Pervious Area
	10,546		26.47% Impervious Area

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

**Summary for Subcatchment S60: Subcatchment 60**

Runoff = 0.12 cfs @ 16.21 hrs, Volume= 0.086 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
	841,049	30	Woods, Good, HSG A
	344,078	77	Woods, Good, HSG D
	22,871	70	Woods, Good, HSG C
	37,335	39	>75% Grass cover, Good, HSG A
	32,830	80	>75% Grass cover, Good, HSG D
*	17,570	98	
	15,415	77	Woods, Good, HSG D
	1,311,148	46	Weighted Average
	1,293,578		98.66% Pervious Area
	17,570		1.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7	75	0.0200	0.04		<b>Sheet Flow, A to B</b> Woods: Dense underbrush n= 0.800 P2= 3.00"
14.4	530	0.0150	0.61		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
1.4	430	0.0100	5.10	122.30	<b>Channel Flow, C to D</b> Area= 24.0 sf Perim= 23.0' r= 1.04' n= 0.030 Earth, grassed & winding
46.5	1,035	Total			

**Summary for Subcatchment S60A: Subcatchment 60A**

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

Area (sf)	CN	Description
735,140	30	Woods, Good, HSG A
71,251	70	Woods, Good, HSG C
22,354	77	Woods, Good, HSG D
26,632	39	>75% Grass cover, Good, HSG A
9,029	74	>75% Grass cover, Good, HSG C
864,406	35	Weighted Average
864,406		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7	75	0.0200	0.04		<b>Sheet Flow, A to B</b>
					Woods: Dense underbrush n= 0.800 P2= 3.00"
71.5	1,175	0.0030	0.27		<b>Shallow Concentrated Flow, B to C</b>
					Woodland Kv= 5.0 fps
102.2	1,250	Total			

**Summary for Subcatchment S61: Subcatchment 61**

Runoff = 8.25 cfs @ 12.09 hrs, Volume= 0.612 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

Area (sf)	CN	Description
1,448	86	<50% Grass cover, Poor, HSG C
18,168	49	50-75% Grass cover, Fair, HSG A
* 8,570	98	Water Surface
* 119,736	98	
147,922	92	Weighted Average
19,616		13.26% Pervious Area
128,306		86.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
3.7	500	0.0200	2.28		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
1.2	100	0.0080	1.34		<b>Shallow Concentrated Flow, C to D</b>
					Grassed Waterway Kv= 15.0 fps
5.9	675	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S62: Subcatchment 62**

Runoff = 17.26 cfs @ 12.09 hrs, Volume= 1.343 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	11,953	98	Water Surface
*	236,076	98	
	20,275	84	50-75% Grass cover, Fair, HSG D
	6,756	49	50-75% Grass cover, Fair, HSG A
	275,060	96	Weighted Average
	27,031		9.83% Pervious Area
	248,029		90.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.3	150	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
2.5	600	0.0300	4.05	24.32	<b>Channel Flow, C to D</b>
					Area= 6.0 sf Perim= 12.0' r= 0.50'
					n= 0.040 Earth, cobble bottom, clean sides
4.9	825	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S63: Subcatchment 63**

Runoff = 0.80 cfs @ 12.09 hrs, Volume= 0.058 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	15,000	98	
	4,049	39	>75% Grass cover, Good, HSG A
	19,049	85	Weighted Average
	4,049		21.26% Pervious Area
	15,000		78.74% Impervious Area

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



**Summary for Subcatchment S64: Subcatchment 64**

Runoff = 0.65 cfs @ 12.09 hrs, Volume= 0.047 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	11,520	98	
	2,572	39	>75% Grass cover, Good, HSG A
	14,092	87	Weighted Average
	2,572		18.25% Pervious Area
	11,520		81.75% Impervious Area

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

**Summary for Subcatchment S65: Subcatchment 65**

Runoff = 0.56 cfs @ 12.11 hrs, Volume= 0.049 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
*	20,240	98	
	20,692	39	>75% Grass cover, Good, HSG A
	40,932	68	Weighted Average
	20,692		50.55% Pervious Area
	20,240		49.45% Impervious Area

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

**Summary for Subcatchment S66: Subcatchment 66**

Runoff = 0.08 cfs @ 12.16 hrs, Volume= 0.013 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

	Area (sf)	CN	Description
	9,622	39	>75% Grass cover, Good, HSG A
	10,094	80	>75% Grass cover, Good, HSG D
	19,716	60	Weighted Average
	19,716		100.00% Pervious Area

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

**Summary for Subcatchment S67: Subcatchment 67**

Runoff = 0.03 cfs @ 12.35 hrs, Volume= 0.007 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Yr Rainfall=3.00"

Area (sf)	CN	Description
9,767	39	>75% Grass cover, Good, HSG A
6,617	80	>75% Grass cover, Good, HSG D
16,384	56	Weighted Average
16,384		100.00% Pervious Area

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

**Summary for Reach 8R: Forested Buffer #4**

Inflow Area = 0.453 ac, 0.00% Impervious, Inflow Depth = 0.21" for 2-Yr event  
Inflow = 0.03 cfs @ 13.35 hrs, Volume= 0.008 af  
Outflow = 0.01 cfs @ 17.14 hrs, Volume= 0.008 af, Atten= 56%, Lag= 227.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.03 fps, Min. Travel Time= 93.4 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 318.4 min

Peak Storage= 73 cf @ 15.58 hrs  
Average Depth at Peak Storage= 0.02'  
Bank-Full Depth= 0.10' Flow Area= 2.5 sf, Capacity= 0.20 cfs

25.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 150.0' Slope= 0.0400 '/'  
Inlet Invert= 249.00', Outlet Invert= 243.00'



**Summary for Reach 9R: Forested Buffer #5**

Inflow Area = 0.376 ac, 0.00% Impervious, Inflow Depth = 0.07" for 2-Yr event  
Inflow = 0.01 cfs @ 17.00 hrs, Volume= 0.002 af  
Outflow = 0.00 cfs @ 23.94 hrs, Volume= 0.002 af, Atten= 62%, Lag= 416.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.02 fps, Min. Travel Time= 149.5 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 408.1 min

Peak Storage= 32 cf @ 21.45 hrs  
Average Depth at Peak Storage= 0.01'  
Bank-Full Depth= 0.10' Flow Area= 2.5 sf, Capacity= 0.21 cfs

25.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 150.0' Slope= 0.0467 '/'  
Inlet Invert= 249.00', Outlet Invert= 242.00'

**Summary for Reach 34R: Wetland**

Inflow Area = 3.396 ac, 86.74% Impervious, Inflow Depth > 2.09" for 2-Yr event  
Inflow = 0.13 cfs @ 19.54 hrs, Volume= 0.591 af  
Outflow = 0.13 cfs @ 39.59 hrs, Volume= 0.493 af, Atten= 3%, Lag= 1,202.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.03 fps, Min. Travel Time= 425.9 min  
Avg. Velocity = 0.03 fps, Avg. Travel Time= 500.7 min

Peak Storage= 3,294 cf @ 32.49 hrs  
Average Depth at Peak Storage= 0.04'  
Bank-Full Depth= 0.10' Flow Area= 10.0 sf, Capacity= 0.57 cfs

100.00' x 0.10' deep channel, n= 0.400 Sheet flow: Woods+light brush  
Length= 800.0' Slope= 0.0050 '/'  
Inlet Invert= 245.00', Outlet Invert= 241.00'



**Summary for Reach 206R: Forested Buffer #3**

Inflow Area = 0.940 ac, 49.45% Impervious, Inflow Depth = 0.63" for 2-Yr event  
Inflow = 0.56 cfs @ 12.11 hrs, Volume= 0.049 af  
Outflow = 0.22 cfs @ 13.09 hrs, Volume= 0.049 af, Atten= 62%, Lag= 59.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.04 fps, Min. Travel Time= 37.0 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 233.5 min

Peak Storage= 478 cf @ 12.48 hrs  
Average Depth at Peak Storage= 0.09'  
Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.28 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 86.0' Slope= 0.0116 '/'  
Inlet Invert= 242.00', Outlet Invert= 241.00'

**Summary for Reach 207R: Forested Buffer #2**

Inflow Area = 0.324 ac, 81.75% Impervious, Inflow Depth = 1.74" for 2-Yr event  
Inflow = 0.65 cfs @ 12.09 hrs, Volume= 0.047 af  
Outflow = 0.23 cfs @ 13.20 hrs, Volume= 0.047 af, Atten= 64%, Lag= 66.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.04 fps, Min. Travel Time= 48.8 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 327.3 min

Peak Storage= 681 cf @ 12.38 hrs  
Average Depth at Peak Storage= 0.10'  
Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.25 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 109.0' Slope= 0.0092 '/'  
Inlet Invert= 242.00', Outlet Invert= 241.00'



**Summary for Reach 208R: Forested Buffer #1**

Inflow Area = 0.437 ac, 78.74% Impervious, Inflow Depth = 1.59" for 2-Yr event  
 Inflow = 0.80 cfs @ 12.09 hrs, Volume= 0.058 af  
 Outflow = 0.24 cfs @ 13.49 hrs, Volume= 0.058 af, Atten= 70%, Lag= 84.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.04 fps, Min. Travel Time= 62.8 min  
 Avg. Velocity = 0.01 fps, Avg. Travel Time= 386.0 min

Peak Storage= 913 cf @ 12.45 hrs  
 Average Depth at Peak Storage= 0.10'  
 Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.22 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
 Length= 134.0' Slope= 0.0075 '/'  
 Inlet Invert= 242.00', Outlet Invert= 241.00'

**Summary for Reach R1: Portion of Davis Brook**

Inflow Area = 26.358 ac, 65.57% Impervious, Inflow Depth > 0.22" for 2-Yr event  
 Inflow = 1.01 cfs @ 13.77 hrs, Volume= 0.478 af  
 Outflow = 0.71 cfs @ 15.61 hrs, Volume= 0.470 af, Atten= 29%, Lag= 110.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.62 fps, Min. Travel Time= 42.7 min  
 Avg. Velocity = 0.26 fps, Avg. Travel Time= 102.1 min

Peak Storage= 1,827 cf @ 14.90 hrs  
 Average Depth at Peak Storage= 0.19'  
 Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 176.49 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
 Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
 Length= 1,600.0' Slope= 0.0031 '/'  
 Inlet Invert= 221.00', Outlet Invert= 216.00'



**Summary for Reach R2: Portion of Davis Brook**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.05" for 2-Yr event  
 Inflow = 0.02 cfs @ 24.55 hrs, Volume= 0.086 af  
 Outflow = 0.02 cfs @ 27.25 hrs, Volume= 0.084 af, Atten= 0%, Lag= 162.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.20 fps, Min. Travel Time= 49.3 min  
 Avg. Velocity = 0.20 fps, Avg. Travel Time= 49.3 min

Peak Storage= 53 cf @ 26.43 hrs  
 Average Depth at Peak Storage= 0.02'  
 Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 182.28 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
 Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
 Length= 600.0' Slope= 0.0033 '/'  
 Inlet Invert= 223.00', Outlet Invert= 221.00'

**Summary for Reach R3: Natural Ditch**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.05" for 2-Yr event  
 Inflow = 0.02 cfs @ 24.29 hrs, Volume= 0.086 af  
 Outflow = 0.02 cfs @ 24.55 hrs, Volume= 0.086 af, Atten= 0%, Lag= 15.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.84 fps, Min. Travel Time= 5.9 min  
 Avg. Velocity = 0.84 fps, Avg. Travel Time= 5.9 min

Peak Storage= 6 cf @ 24.45 hrs  
 Average Depth at Peak Storage= 0.00'  
 Bank-Full Depth= 3.00' Flow Area= 75.0 sf, Capacity= 998.06 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
 Side Slope Z-value= 5.0 '/' Top Width= 40.00'  
 Length= 300.0' Slope= 0.0433 '/'  
 Inlet Invert= 236.00', Outlet Invert= 223.00'



**Summary for Reach R4: Existing Ditch**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 0.00" for 2-Yr event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min  
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs  
Average Depth at Peak Storage= 0.00'  
Bank-Full Depth= 2.00' Flow Area= 28.0 sf, Capacity= 168.09 cfs

8.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight  
Side Slope Z-value= 3.0 '/' Top Width= 20.00'  
Length= 190.0' Slope= 0.0053 '/'  
Inlet Invert= 244.00', Outlet Invert= 243.00'

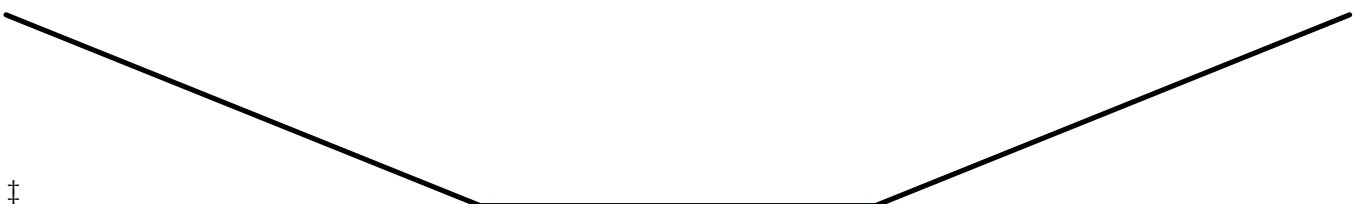
**Summary for Reach R5: Natural Ditch**

Inflow Area = 5.864 ac, 76.19% Impervious, Inflow Depth > 0.81" for 2-Yr event  
Inflow = 1.37 cfs @ 13.50 hrs, Volume= 0.395 af  
Outflow = 1.00 cfs @ 13.77 hrs, Volume= 0.394 af, Atten= 27%, Lag= 16.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.96 fps, Min. Travel Time= 4.4 min  
Avg. Velocity = 0.73 fps, Avg. Travel Time= 5.7 min

Peak Storage= 262 cf @ 13.69 hrs  
Average Depth at Peak Storage= 0.04'  
Bank-Full Depth= 3.00' Flow Area= 165.0 sf, Capacity= 1,945.52 cfs

25.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
Side Slope Z-value= 10.0 '/' Top Width= 85.00'  
Length= 250.0' Slope= 0.0320 '/'  
Inlet Invert= 229.00', Outlet Invert= 221.00'





**Summary for Pond 30A: Grassed Underdrained Soil Filter A**

Inflow Area = 3.277 ac, 81.25% Impervious, Inflow Depth = 2.35" for 2-Yr event  
 Inflow = 8.49 cfs @ 12.09 hrs, Volume= 0.642 af  
 Primary = 8.49 cfs @ 12.09 hrs, Volume= 0.642 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 30B: Grassed Underdrained Soil Filter B**

Inflow Area = 4.812 ac, 94.45% Impervious, Inflow Depth = 2.45" for 2-Yr event  
 Inflow = 12.82 cfs @ 12.09 hrs, Volume= 0.982 af  
 Primary = 12.82 cfs @ 12.09 hrs, Volume= 0.982 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 101: Pond #1 (plus wetland storage)**

Inflow Area = 38.340 ac, 65.45% Impervious, Inflow Depth > 1.35" for 2-Yr event  
 Inflow = 22.22 cfs @ 12.09 hrs, Volume= 4.312 af  
 Outflow = 0.89 cfs @ 23.99 hrs, Volume= 2.194 af, Atten= 96%, Lag= 714.2 min  
 Primary = 0.89 cfs @ 23.99 hrs, Volume= 2.194 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 241.38' @ 23.99 hrs Surf.Area= 156,316 sf Storage= 121,487 cf

Plug-Flow detention time= 1,437.5 min calculated for 2.194 af (51% of inflow)

Center-of-Mass det. time= 925.3 min ( 2,178.8 - 1,253.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	835,458 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	22,686	0	0
241.00	115,923	69,305	69,305
242.00	221,289	168,606	237,911
243.00	313,044	267,167	505,077
244.00	347,717	330,381	835,458

Device	Routing	Invert	Outlet Devices
#1	Primary	237.64'	<b>24.0" Round Culvert</b> L= 87.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.64' / 237.30' S= 0.0039 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.00'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.89 cfs @ 23.99 hrs HW=241.38' (Free Discharge)

1=Culvert (Passes 0.89 cfs of 14.97 cfs potential flow)

2=Orifice/Grate (Orifice Controls 0.89 cfs @ 2.11 fps)

**Summary for Pond 102: Pond #2**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 0.91" for 2-Yr event  
 Inflow = 7.28 cfs @ 12.41 hrs, Volume= 0.938 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 243.45' @ 25.60 hrs Surf.Area= 31,188 sf Storage= 40,866 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	190,120 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	25,000	0	0
244.68	36,400	82,276	82,276
246.00	127,000	107,844	190,120

Device	Routing	Invert	Outlet Devices
#1	Primary	246.53'	<b>18.0" Round Culvert</b> L= 165.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 246.53' / 244.00' S= 0.0153 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf
#2	Device 1	248.05'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=242.00' (Free Discharge)

↑ **1=Culvert** ( Controls 0.00 cfs)

↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 103: Pond #3**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth = 0.82" for 2-Yr event  
 Inflow = 16.43 cfs @ 12.15 hrs, Volume= 1.398 af  
 Outflow = 0.02 cfs @ 24.29 hrs, Volume= 0.086 af, Atten= 100%, Lag= 728.1 min  
 Primary = 0.02 cfs @ 24.29 hrs, Volume= 0.086 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 240.55' @ 24.29 hrs Surf.Area= 18,229 sf Storage= 60,150 cf

Plug-Flow detention time= 1,976.8 min calculated for 0.086 af (6% of inflow)  
 Center-of-Mass det. time= 1,727.2 min ( 2,536.5 - 809.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	94,130 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

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Type III 24-hr 2-Yr Rainfall=3.00"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	4,000	0	0
236.00	7,000	11,000	11,000
238.92	11,139	26,483	37,483
240.00	14,287	13,730	51,213
242.00	28,630	42,917	94,130

Device	Routing	Invert	Outlet Devices
#1	Primary	234.22'	<b>24.0" Round Culvert</b> L= 95.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 234.22' / 233.90' S= 0.0034 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.29'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	236.00'	<b>0.5" W x 0.5" H Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.02 cfs @ 24.29 hrs HW=240.55' (Free Discharge)

1=Culvert (Passes 0.02 cfs of 21.70 cfs potential flow)

2=Orifice/Grate (Controls 0.00 cfs)

3=Orifice/Grate (Orifice Controls 0.02 cfs @ 10.25 fps)

**Summary for Pond 104: Pond #4**

Inflow Area = 5.864 ac, 76.19% Impervious, Inflow Depth = 2.35" for 2-Yr event  
 Inflow = 14.77 cfs @ 12.10 hrs, Volume= 1.148 af  
 Outflow = 1.37 cfs @ 13.50 hrs, Volume= 0.395 af, Atten= 91%, Lag= 83.9 min  
 Primary = 1.37 cfs @ 13.50 hrs, Volume= 0.395 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 237.77' @ 13.50 hrs Surf.Area= 16,786 sf Storage= 36,018 cf

Plug-Flow detention time= 710.0 min calculated for 0.395 af (34% of inflow)  
 Center-of-Mass det. time= 573.1 min ( 1,363.3 - 790.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	36,018 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	620	0	0
232.00	3,391	4,011	4,011
234.05	7,519	11,183	15,194
235.00	9,087	7,888	23,082
236.00	16,786	12,937	36,018

Device	Routing	Invert	Outlet Devices
#1	Primary	230.62'	<b>24.0" Round Culvert</b> L= 96.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 230.62' / 228.40' S= 0.0231 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	237.61'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

#3 Device 1 231.00' **0.5" W x 0.5" H Vert. Orifice/Grate** C= 0.600

**Primary OutFlow** Max=1.36 cfs @ 13.50 hrs HW=237.77' (Free Discharge)

1=Culvert (Passes 1.36 cfs of 27.22 cfs potential flow)

2=Orifice/Grate (Weir Controls 1.33 cfs @ 1.31 fps)

3=Orifice/Grate (Orifice Controls 0.02 cfs @ 12.51 fps)

### Summary for Pond 201: Pond #201

Inflow Area = 3.396 ac, 86.74% Impervious, Inflow Depth = 2.16" for 2-Yr event  
 Inflow = 8.25 cfs @ 12.09 hrs, Volume= 0.612 af  
 Outflow = 0.13 cfs @ 19.54 hrs, Volume= 0.591 af, Atten= 98%, Lag= 447.3 min  
 Primary = 0.13 cfs @ 19.54 hrs, Volume= 0.591 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 249.51' @ 19.54 hrs Surf.Area= 16,785 sf Storage= 20,503 cf

Plug-Flow detention time= 1,513.3 min calculated for 0.591 af (97% of inflow)  
 Center-of-Mass det. time= 1,494.1 min ( 2,294.2 - 800.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	47,142 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	8,570	0	0
249.00	15,880	12,225	12,225
250.00	17,665	16,773	28,998
251.00	18,624	18,145	47,142

Device	Routing	Invert	Outlet Devices
#1	Primary	250.00'	<b>20.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	245.40'	<b>12.0" Round Culvert</b> L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 245.40' / 245.00' S= 0.0138 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	249.65'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	245.50'	<b>1.6" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	248.00'	<b>2.000 in/hr Exfiltration over Surface area above 248.00'</b> Excluded Surface area = 8,570 sf

**Primary OutFlow** Max=0.13 cfs @ 19.54 hrs HW=249.51' (Free Discharge)

1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

2=Culvert (Passes 0.13 cfs of 5.67 cfs potential flow)

3=Orifice/Grate ( Controls 0.00 cfs)

4=Orifice/Grate (Orifice Controls 0.13 cfs @ 9.56 fps)

5=Exfiltration (Passes 0.13 cfs of 0.38 cfs potential flow)

**Summary for Pond 202: Pond #202**

Inflow Area = 6.315 ac, 90.17% Impervious, Inflow Depth = 2.55" for 2-Yr event  
 Inflow = 17.26 cfs @ 12.09 hrs, Volume= 1.343 af  
 Outflow = 0.33 cfs @ 17.76 hrs, Volume= 1.280 af, Atten= 98%, Lag= 340.2 min  
 Primary = 0.33 cfs @ 17.76 hrs, Volume= 1.280 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 243.41' @ 17.76 hrs Surf.Area= 23,594 sf Storage= 44,520 cf

Plug-Flow detention time= 1,373.1 min calculated for 1.280 af (95% of inflow)  
 Center-of-Mass det. time= 1,346.2 min ( 2,122.1 - 775.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	241.00'	92,645 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
241.00	12,606	0	0
242.00	18,880	15,743	15,743
243.00	20,722	19,801	35,544
244.00	27,811	24,267	59,811
245.00	37,857	32,834	92,645

Device	Routing	Invert	Outlet Devices
#1	Primary	244.00'	<b>25.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	238.40'	<b>12.0" Round Culvert</b> L= 115.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 238.40' / 237.75' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	243.50'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	238.50'	<b>2.4" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	241.00'	<b>2.000 in/hr Exfiltration over Surface area above 241.00'</b> Excluded Surface area = 12,606 sf

**Primary OutFlow** Max=0.33 cfs @ 17.76 hrs HW=243.41' (Free Discharge)

1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)  
 2=Culvert (Passes 0.33 cfs of 5.79 cfs potential flow)  
 3=Orifice/Grate ( Controls 0.00 cfs)  
 4=Orifice/Grate (Orifice Controls 0.33 cfs @ 10.55 fps)  
 5=Exfiltration (Passes 0.33 cfs of 0.51 cfs potential flow)

**Summary for Pond 203: Pond #203**

Inflow Area = 9.999 ac, 86.53% Impervious, Inflow Depth = 2.25" for 2-Yr event  
 Inflow = 22.69 cfs @ 12.13 hrs, Volume= 1.878 af  
 Outflow = 0.34 cfs @ 21.29 hrs, Volume= 1.241 af, Atten= 99%, Lag= 549.6 min  
 Primary = 0.34 cfs @ 21.29 hrs, Volume= 1.241 af

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Type III 24-hr 2-Yr Rainfall=3.00"

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Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 248.34' @ 21.29 hrs Surf.Area= 32,639 sf Storage= 67,832 cf

Plug-Flow detention time= 1,558.1 min calculated for 1.241 af (66% of inflow)  
 Center-of-Mass det. time= 1,462.4 min ( 2,260.2 - 797.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	246.00'	177,123 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.00	25,338	0	0
247.00	28,403	26,871	26,871
248.00	31,540	29,972	56,842
249.00	34,748	33,144	89,986
250.00	38,027	36,388	126,374
251.00	63,471	50,749	177,123

Device	Routing	Invert	Outlet Devices
#1	Primary	249.75'	<b>25.0' long x 8.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Primary	243.40'	<b>12.0" Round Culvert</b> L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 243.40' / 243.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	249.25'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	243.50'	<b>2.7" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	246.00'	<b>2.000 in/hr Exfiltration over Surface area above 246.00'</b> Excluded Surface area = 25,338 sf

**Primary OutFlow** Max=0.34 cfs @ 21.29 hrs HW=248.34' (Free Discharge)

- 1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)  
 2=Culvert (Passes 0.34 cfs of 6.29 cfs potential flow)  
 3=Orifice/Grate ( Controls 0.00 cfs)  
 4=Orifice/Grate (Passes 0.34 cfs of 0.42 cfs potential flow)  
 5=Exfiltration (Exfiltration Controls 0.34 cfs)

**Summary for Pond 204: Pond #204**

Inflow Area = 7.771 ac, 84.71% Impervious, Inflow Depth = 2.45" for 2-Yr event  
 Inflow = 16.55 cfs @ 12.18 hrs, Volume= 1.586 af  
 Outflow = 0.35 cfs @ 18.80 hrs, Volume= 1.488 af, Atten= 98%, Lag= 396.7 min  
 Primary = 0.35 cfs @ 18.80 hrs, Volume= 1.488 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 237.83' @ 18.80 hrs Surf.Area= 22,686 sf Storage= 53,466 cf

Plug-Flow detention time= 1,515.2 min calculated for 1.488 af (94% of inflow)  
 Center-of-Mass det. time= 1,481.6 min ( 2,271.7 - 790.1 )

**50465\_postdev**

Type III 24-hr 2-Yr Rainfall=3.00"

Prepared by Stantec Consulting Services, Inc.

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Volume	Invert	Avail.Storage	Storage Description
#1	235.00'	106,903 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
235.00	11,757	0	0
236.00	18,909	15,333	15,333
237.00	20,939	19,924	35,257
238.00	23,032	21,986	57,243
239.00	25,210	24,121	81,364
240.00	25,868	25,539	106,903

Device	Routing	Invert	Outlet Devices
#1	Primary	239.00'	<b>25.0' long x 12.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#2	Primary	232.40'	<b>12.0" Round Culvert</b> L= 93.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 232.40' / 232.00' S= 0.0043 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	232.50'	<b>2.4" Vert. Orifice/Grate</b> C= 0.600
#4	Device 2	238.75'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Device 3	235.00'	<b>2.000 in/hr Exfiltration over Surface area above 235.00'</b> Excluded Surface area = 11,757 sf

**Primary OutFlow** Max=0.35 cfs @ 18.80 hrs HW=237.83' (Free Discharge)

1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)  
 2=Culvert (Passes 0.35 cfs of 6.31 cfs potential flow)  
 3=Orifice/Grate (Orifice Controls 0.35 cfs @ 11.02 fps)  
 5=Exfiltration (Passes 0.35 cfs of 0.51 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

**Summary for Pond 205: Level Lip Spreader #1**

Inflow Area = 0.437 ac, 78.74% Impervious, Inflow Depth = 1.59" for 2-Yr event  
 Inflow = 0.80 cfs @ 12.09 hrs, Volume= 0.058 af  
 Outflow = 0.80 cfs @ 12.09 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.1 min  
 Primary = 0.80 cfs @ 12.09 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 242.53' @ 12.09 hrs Surf.Area= 148 sf Storage= 4 cf

Plug-Flow detention time=0.1 min calculated for 0.058 af (100% of inflow)  
 Center-of-Mass det. time=0.1 min ( 829.1 - 829.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)



**50465\_postdev**

Type III 24-hr 2-Yr Rainfall=3.00"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=0.78 cfs @ 12.09 hrs HW=242.53' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.78 cfs @ 0.43 fps)**Summary for Pond 206: Level Lip Spreader #2**

Inflow Area = 0.324 ac, 81.75% Impervious, Inflow Depth = 1.74" for 2-Yr event  
 Inflow = 0.65 cfs @ 12.09 hrs, Volume= 0.047 af  
 Outflow = 0.65 cfs @ 12.09 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.1 min  
 Primary = 0.65 cfs @ 12.09 hrs, Volume= 0.047 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 242.52' @ 12.09 hrs Surf.Area= 147 sf Storage= 4 cf

Plug-Flow detention time=0.1 min calculated for 0.047 af (100% of inflow)

Center-of-Mass det. time=0.1 min ( 821.8 - 821.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=0.63 cfs @ 12.09 hrs HW=242.52' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.63 cfs @ 0.40 fps)

**Summary for Pond 207: Level Lip Spreader #3**

Inflow Area = 0.940 ac, 49.45% Impervious, Inflow Depth = 0.63" for 2-Yr event  
 Inflow = 0.56 cfs @ 12.11 hrs, Volume= 0.049 af  
 Outflow = 0.56 cfs @ 12.11 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.1 min  
 Primary = 0.56 cfs @ 12.11 hrs, Volume= 0.049 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 242.52' @ 12.11 hrs Surf.Area= 146 sf Storage= 3 cf

Plug-Flow detention time=0.1 min calculated for 0.049 af (100% of inflow)  
 Center-of-Mass det. time=0.1 min ( 888.9 - 888.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=0.54 cfs @ 12.11 hrs HW=242.52' (Free Discharge)  
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 0.54 cfs @ 0.38 fps)

**Summary for Pond 208: Level Lip Spreader #4**

Inflow Area = 0.453 ac, 0.00% Impervious, Inflow Depth = 0.33" for 2-Yr event  
 Inflow = 0.08 cfs @ 12.16 hrs, Volume= 0.013 af  
 Outflow = 0.03 cfs @ 13.35 hrs, Volume= 0.008 af, Atten= 65%, Lag= 71.4 min  
 Primary = 0.03 cfs @ 13.35 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 249.00' @ 13.35 hrs Surf.Area= 300 sf Storage= 200 cf

Plug-Flow detention time= 233.5 min calculated for 0.008 af (64% of inflow)  
 Center-of-Mass det. time= 103.8 min ( 1,033.7 - 929.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	200 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

**50465\_postdev**

Type III 24-hr 2-Yr Rainfall=3.00"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	100	0	0
248.50	200	75	75
249.00	300	125	200

Device	Routing	Invert	Outlet Devices
#1	Primary	249.00'	<b>25.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=0.02 cfs @ 13.35 hrs HW=249.00' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.17 fps)**Summary for Pond 209: Level Lip Spreader #5**

Inflow Area = 0.376 ac, 0.00% Impervious, Inflow Depth = 0.22" for 2-Yr event  
 Inflow = 0.03 cfs @ 12.35 hrs, Volume= 0.007 af  
 Outflow = 0.01 cfs @ 17.00 hrs, Volume= 0.002 af, Atten= 71%, Lag= 279.1 min  
 Primary = 0.01 cfs @ 17.00 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 249.00' @ 17.00 hrs Surf.Area= 300 sf Storage= 200 cf

Plug-Flow detention time= 443.3 min calculated for 0.002 af (33% of inflow)

Center-of-Mass det. time= 248.3 min ( 1,208.9 - 960.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	200 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	100	0	0
248.50	200	75	75
249.00	300	125	200

Device	Routing	Invert	Outlet Devices
#1	Primary	249.00'	<b>25.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=0.00 cfs @ 17.00 hrs HW=249.00' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.10 fps)

**Summary for Pond 301: Point of Analysis 301**

Inflow Area = 43.307 ac, 58.99% Impervious, Inflow Depth > 0.64" for 2-Yr event  
Inflow = 0.93 cfs @ 23.44 hrs, Volume= 2.308 af  
Primary = 0.93 cfs @ 23.44 hrs, Volume= 2.308 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 401: Point of Analysis 401**

Inflow Area = 59.444 ac, 46.27% Impervious, Inflow Depth > 0.83" for 2-Yr event  
Inflow = 19.03 cfs @ 12.32 hrs, Volume= 4.100 af  
Primary = 19.03 cfs @ 12.32 hrs, Volume= 4.100 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 501: Point of Analysis 501**

Inflow Area = 0.915 ac, 26.47% Impervious, Inflow Depth = 1.19" for 2-Yr event  
Inflow = 1.23 cfs @ 12.10 hrs, Volume= 0.091 af  
Primary = 1.23 cfs @ 12.10 hrs, Volume= 0.091 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 601: Point of Analysis 601**

Inflow Area = 62.183 ac, 16.27% Impervious, Inflow Depth > 0.39" for 2-Yr event  
Inflow = 0.95 cfs @ 13.30 hrs, Volume= 2.023 af  
Primary = 0.95 cfs @ 13.30 hrs, Volume= 2.023 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link 1LA: Link 1**

Inflow Area = 2.529 ac, 42.44% Impervious, Inflow Depth > 0.78" for 2-Yr event  
Inflow = 0.63 cfs @ 13.30 hrs, Volume= 0.164 af  
Primary = 0.63 cfs @ 13.30 hrs, Volume= 0.164 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link 1LB: Link 1**

Inflow Area = 2.529 ac, 42.44% Impervious, Inflow Depth > 0.78" for 2-Yr event  
Inflow = 0.63 cfs @ 13.30 hrs, Volume= 0.164 af  
Primary = 0.63 cfs @ 13.30 hrs, Volume= 0.164 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Subcatchment S30: Subcatchment 30**

Runoff = 16.79 cfs @ 12.77 hrs, Volume= 2.947 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	379,829	98	
	151,673	30	Woods, Good, HSG A
	129,474	70	Woods, Good, HSG C
*	22,394	98	Water Surface
	99,405	39	>75% Grass cover, Good, HSG A
	99,405	74	>75% Grass cover, Good, HSG C
	882,180	73	Weighted Average
	479,957		54.41% Pervious Area
	402,223		45.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	75	0.0400	1.66		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
4.9	481	0.0104	1.64		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
49.2	1,094	0.0055	0.37		<b>Shallow Concentrated Flow, C to D</b> Woodland Kv= 5.0 fps
54.9	1,650	Total			

**Summary for Subcatchment S30A: Subcatchment 30A**

Runoff = 12.75 cfs @ 12.09 hrs, Volume= 0.988 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	115,960	98	
	24,290	79	50-75% Grass cover, Fair, HSG C
	2,477	49	50-75% Grass cover, Fair, HSG A
	142,727	94	Weighted Average
	26,767		18.75% Pervious Area
	115,960		81.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.8	333	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.9	408	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S30B: Subcatchment 30B**

Runoff = 19.04 cfs @ 12.09 hrs, Volume= 1.495 af, Depth= 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	197,982	98	
	947	79	50-75% Grass cover, Fair, HSG C
	10,676	49	50-75% Grass cover, Fair, HSG A
	209,605	95	Weighted Average
	11,623		5.55% Pervious Area
	197,982		94.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.9	312	0.0300	2.79		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
2.9	387	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S30C: Subcatchment 30C**

Runoff = 34.76 cfs @ 12.12 hrs, Volume= 2.927 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	360,000	98	
	24,598	39	>75% Grass cover, Good, HSG A
	34,063	74	>75% Grass cover, Good, HSG C
*	16,903	98	Water Surface
	435,564	93	Weighted Average
	58,661		13.47% Pervious Area
	376,903		86.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.2	300	0.0200	2.28		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
1.8	200	0.0150	1.84		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
0.6	30	0.0100	0.79		<b>Sheet Flow, D to E</b> Smooth surfaces n= 0.011 P2= 3.00"
3.5	46	0.0600	0.22		<b>Sheet Flow, E to F</b> Grass: Short n= 0.150 P2= 3.00"
9.1	651	Total			

**Summary for Subcatchment S32: Subcatchment 32**

Runoff = 2.14 cfs @ 12.50 hrs, Volume= 0.334 af, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

Area (sf)	CN	Description
* 19,706	98	
30,613	74	>75% Grass cover, Good, HSG C
59,971	39	>75% Grass cover, Good, HSG A
46,847	80	>75% Grass cover, Good, HSG D
46,898	30	Woods, Good, HSG A
4,056	70	Woods, Good, HSG C
8,274	77	Woods, Good, HSG D
216,365	58	Weighted Average
196,659		90.89% Pervious Area
19,706		9.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	75	0.0080	0.07		<b>Sheet Flow, A to B</b> Grass: Dense n= 0.240 P2= 3.00"
12.1	360	0.0050	0.49		<b>Shallow Concentrated Flow, B to C</b> Short Grass Pasture Kv= 7.0 fps
29.0	435	Total			

**Summary for Subcatchment S40: Subcatchment 40**

Runoff = 37.88 cfs @ 12.31 hrs, Volume= 4.159 af, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"



	Area (sf)	CN	Description
*	158,513	98	
	31,707	55	Woods, Good, HSG B
	217,840	70	Woods, Good, HSG C
	189,606	77	Woods, Good, HSG D
	950	30	Woods, Good, HSG A
	26,357	39	>75% Grass cover, Good, HSG A
	97,705	61	>75% Grass cover, Good, HSG B
	190,000	74	>75% Grass cover, Good, HSG C
	190,000	80	>75% Grass cover, Good, HSG D
	1,102,678	76	Weighted Average
	944,165		85.62% Pervious Area
	158,513		14.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
4.4	550	0.0164	2.06		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
1.6	325	0.0500	3.35		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
14.3	2,100	0.0030	2.45	73.44	<b>Channel Flow, D to E</b> Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.030 Earth, grassed & winding
21.4	3,050	Total			

### Summary for Subcatchment S40A: Subcatchment 40A

Runoff = 24.61 cfs @ 12.18 hrs, Volume= 2.414 af, Depth= 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	275,000	98	
	4,986	39	>75% Grass cover, Good, HSG A
	43,462	80	>75% Grass cover, Good, HSG D
	3,315	74	>75% Grass cover, Good, HSG C
*	11,757	98	Water Surface
	338,520	95	Weighted Average
	51,763		15.29% Pervious Area
	286,757		84.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
1.7	204	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
7.0	629	0.0100	1.50		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
0.2	148	0.0400	14.40	45.24	<b>Pipe Channel, D to E</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
1.9	37	0.0010	0.33		<b>Sheet Flow, E to F</b> Smooth surfaces n= 0.011 P2= 3.00"
1.8	32	0.1600	0.30		<b>Sheet Flow, F to G</b> Grass: Short n= 0.150 P2= 3.00"
13.7	1,125	Total			

### Summary for Subcatchment S41: Subcatchment 41

Runoff = 22.20 cfs @ 12.10 hrs, Volume= 1.768 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

Area (sf)	CN	Description
* 187,081	98	
22,827	79	50-75% Grass cover, Fair, HSG C
37,988	84	50-75% Grass cover, Fair, HSG D
* 7,519	98	Water Surface
255,415	94	Weighted Average
60,815		23.81% Pervious Area
194,600		76.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
3.3	383	0.0143	1.93		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
2.5	243	0.0535	1.62		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
7.1	701	Total			

### Summary for Subcatchment S42: Subcatchment 42

Runoff = 25.71 cfs @ 12.15 hrs, Volume= 2.231 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

**50465\_postdev**

Type III 24-hr 10-Yr Rainfall=4.30"

Prepared by Stantec Consulting Services, Inc.

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	Area (sf)	CN	Description
*	278,726	98	
*	11,139	98	Water Surface
	26,977	49	50-75% Grass cover, Fair, HSG A
	29,325	69	50-75% Grass cover, Fair, HSG B
	6,630	79	50-75% Grass cover, Fair, HSG C
	352,797	91	Weighted Average
	62,932		17.84% Pervious Area
	289,865		82.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
6.1	700	0.0140	1.90		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.4	225	0.0250	1.11		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
10.8	1,000	Total			

**Summary for Subcatchment S43: Subcatchment 43**

Runoff = 15.40 cfs @ 12.39 hrs, Volume= 1.880 af, Depth= 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	232,052	98	
*	36,376	98	Water Surface
	122,740	49	50-75% Grass cover, Fair, HSG A
	38,160	79	50-75% Grass cover, Fair, HSG C
	8,153	69	50-75% Grass cover, Fair, HSG B
	86,000	36	Woods, Fair, HSG A
	5,923	60	Woods, Fair, HSG B
	10,549	77	Woods, Poor, HSG C
	539,953	74	Weighted Average
	271,525		50.29% Pervious Area
	268,428		49.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	75	0.0100	0.12		<b>Sheet Flow, A to B</b> Grass: Short n= 0.150 P2= 3.00"
16.3	488	0.0100	0.50		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
26.9	563	Total			

**Summary for Subcatchment S50: Subcatchment 50**

Runoff = 2.32 cfs @ 12.09 hrs, Volume= 0.168 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	10,546	98	
	4,431	61	>75% Grass cover, Good, HSG B
	24,859	74	>75% Grass cover, Good, HSG C
	39,836	79	Weighted Average
	29,290		73.53% Pervious Area
	10,546		26.47% Impervious Area

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

**Summary for Subcatchment S60: Subcatchment 60**

Runoff = 1.75 cfs @ 13.03 hrs, Volume= 0.698 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
	841,049	30	Woods, Good, HSG A
	344,078	77	Woods, Good, HSG D
	22,871	70	Woods, Good, HSG C
	37,335	39	>75% Grass cover, Good, HSG A
	32,830	80	>75% Grass cover, Good, HSG D
*	17,570	98	
	15,415	77	Woods, Good, HSG D
	1,311,148	46	Weighted Average
	1,293,578		98.66% Pervious Area
	17,570		1.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7	75	0.0200	0.04		<b>Sheet Flow, A to B</b> Woods: Dense underbrush n= 0.800 P2= 3.00"
14.4	530	0.0150	0.61		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
1.4	430	0.0100	5.10	122.30	<b>Channel Flow, C to D</b> Area= 24.0 sf Perim= 23.0' r= 1.04' n= 0.030 Earth, grassed & winding
46.5	1,035	Total			

**Summary for Subcatchment S60A: Subcatchment 60A**

Runoff = 0.05 cfs @ 23.05 hrs, Volume= 0.030 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

Area (sf)	CN	Description
735,140	30	Woods, Good, HSG A
71,251	70	Woods, Good, HSG C
22,354	77	Woods, Good, HSG D
26,632	39	>75% Grass cover, Good, HSG A
9,029	74	>75% Grass cover, Good, HSG C
864,406	35	Weighted Average
864,406		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7	75	0.0200	0.04		<b>Sheet Flow, A to B</b>
					Woods: Dense underbrush n= 0.800 P2= 3.00"
71.5	1,175	0.0030	0.27		<b>Shallow Concentrated Flow, B to C</b>
					Woodland Kv= 5.0 fps
102.2	1,250	Total			

**Summary for Subcatchment S61: Subcatchment 61**

Runoff = 12.71 cfs @ 12.09 hrs, Volume= 0.964 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

Area (sf)	CN	Description
1,448	86	<50% Grass cover, Poor, HSG C
18,168	49	50-75% Grass cover, Fair, HSG A
* 8,570	98	Water Surface
* 119,736	98	
147,922	92	Weighted Average
19,616		13.26% Pervious Area
128,306		86.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
3.7	500	0.0200	2.28		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
1.2	100	0.0080	1.34		<b>Shallow Concentrated Flow, C to D</b>
					Grassed Waterway Kv= 15.0 fps
5.9	675	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S62: Subcatchment 62**

Runoff = 25.35 cfs @ 12.09 hrs, Volume= 2.019 af, Depth= 3.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	11,953	98	Water Surface
*	236,076	98	
	20,275	84	50-75% Grass cover, Fair, HSG D
	6,756	49	50-75% Grass cover, Fair, HSG A
	275,060	96	Weighted Average
	27,031		9.83% Pervious Area
	248,029		90.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.3	150	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
2.5	600	0.0300	4.05	24.32	<b>Channel Flow, C to D</b>
					Area= 6.0 sf Perim= 12.0' r= 0.50'
					n= 0.040 Earth, cobble bottom, clean sides
4.9	825	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S63: Subcatchment 63**

Runoff = 1.36 cfs @ 12.09 hrs, Volume= 0.099 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	15,000	98	
	4,049	39	>75% Grass cover, Good, HSG A
	19,049	85	Weighted Average
	4,049		21.26% Pervious Area
	15,000		78.74% Impervious Area

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

**Summary for Subcatchment S64: Subcatchment 64**

Runoff = 1.07 cfs @ 12.09 hrs, Volume= 0.079 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	11,520	98	
	2,572	39	>75% Grass cover, Good, HSG A
	14,092	87	Weighted Average
	2,572		18.25% Pervious Area
	11,520		81.75% Impervious Area

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

**Summary for Subcatchment S65: Subcatchment 65**

Runoff = 1.44 cfs @ 12.10 hrs, Volume= 0.110 af, Depth= 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
*	20,240	98	
	20,692	39	>75% Grass cover, Good, HSG A
	40,932	68	Weighted Average
	20,692		50.55% Pervious Area
	20,240		49.45% Impervious Area

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

**Summary for Subcatchment S66: Subcatchment 66**

Runoff = 0.40 cfs @ 12.11 hrs, Volume= 0.034 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

	Area (sf)	CN	Description
	9,622	39	>75% Grass cover, Good, HSG A
	10,094	80	>75% Grass cover, Good, HSG D
	19,716	60	Weighted Average
	19,716		100.00% Pervious Area

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

**Summary for Subcatchment S67: Subcatchment 67**

Runoff = 0.22 cfs @ 12.12 hrs, Volume= 0.022 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Yr Rainfall=4.30"

Area (sf)	CN	Description
9,767	39	>75% Grass cover, Good, HSG A
6,617	80	>75% Grass cover, Good, HSG D
16,384	56	Weighted Average
16,384		100.00% Pervious Area

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

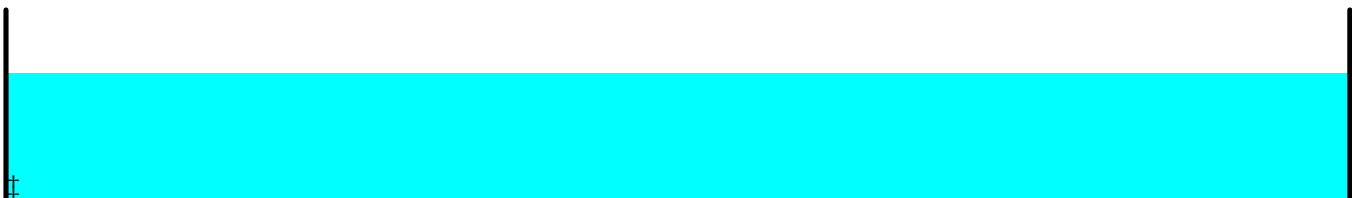
**Summary for Reach 8R: Forested Buffer #4**

Inflow Area = 0.453 ac, 0.00% Impervious, Inflow Depth = 0.79" for 10-Yr event  
Inflow = 0.39 cfs @ 12.16 hrs, Volume= 0.030 af  
Outflow = 0.10 cfs @ 13.26 hrs, Volume= 0.030 af, Atten= 74%, Lag= 66.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.06 fps, Min. Travel Time= 41.0 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 227.6 min

Peak Storage= 251 cf @ 12.57 hrs  
Average Depth at Peak Storage= 0.07'  
Bank-Full Depth= 0.10' Flow Area= 2.5 sf, Capacity= 0.20 cfs

25.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 150.0' Slope= 0.0400 '/'  
Inlet Invert= 249.00', Outlet Invert= 243.00'





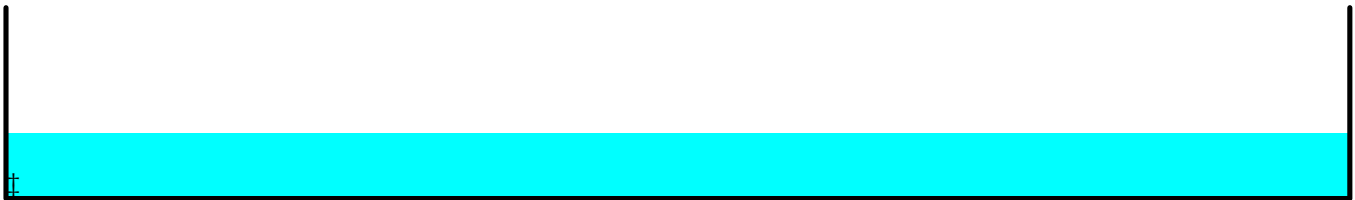
**Summary for Reach 9R: Forested Buffer #5**

Inflow Area = 0.376 ac, 0.00% Impervious, Inflow Depth = 0.56" for 10-Yr event  
Inflow = 0.22 cfs @ 12.35 hrs, Volume= 0.018 af  
Outflow = 0.04 cfs @ 14.25 hrs, Volume= 0.018 af, Atten= 83%, Lag= 114.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.04 fps, Min. Travel Time= 58.9 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 247.2 min

Peak Storage= 130 cf @ 13.29 hrs  
Average Depth at Peak Storage= 0.03'  
Bank-Full Depth= 0.10' Flow Area= 2.5 sf, Capacity= 0.21 cfs

25.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 150.0' Slope= 0.0467 '/'  
Inlet Invert= 249.00', Outlet Invert= 242.00'

**Summary for Reach 34R: Wetland**

Inflow Area = 3.396 ac, 86.74% Impervious, Inflow Depth > 3.25" for 10-Yr event  
Inflow = 1.19 cfs @ 12.96 hrs, Volume= 0.920 af  
Outflow = 0.50 cfs @ 19.94 hrs, Volume= 0.818 af, Atten= 58%, Lag= 419.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.05 fps, Min. Travel Time= 247.0 min  
Avg. Velocity = 0.03 fps, Avg. Travel Time= 431.3 min

Peak Storage= 7,466 cf @ 15.83 hrs  
Average Depth at Peak Storage= 0.09'  
Bank-Full Depth= 0.10' Flow Area= 10.0 sf, Capacity= 0.57 cfs

100.00' x 0.10' deep channel, n= 0.400 Sheet flow: Woods+light brush  
Length= 800.0' Slope= 0.0050 '/'  
Inlet Invert= 245.00', Outlet Invert= 241.00'



**Summary for Reach 206R: Forested Buffer #3**

Inflow Area = 0.940 ac, 49.45% Impervious, Inflow Depth = 1.40" for 10-Yr event  
Inflow = 1.44 cfs @ 12.10 hrs, Volume= 0.110 af  
Outflow = 0.67 cfs @ 12.77 hrs, Volume= 0.110 af, Atten= 53%, Lag= 39.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.06 fps, Min. Travel Time= 25.6 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 190.2 min

Peak Storage= 1,033 cf @ 12.34 hrs  
Average Depth at Peak Storage= 0.18'  
Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.28 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 86.0' Slope= 0.0116 '/'  
Inlet Invert= 242.00', Outlet Invert= 241.00'

**Summary for Reach 207R: Forested Buffer #2**

Inflow Area = 0.324 ac, 81.75% Impervious, Inflow Depth = 2.91" for 10-Yr event  
Inflow = 1.07 cfs @ 12.09 hrs, Volume= 0.079 af  
Outflow = 0.44 cfs @ 12.97 hrs, Volume= 0.079 af, Atten= 59%, Lag= 52.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.05 fps, Min. Travel Time= 39.3 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 282.1 min

Peak Storage= 1,038 cf @ 12.32 hrs  
Average Depth at Peak Storage= 0.15'  
Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.25 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 109.0' Slope= 0.0092 '/'  
Inlet Invert= 242.00', Outlet Invert= 241.00'



**Summary for Reach 208R: Forested Buffer #1**

Inflow Area = 0.437 ac, 78.74% Impervious, Inflow Depth = 2.73" for 10-Yr event  
 Inflow = 1.36 cfs @ 12.09 hrs, Volume= 0.099 af  
 Outflow = 0.48 cfs @ 13.24 hrs, Volume= 0.099 af, Atten= 65%, Lag= 68.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.04 fps, Min. Travel Time= 51.1 min  
 Avg. Velocity = 0.01 fps, Avg. Travel Time= 332.0 min

Peak Storage= 1,462 cf @ 12.38 hrs  
 Average Depth at Peak Storage= 0.17'  
 Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.22 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
 Length= 134.0' Slope= 0.0075 '/'  
 Inlet Invert= 242.00', Outlet Invert= 241.00'

**Summary for Reach R1: Portion of Davis Brook**

Inflow Area = 26.358 ac, 65.57% Impervious, Inflow Depth > 0.72" for 10-Yr event  
 Inflow = 15.19 cfs @ 12.26 hrs, Volume= 1.577 af  
 Outflow = 5.56 cfs @ 12.92 hrs, Volume= 1.570 af, Atten= 63%, Lag= 39.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.18 fps, Min. Travel Time= 22.6 min  
 Avg. Velocity = 0.33 fps, Avg. Travel Time= 81.6 min

Peak Storage= 7,562 cf @ 12.54 hrs  
 Average Depth at Peak Storage= 0.59'  
 Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 176.49 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
 Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
 Length= 1,600.0' Slope= 0.0031 '/'  
 Inlet Invert= 221.00', Outlet Invert= 216.00'



**Summary for Reach R2: Portion of Davis Brook**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.33" for 10-Yr event  
 Inflow = 0.99 cfs @ 15.95 hrs, Volume= 0.565 af  
 Outflow = 0.98 cfs @ 16.37 hrs, Volume= 0.563 af, Atten= 1%, Lag= 25.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.71 fps, Min. Travel Time= 14.1 min  
 Avg. Velocity = 0.27 fps, Avg. Travel Time= 37.0 min

Peak Storage= 831 cf @ 16.13 hrs  
 Average Depth at Peak Storage= 0.23'  
 Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 182.28 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
 Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
 Length= 600.0' Slope= 0.0033 '/'  
 Inlet Invert= 223.00', Outlet Invert= 221.00'

**Summary for Reach R3: Natural Ditch**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.33" for 10-Yr event  
 Inflow = 0.99 cfs @ 15.85 hrs, Volume= 0.565 af  
 Outflow = 0.99 cfs @ 15.95 hrs, Volume= 0.565 af, Atten= 0%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.44 fps, Min. Travel Time= 3.5 min  
 Avg. Velocity = 0.90 fps, Avg. Travel Time= 5.6 min

Peak Storage= 206 cf @ 15.89 hrs  
 Average Depth at Peak Storage= 0.07'  
 Bank-Full Depth= 3.00' Flow Area= 75.0 sf, Capacity= 998.06 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
 Side Slope Z-value= 5.0 '/' Top Width= 40.00'  
 Length= 300.0' Slope= 0.0433 '/'  
 Inlet Invert= 236.00', Outlet Invert= 223.00'



**Summary for Reach R4: Existing Ditch**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 0.00" for 10-Yr event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min  
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs  
 Average Depth at Peak Storage= 0.00'  
 Bank-Full Depth= 2.00' Flow Area= 28.0 sf, Capacity= 168.09 cfs

8.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight  
 Side Slope Z-value= 3.0 '/' Top Width= 20.00'  
 Length= 190.0' Slope= 0.0053 '/'  
 Inlet Invert= 244.00', Outlet Invert= 243.00'

**Summary for Reach R5: Natural Ditch**

Inflow Area = 5.864 ac, 76.19% Impervious, Inflow Depth > 2.08" for 10-Yr event  
 Inflow = 30.34 cfs @ 12.20 hrs, Volume= 1.015 af  
 Outflow = 15.19 cfs @ 12.26 hrs, Volume= 1.014 af, Atten= 50%, Lag= 3.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.60 fps, Min. Travel Time= 1.6 min  
 Avg. Velocity = 0.75 fps, Avg. Travel Time= 5.5 min

Peak Storage= 1,519 cf @ 12.23 hrs  
 Average Depth at Peak Storage= 0.22'  
 Bank-Full Depth= 3.00' Flow Area= 165.0 sf, Capacity= 1,945.52 cfs

25.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
 Side Slope Z-value= 10.0 '/' Top Width= 85.00'  
 Length= 250.0' Slope= 0.0320 '/'  
 Inlet Invert= 229.00', Outlet Invert= 221.00'



**Summary for Pond 30A: Grassed Underdrained Soil Filter A**

Inflow Area = 3.277 ac, 81.25% Impervious, Inflow Depth = 3.62" for 10-Yr event  
 Inflow = 12.75 cfs @ 12.09 hrs, Volume= 0.988 af  
 Primary = 12.75 cfs @ 12.09 hrs, Volume= 0.988 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 30B: Grassed Underdrained Soil Filter B**

Inflow Area = 4.812 ac, 94.45% Impervious, Inflow Depth = 3.73" for 10-Yr event  
 Inflow = 19.04 cfs @ 12.09 hrs, Volume= 1.495 af  
 Primary = 19.04 cfs @ 12.09 hrs, Volume= 1.495 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 101: Pond #1 (plus wetland storage)**

Inflow Area = 38.340 ac, 65.45% Impervious, Inflow Depth > 2.31" for 10-Yr event  
 Inflow = 34.99 cfs @ 12.09 hrs, Volume= 7.396 af  
 Outflow = 2.86 cfs @ 17.74 hrs, Volume= 5.166 af, Atten= 92%, Lag= 339.1 min  
 Primary = 2.86 cfs @ 17.74 hrs, Volume= 5.166 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 241.71' @ 17.74 hrs Surf.Area= 190,596 sf Storage= 177,920 cf

Plug-Flow detention time= 1,036.2 min calculated for 5.166 af (70% of inflow)

Center-of-Mass det. time= 639.9 min ( 1,829.4 - 1,189.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	835,458 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	22,686	0	0
241.00	115,923	69,305	69,305
242.00	221,289	168,606	237,911
243.00	313,044	267,167	505,077
244.00	347,717	330,381	835,458

Device	Routing	Invert	Outlet Devices
#1	Primary	237.64'	<b>24.0" Round Culvert</b> L= 87.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.64' / 237.30' S= 0.0039 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.00'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=2.86 cfs @ 17.74 hrs HW=241.71' (Free Discharge)

1=Culvert (Passes 2.86 cfs of 16.10 cfs potential flow)

2=Orifice/Grate (Orifice Controls 2.86 cfs @ 2.87 fps)

**Summary for Pond 102: Pond #2**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 1.82" for 10-Yr event  
 Inflow = 15.40 cfs @ 12.39 hrs, Volume= 1.880 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 244.67' @ 25.60 hrs Surf.Area= 36,354 sf Storage= 81,885 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	190,120 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	25,000	0	0
244.68	36,400	82,276	82,276
246.00	127,000	107,844	190,120

Device	Routing	Invert	Outlet Devices
#1	Primary	246.53'	<b>18.0" Round Culvert</b> L= 165.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 246.53' / 244.00' S= 0.0153'/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf
#2	Device 1	248.05'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=242.00' (Free Discharge)

↑ **1=Culvert** ( Controls 0.00 cfs)

↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 103: Pond #3**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth = 1.31" for 10-Yr event  
 Inflow = 25.71 cfs @ 12.15 hrs, Volume= 2.231 af  
 Outflow = 0.99 cfs @ 15.85 hrs, Volume= 0.565 af, Atten= 96%, Lag= 222.3 min  
 Primary = 0.99 cfs @ 15.85 hrs, Volume= 0.565 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 241.42' @ 15.85 hrs Surf.Area= 24,457 sf Storage= 78,686 cf

Plug-Flow detention time= 725.6 min calculated for 0.565 af (25% of inflow)  
 Center-of-Mass det. time= 567.8 min ( 1,364.2 - 796.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	94,130 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	4,000	0	0
236.00	7,000	11,000	11,000
238.92	11,139	26,483	37,483
240.00	14,287	13,730	51,213
242.00	28,630	42,917	94,130

Device	Routing	Invert	Outlet Devices
#1	Primary	234.22'	<b>24.0" Round Culvert</b> L= 95.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 234.22' / 233.90' S= 0.0034 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.29'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	236.00'	<b>0.5" W x 0.5" H Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.96 cfs @ 15.85 hrs HW=241.42' (Free Discharge)

- 1=Culvert (Passes 0.96 cfs of 23.64 cfs potential flow)  
 2=Orifice/Grate (Weir Controls 0.94 cfs @ 1.17 fps)  
 3=Orifice/Grate (Orifice Controls 0.02 cfs @ 11.19 fps)

### Summary for Pond 104: Pond #4

Inflow Area = 5.864 ac, 76.19% Impervious, Inflow Depth = 3.62" for 10-Yr event  
 Inflow = 22.20 cfs @ 12.10 hrs, Volume= 1.768 af  
 Outflow = 30.34 cfs @ 12.20 hrs, Volume= 1.015 af, Atten= 0%, Lag= 6.0 min  
 Primary = 30.34 cfs @ 12.20 hrs, Volume= 1.015 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 241.63' @ 12.20 hrs Surf.Area= 16,786 sf Storage= 36,018 cf

Plug-Flow detention time= 354.0 min calculated for 1.014 af (57% of inflow)  
 Center-of-Mass det. time= 249.4 min ( 1,028.3 - 778.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	36,018 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	620	0	0
232.00	3,391	4,011	4,011
234.05	7,519	11,183	15,194
235.00	9,087	7,888	23,082
236.00	16,786	12,937	36,018

Device	Routing	Invert	Outlet Devices
#1	Primary	230.62'	<b>24.0" Round Culvert</b> L= 96.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 230.62' / 228.40' S= 0.0231 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	237.61'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads



#3 Device 1 231.00' **0.5" W x 0.5" H Vert. Orifice/Grate** C= 0.600**Primary OutFlow** Max=30.34 cfs @ 12.20 hrs HW=241.63' (Free Discharge)

1=Culvert (Passes 30.34 cfs of 33.59 cfs potential flow)

2=Orifice/Grate (Orifice Controls 30.32 cfs @ 9.65 fps)

3=Orifice/Grate (Orifice Controls 0.03 cfs @ 15.68 fps)

**Summary for Pond 201: Pond #201**

Inflow Area = 3.396 ac, 86.74% Impervious, Inflow Depth = 3.41" for 10-Yr event  
 Inflow = 12.71 cfs @ 12.09 hrs, Volume= 0.964 af  
 Outflow = 1.19 cfs @ 12.96 hrs, Volume= 0.920 af, Atten= 91%, Lag= 52.3 min  
 Primary = 1.19 cfs @ 12.96 hrs, Volume= 0.920 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 249.79' @ 12.96 hrs Surf.Area= 17,286 sf Storage= 25,290 cf

Plug-Flow detention time= 1,160.0 min calculated for 0.920 af (95% of inflow)  
 Center-of-Mass det. time= 1,133.6 min ( 1,921.2 - 787.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	47,142 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	8,570	0	0
249.00	15,880	12,225	12,225
250.00	17,665	16,773	28,998
251.00	18,624	18,145	47,142

Device	Routing	Invert	Outlet Devices
#1	Primary	250.00'	<b>20.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	245.40'	<b>12.0" Round Culvert</b> L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 245.40' / 245.00' S= 0.0138 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	249.65'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	245.50'	<b>1.6" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	248.00'	<b>2.000 in/hr Exfiltration over Surface area above 248.00'</b> Excluded Surface area = 8,570 sf

**Primary OutFlow** Max=1.19 cfs @ 12.96 hrs HW=249.79' (Free Discharge)

1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

2=Culvert (Passes 1.19 cfs of 5.89 cfs potential flow)

3=Orifice/Grate (Weir Controls 1.05 cfs @ 1.21 fps)

4=Orifice/Grate (Orifice Controls 0.14 cfs @ 9.89 fps)

5=Exfiltration (Passes 0.14 cfs of 0.40 cfs potential flow)

**Summary for Pond 202: Pond #202**

Inflow Area = 6.315 ac, 90.17% Impervious, Inflow Depth = 3.84" for 10-Yr event  
 Inflow = 25.35 cfs @ 12.09 hrs, Volume= 2.019 af  
 Outflow = 2.98 cfs @ 12.70 hrs, Volume= 1.936 af, Atten= 88%, Lag= 36.9 min  
 Primary = 2.98 cfs @ 12.70 hrs, Volume= 1.936 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 243.75' @ 12.70 hrs Surf.Area= 26,067 sf Storage= 53,184 cf

Plug-Flow detention time= 1,045.8 min calculated for 1.936 af (96% of inflow)  
 Center-of-Mass det. time= 1,021.6 min ( 1,787.7 - 766.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	241.00'	92,645 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
241.00	12,606	0	0
242.00	18,880	15,743	15,743
243.00	20,722	19,801	35,544
244.00	27,811	24,267	59,811
245.00	37,857	32,834	92,645

Device	Routing	Invert	Outlet Devices
#1	Primary	244.00'	<b>25.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	238.40'	<b>12.0" Round Culvert</b> L= 115.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 238.40' / 237.75' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	243.50'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	238.50'	<b>2.4" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	241.00'	<b>2.000 in/hr Exfiltration over Surface area above 241.00'</b> Excluded Surface area = 12,606 sf

**Primary OutFlow** Max=2.97 cfs @ 12.70 hrs HW=243.75' (Free Discharge)

1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)  
 2=Culvert (Passes 2.97 cfs of 6.01 cfs potential flow)  
 3=Orifice/Grate (Weir Controls 2.63 cfs @ 1.65 fps)  
 4=Orifice/Grate (Orifice Controls 0.34 cfs @ 10.93 fps)  
 5=Exfiltration (Passes 0.34 cfs of 0.62 cfs potential flow)

**Summary for Pond 203: Pond #203**

Inflow Area = 9.999 ac, 86.53% Impervious, Inflow Depth = 3.51" for 10-Yr event  
 Inflow = 34.76 cfs @ 12.12 hrs, Volume= 2.927 af  
 Outflow = 0.97 cfs @ 16.73 hrs, Volume= 1.966 af, Atten= 97%, Lag= 276.6 min  
 Primary = 0.97 cfs @ 16.73 hrs, Volume= 1.966 af

**50465\_postdev**

Type III 24-hr 10-Yr Rainfall=4.30"

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Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 249.33' @ 16.73 hrs Surf.Area= 35,842 sf Storage= 101,763 cf

Plug-Flow detention time= 1,467.4 min calculated for 1.966 af (67% of inflow)  
 Center-of-Mass det. time= 1,371.9 min ( 2,157.7 - 785.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	246.00'	177,123 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.00	25,338	0	0
247.00	28,403	26,871	26,871
248.00	31,540	29,972	56,842
249.00	34,748	33,144	89,986
250.00	38,027	36,388	126,374
251.00	63,471	50,749	177,123

Device	Routing	Invert	Outlet Devices
#1	Primary	249.75'	<b>25.0' long x 8.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Primary	243.40'	<b>12.0" Round Culvert</b> L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 243.40' / 243.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	249.25'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	243.50'	<b>2.7" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	246.00'	<b>2.000 in/hr Exfiltration over Surface area above 246.00'</b> Excluded Surface area = 25,338 sf

**Primary OutFlow** Max=0.96 cfs @ 16.73 hrs HW=249.33' (Free Discharge)

- 1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)
- 2=Culvert (Passes 0.96 cfs of 6.96 cfs potential flow)
- 3=Orifice/Grate (Weir Controls 0.50 cfs @ 0.95 fps)
- 4=Orifice/Grate (Orifice Controls 0.46 cfs @ 11.52 fps)
- 5=Exfiltration (Passes 0.46 cfs of 0.49 cfs potential flow)

**Summary for Pond 204: Pond #204**

Inflow Area = 7.771 ac, 84.71% Impervious, Inflow Depth = 3.73" for 10-Yr event  
 Inflow = 24.61 cfs @ 12.18 hrs, Volume= 2.414 af  
 Outflow = 1.17 cfs @ 15.41 hrs, Volume= 2.004 af, Atten= 95%, Lag= 193.7 min  
 Primary = 1.17 cfs @ 15.41 hrs, Volume= 2.004 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 238.86' @ 15.41 hrs Surf.Area= 24,911 sf Storage= 77,925 cf

Plug-Flow detention time= 1,479.6 min calculated for 2.003 af (83% of inflow)  
 Center-of-Mass det. time= 1,412.2 min ( 2,191.6 - 779.4 )

**50465\_postdev**

Type III 24-hr 10-Yr Rainfall=4.30"

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Volume	Invert	Avail.Storage	Storage Description
#1	235.00'	106,903 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
235.00	11,757	0	0
236.00	18,909	15,333	15,333
237.00	20,939	19,924	35,257
238.00	23,032	21,986	57,243
239.00	25,210	24,121	81,364
240.00	25,868	25,539	106,903

Device	Routing	Invert	Outlet Devices
#1	Primary	239.00'	<b>25.0' long x 12.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#2	Primary	232.40'	<b>12.0" Round Culvert</b> L= 93.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 232.40' / 232.00' S= 0.0043 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	232.50'	<b>2.4" Vert. Orifice/Grate</b> C= 0.600
#4	Device 2	238.75'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Device 3	235.00'	<b>2.000 in/hr Exfiltration over Surface area above 235.00'</b> Excluded Surface area = 11,757 sf

**Primary OutFlow** Max=1.16 cfs @ 15.41 hrs HW=238.86' (Free Discharge)

- 1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)  
 2=Culvert (Passes 1.16 cfs of 6.95 cfs potential flow)  
 3=Orifice/Grate (Orifice Controls 0.38 cfs @ 12.05 fps)  
 5=Exfiltration (Passes 0.38 cfs of 0.61 cfs potential flow)  
 4=Orifice/Grate (Weir Controls 0.78 cfs @ 1.10 fps)

**Summary for Pond 205: Level Lip Spreader #1**

Inflow Area = 0.437 ac, 78.74% Impervious, Inflow Depth = 2.73" for 10-Yr event  
 Inflow = 1.36 cfs @ 12.09 hrs, Volume= 0.099 af  
 Outflow = 1.36 cfs @ 12.09 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.1 min  
 Primary = 1.36 cfs @ 12.09 hrs, Volume= 0.099 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 242.54' @ 12.09 hrs Surf.Area= 151 sf Storage= 6 cf

Plug-Flow detention time=0.1 min calculated for 0.099 af (100% of inflow)  
 Center-of-Mass det. time=0.1 min ( 813.6 - 813.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

**50465\_postdev**

Type III 24-hr 10-Yr Rainfall=4.30"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=1.33 cfs @ 12.09 hrs HW=242.54' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 1.33 cfs @ 0.51 fps)**Summary for Pond 206: Level Lip Spreader #2**

Inflow Area = 0.324 ac, 81.75% Impervious, Inflow Depth = 2.91" for 10-Yr event  
 Inflow = 1.07 cfs @ 12.09 hrs, Volume= 0.079 af  
 Outflow = 1.07 cfs @ 12.09 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.1 min  
 Primary = 1.07 cfs @ 12.09 hrs, Volume= 0.079 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 242.53' @ 12.09 hrs Surf.Area= 150 sf Storage= 5 cf

Plug-Flow detention time=0.1 min calculated for 0.078 af (100% of inflow)

Center-of-Mass det. time=0.1 min ( 807.1 - 806.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=1.04 cfs @ 12.09 hrs HW=242.53' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 1.04 cfs @ 0.47 fps)

**Summary for Pond 207: Level Lip Spreader #3**

Inflow Area = 0.940 ac, 49.45% Impervious, Inflow Depth = 1.40" for 10-Yr event  
 Inflow = 1.44 cfs @ 12.10 hrs, Volume= 0.110 af  
 Outflow = 1.44 cfs @ 12.10 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.1 min  
 Primary = 1.44 cfs @ 12.10 hrs, Volume= 0.110 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 242.54' @ 12.10 hrs Surf.Area= 152 sf Storage= 6 cf

Plug-Flow detention time=0.1 min calculated for 0.109 af (100% of inflow)  
 Center-of-Mass det. time=0.1 min ( 862.0 - 861.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=1.43 cfs @ 12.10 hrs HW=242.54' (Free Discharge)  
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 1.43 cfs @ 0.52 fps)

**Summary for Pond 208: Level Lip Spreader #4**

Inflow Area = 0.453 ac, 0.00% Impervious, Inflow Depth = 0.91" for 10-Yr event  
 Inflow = 0.40 cfs @ 12.11 hrs, Volume= 0.034 af  
 Outflow = 0.39 cfs @ 12.16 hrs, Volume= 0.030 af, Atten= 2%, Lag= 3.3 min  
 Primary = 0.39 cfs @ 12.16 hrs, Volume= 0.030 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 249.03' @ 12.15 hrs Surf.Area= 300 sf Storage= 200 cf

Plug-Flow detention time=87.0 min calculated for 0.030 af (87% of inflow)  
 Center-of-Mass det. time=26.0 min ( 913.7 - 887.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	200 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

**50465\_postdev**

Type III 24-hr 10-Yr Rainfall=4.30"

Prepared by Stantec Consulting Services, Inc.

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	100	0	0
248.50	200	75	75
249.00	300	125	200

Device	Routing	Invert	Outlet Devices
#1	Primary	249.00'	<b>25.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=0.34 cfs @ 12.16 hrs HW=249.03' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.34 cfs @ 0.44 fps)**Summary for Pond 209: Level Lip Spreader #5**

Inflow Area = 0.376 ac, 0.00% Impervious, Inflow Depth = 0.70" for 10-Yr event  
 Inflow = 0.22 cfs @ 12.12 hrs, Volume= 0.022 af  
 Outflow = 0.22 cfs @ 12.35 hrs, Volume= 0.018 af, Atten= 0%, Lag= 14.1 min  
 Primary = 0.22 cfs @ 12.35 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 249.02' @ 12.35 hrs Surf.Area= 300 sf Storage= 200 cf

Plug-Flow detention time= 129.8 min calculated for 0.018 af (80% of inflow)

Center-of-Mass det. time= 45.4 min ( 949.5 - 904.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	200 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	100	0	0
248.50	200	75	75
249.00	300	125	200

Device	Routing	Invert	Outlet Devices
#1	Primary	249.00'	<b>25.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=0.21 cfs @ 12.35 hrs HW=249.02' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.21 cfs @ 0.38 fps)

**Summary for Pond 301: Point of Analysis 301**

Inflow Area = 43.307 ac, 58.99% Impervious, Inflow Depth > 1.52" for 10-Yr event  
Inflow = 3.06 cfs @ 17.26 hrs, Volume= 5.499 af  
Primary = 3.06 cfs @ 17.26 hrs, Volume= 5.499 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 401: Point of Analysis 401**

Inflow Area = 59.444 ac, 46.27% Impervious, Inflow Depth > 1.56" for 10-Yr event  
Inflow = 38.23 cfs @ 12.31 hrs, Volume= 7.733 af  
Primary = 38.23 cfs @ 12.31 hrs, Volume= 7.733 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 501: Point of Analysis 501**

Inflow Area = 0.915 ac, 26.47% Impervious, Inflow Depth = 2.21" for 10-Yr event  
Inflow = 2.32 cfs @ 12.09 hrs, Volume= 0.168 af  
Primary = 2.32 cfs @ 12.09 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 601: Point of Analysis 601**

Inflow Area = 62.183 ac, 16.27% Impervious, Inflow Depth > 0.74" for 10-Yr event  
Inflow = 5.98 cfs @ 12.99 hrs, Volume= 3.817 af  
Primary = 5.98 cfs @ 12.99 hrs, Volume= 3.817 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link 1LA: Link 1**

Inflow Area = 2.529 ac, 42.44% Impervious, Inflow Depth = 1.59" for 10-Yr event  
Inflow = 1.47 cfs @ 13.05 hrs, Volume= 0.335 af  
Primary = 1.47 cfs @ 13.05 hrs, Volume= 0.335 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link 1LB: Link 1**

Inflow Area = 2.529 ac, 42.44% Impervious, Inflow Depth = 1.59" for 10-Yr event  
Inflow = 1.47 cfs @ 13.05 hrs, Volume= 0.335 af  
Primary = 1.47 cfs @ 13.05 hrs, Volume= 0.335 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



**Summary for Subcatchment S30: Subcatchment 30**

Runoff = 25.43 cfs @ 12.76 hrs, Volume= 4.385 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	379,829	98	
	151,673	30	Woods, Good, HSG A
	129,474	70	Woods, Good, HSG C
*	22,394	98	Water Surface
	99,405	39	>75% Grass cover, Good, HSG A
	99,405	74	>75% Grass cover, Good, HSG C
	882,180	73	Weighted Average
	479,957		54.41% Pervious Area
	402,223		45.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	75	0.0400	1.66		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
4.9	481	0.0104	1.64		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
49.2	1,094	0.0055	0.37		<b>Shallow Concentrated Flow, C to D</b> Woodland Kv= 5.0 fps
54.9	1,650	Total			

**Summary for Subcatchment S30A: Subcatchment 30A**

Runoff = 16.32 cfs @ 12.09 hrs, Volume= 1.284 af, Depth= 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	115,960	98	
	24,290	79	50-75% Grass cover, Fair, HSG C
	2,477	49	50-75% Grass cover, Fair, HSG A
	142,727	94	Weighted Average
	26,767		18.75% Pervious Area
	115,960		81.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.8	333	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.9	408	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S30B: Subcatchment 30B**

Runoff = 24.25 cfs @ 12.09 hrs, Volume= 1.931 af, Depth= 4.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	197,982	98	
	947	79	50-75% Grass cover, Fair, HSG C
	10,676	49	50-75% Grass cover, Fair, HSG A
	209,605	95	Weighted Average
	11,623		5.55% Pervious Area
	197,982		94.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.9	312	0.0300	2.79		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
2.9	387	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S30C: Subcatchment 30C**

Runoff = 44.76 cfs @ 12.12 hrs, Volume= 3.826 af, Depth= 4.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	360,000	98	
	24,598	39	>75% Grass cover, Good, HSG A
	34,063	74	>75% Grass cover, Good, HSG C
*	16,903	98	Water Surface
	435,564	93	Weighted Average
	58,661		13.47% Pervious Area
	376,903		86.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.2	300	0.0200	2.28		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
1.8	200	0.0150	1.84		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
0.6	30	0.0100	0.79		<b>Sheet Flow, D to E</b> Smooth surfaces n= 0.011 P2= 3.00"
3.5	46	0.0600	0.22		<b>Sheet Flow, E to F</b> Grass: Short n= 0.150 P2= 3.00"
9.1	651	Total			

### Summary for Subcatchment S32: Subcatchment 32

Runoff = 4.17 cfs @ 12.46 hrs, Volume= 0.577 af, Depth= 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

Area (sf)	CN	Description
* 19,706	98	
30,613	74	>75% Grass cover, Good, HSG C
59,971	39	>75% Grass cover, Good, HSG A
46,847	80	>75% Grass cover, Good, HSG D
46,898	30	Woods, Good, HSG A
4,056	70	Woods, Good, HSG C
8,274	77	Woods, Good, HSG D
216,365	58	Weighted Average
196,659		90.89% Pervious Area
19,706		9.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	75	0.0080	0.07		<b>Sheet Flow, A to B</b> Grass: Dense n= 0.240 P2= 3.00"
12.1	360	0.0050	0.49		<b>Shallow Concentrated Flow, B to C</b> Short Grass Pasture Kv= 7.0 fps
29.0	435	Total			

### Summary for Subcatchment S40: Subcatchment 40

Runoff = 55.60 cfs @ 12.30 hrs, Volume= 6.051 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	158,513	98	
	31,707	55	Woods, Good, HSG B
	217,840	70	Woods, Good, HSG C
	189,606	77	Woods, Good, HSG D
	950	30	Woods, Good, HSG A
	26,357	39	>75% Grass cover, Good, HSG A
	97,705	61	>75% Grass cover, Good, HSG B
	190,000	74	>75% Grass cover, Good, HSG C
	190,000	80	>75% Grass cover, Good, HSG D
	1,102,678	76	Weighted Average
	944,165		85.62% Pervious Area
	158,513		14.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
4.4	550	0.0164	2.06		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
1.6	325	0.0500	3.35		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
14.3	2,100	0.0030	2.45	73.44	<b>Channel Flow, D to E</b> Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.030 Earth, grassed & winding
21.4	3,050	Total			

### Summary for Subcatchment S40A: Subcatchment 40A

Runoff = 31.36 cfs @ 12.18 hrs, Volume= 3.119 af, Depth= 4.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	275,000	98	
	4,986	39	>75% Grass cover, Good, HSG A
	43,462	80	>75% Grass cover, Good, HSG D
	3,315	74	>75% Grass cover, Good, HSG C
*	11,757	98	Water Surface
	338,520	95	Weighted Average
	51,763		15.29% Pervious Area
	286,757		84.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
1.7	204	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
7.0	629	0.0100	1.50		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
0.2	148	0.0400	14.40	45.24	<b>Pipe Channel, D to E</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
1.9	37	0.0010	0.33		<b>Sheet Flow, E to F</b> Smooth surfaces n= 0.011 P2= 3.00"
1.8	32	0.1600	0.30		<b>Sheet Flow, F to G</b> Grass: Short n= 0.150 P2= 3.00"
13.7	1,125	Total			

**Summary for Subcatchment S41: Subcatchment 41**

Runoff = 28.43 cfs @ 12.10 hrs, Volume= 2.298 af, Depth= 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	187,081	98	
	22,827	79	50-75% Grass cover, Fair, HSG C
	37,988	84	50-75% Grass cover, Fair, HSG D
*	7,519	98	Water Surface
	255,415	94	Weighted Average
	60,815		23.81% Pervious Area
	194,600		76.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
3.3	383	0.0143	1.93		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
2.5	243	0.0535	1.62		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
7.1	701	Total			

**Summary for Subcatchment S42: Subcatchment 42**

Runoff = 33.51 cfs @ 12.15 hrs, Volume= 2.950 af, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	278,726	98	
*	11,139	98	Water Surface
	26,977	49	50-75% Grass cover, Fair, HSG A
	29,325	69	50-75% Grass cover, Fair, HSG B
	6,630	79	50-75% Grass cover, Fair, HSG C
	352,797	91	Weighted Average
	62,932		17.84% Pervious Area
	289,865		82.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
6.1	700	0.0140	1.90		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.4	225	0.0250	1.11		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
10.8	1,000	Total			

### Summary for Subcatchment S43: Subcatchment 43

Runoff = 23.05 cfs @ 12.38 hrs, Volume= 2.776 af, Depth= 2.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	232,052	98	
*	36,376	98	Water Surface
	122,740	49	50-75% Grass cover, Fair, HSG A
	38,160	79	50-75% Grass cover, Fair, HSG C
	8,153	69	50-75% Grass cover, Fair, HSG B
	86,000	36	Woods, Fair, HSG A
	5,923	60	Woods, Fair, HSG B
	10,549	77	Woods, Poor, HSG C
	539,953	74	Weighted Average
	271,525		50.29% Pervious Area
	268,428		49.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	75	0.0100	0.12		<b>Sheet Flow, A to B</b> Grass: Short n= 0.150 P2= 3.00"
16.3	488	0.0100	0.50		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
26.9	563	Total			

**Summary for Subcatchment S50: Subcatchment 50**

Runoff = 3.31 cfs @ 12.09 hrs, Volume= 0.240 af, Depth= 3.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	10,546	98	
	4,431	61	>75% Grass cover, Good, HSG B
	24,859	74	>75% Grass cover, Good, HSG C
	39,836	79	Weighted Average
	29,290		73.53% Pervious Area
	10,546		26.47% Impervious Area

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

**Summary for Subcatchment S60: Subcatchment 60**

Runoff = 6.24 cfs @ 12.85 hrs, Volume= 1.580 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
	841,049	30	Woods, Good, HSG A
	344,078	77	Woods, Good, HSG D
	22,871	70	Woods, Good, HSG C
	37,335	39	>75% Grass cover, Good, HSG A
	32,830	80	>75% Grass cover, Good, HSG D
*	17,570	98	
	15,415	77	Woods, Good, HSG D
	1,311,148	46	Weighted Average
	1,293,578		98.66% Pervious Area
	17,570		1.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7	75	0.0200	0.04		<b>Sheet Flow, A to B</b> Woods: Dense underbrush n= 0.800 P2= 3.00"
14.4	530	0.0150	0.61		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
1.4	430	0.0100	5.10	122.30	<b>Channel Flow, C to D</b> Area= 24.0 sf Perim= 23.0' r= 1.04' n= 0.030 Earth, grassed & winding
46.5	1,035	Total			

**Summary for Subcatchment S60A: Subcatchment 60A**

Runoff = 0.35 cfs @ 16.20 hrs, Volume= 0.232 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

Area (sf)	CN	Description
735,140	30	Woods, Good, HSG A
71,251	70	Woods, Good, HSG C
22,354	77	Woods, Good, HSG D
26,632	39	>75% Grass cover, Good, HSG A
9,029	74	>75% Grass cover, Good, HSG C
864,406	35	Weighted Average
864,406		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7	75	0.0200	0.04		<b>Sheet Flow, A to B</b>
					Woods: Dense underbrush n= 0.800 P2= 3.00"
71.5	1,175	0.0030	0.27		<b>Shallow Concentrated Flow, B to C</b>
					Woodland Kv= 5.0 fps
102.2	1,250	Total			

**Summary for Subcatchment S61: Subcatchment 61**

Runoff = 16.46 cfs @ 12.09 hrs, Volume= 1.268 af, Depth= 4.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

Area (sf)	CN	Description
1,448	86	<50% Grass cover, Poor, HSG C
18,168	49	50-75% Grass cover, Fair, HSG A
* 8,570	98	Water Surface
* 119,736	98	
147,922	92	Weighted Average
19,616		13.26% Pervious Area
128,306		86.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
3.7	500	0.0200	2.28		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
1.2	100	0.0080	1.34		<b>Shallow Concentrated Flow, C to D</b>
					Grassed Waterway Kv= 15.0 fps
5.9	675	Total, Increased to minimum Tc = 6.0 min			



**Summary for Subcatchment S62: Subcatchment 62**

Runoff = 32.14 cfs @ 12.09 hrs, Volume= 2.594 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	11,953	98	Water Surface
*	236,076	98	
	20,275	84	50-75% Grass cover, Fair, HSG D
	6,756	49	50-75% Grass cover, Fair, HSG A
	275,060	96	Weighted Average
	27,031		9.83% Pervious Area
	248,029		90.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.3	150	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
2.5	600	0.0300	4.05	24.32	<b>Channel Flow, C to D</b>
					Area= 6.0 sf Perim= 12.0' r= 0.50'
					n= 0.040 Earth, cobble bottom, clean sides
4.9	825	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S63: Subcatchment 63**

Runoff = 1.85 cfs @ 12.09 hrs, Volume= 0.136 af, Depth= 3.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	15,000	98	
	4,049	39	>75% Grass cover, Good, HSG A
	19,049	85	Weighted Average
	4,049		21.26% Pervious Area
	15,000		78.74% Impervious Area

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

**Summary for Subcatchment S64: Subcatchment 64**

Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.106 af, Depth= 3.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	11,520	98	
	2,572	39	>75% Grass cover, Good, HSG A
	14,092	87	Weighted Average
	2,572		18.25% Pervious Area
	11,520		81.75% Impervious Area

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

**Summary for Subcatchment S65: Subcatchment 65**

Runoff = 2.30 cfs @ 12.10 hrs, Volume= 0.170 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
*	20,240	98	
	20,692	39	>75% Grass cover, Good, HSG A
	40,932	68	Weighted Average
	20,692		50.55% Pervious Area
	20,240		49.45% Impervious Area

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

**Summary for Subcatchment S66: Subcatchment 66**

Runoff = 0.74 cfs @ 12.10 hrs, Volume= 0.058 af, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

	Area (sf)	CN	Description
	9,622	39	>75% Grass cover, Good, HSG A
	10,094	80	>75% Grass cover, Good, HSG D
	19,716	60	Weighted Average
	19,716		100.00% Pervious Area

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

**Summary for Subcatchment S67: Subcatchment 67**

Runoff = 0.47 cfs @ 12.11 hrs, Volume= 0.039 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Yr Rainfall=5.40"

Area (sf)	CN	Description
9,767	39	>75% Grass cover, Good, HSG A
6,617	80	>75% Grass cover, Good, HSG D
16,384	56	Weighted Average
16,384		100.00% Pervious Area

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

**Summary for Reach 8R: Forested Buffer #4**

Inflow Area = 0.453 ac, 0.00% Impervious, Inflow Depth = 1.44" for 25-Yr event  
Inflow = 0.98 cfs @ 12.15 hrs, Volume= 0.054 af  
Outflow = 0.29 cfs @ 12.92 hrs, Volume= 0.054 af, Atten= 70%, Lag= 46.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.09 fps, Min. Travel Time= 27.5 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 196.6 min

Peak Storage= 480 cf @ 12.40 hrs  
Average Depth at Peak Storage= 0.13'  
Bank-Full Depth= 0.10' Flow Area= 2.5 sf, Capacity= 0.20 cfs

25.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 150.0' Slope= 0.0400 '/'  
Inlet Invert= 249.00', Outlet Invert= 243.00'



**Summary for Reach 9R: Forested Buffer #5**

Inflow Area = 0.376 ac, 0.00% Impervious, Inflow Depth = 1.13" for 25-Yr event  
Inflow = 0.71 cfs @ 12.15 hrs, Volume= 0.035 af  
Outflow = 0.15 cfs @ 13.07 hrs, Volume= 0.035 af, Atten= 79%, Lag= 55.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.08 fps, Min. Travel Time= 33.3 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 208.8 min

Peak Storage= 306 cf @ 12.52 hrs  
Average Depth at Peak Storage= 0.08'  
Bank-Full Depth= 0.10' Flow Area= 2.5 sf, Capacity= 0.21 cfs

25.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 150.0' Slope= 0.0467 '/'  
Inlet Invert= 249.00', Outlet Invert= 242.00'

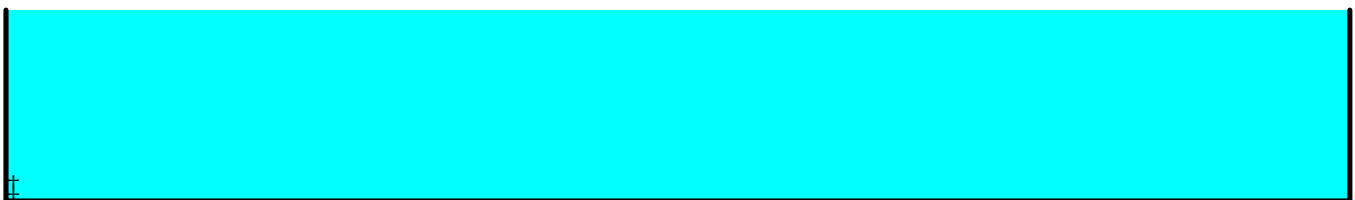
**Summary for Reach 34R: Wetland**

Inflow Area = 3.396 ac, 86.74% Impervious, Inflow Depth > 4.32" for 25-Yr event  
Inflow = 4.31 cfs @ 12.45 hrs, Volume= 1.221 af  
Outflow = 1.07 cfs @ 17.34 hrs, Volume= 1.128 af, Atten= 75%, Lag= 293.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.07 fps, Min. Travel Time= 191.5 min  
Avg. Velocity = 0.03 fps, Avg. Travel Time= 403.4 min

Peak Storage= 12,342 cf @ 14.15 hrs  
Average Depth at Peak Storage= 0.15'  
Bank-Full Depth= 0.10' Flow Area= 10.0 sf, Capacity= 0.57 cfs

100.00' x 0.10' deep channel, n= 0.400 Sheet flow: Woods+light brush  
Length= 800.0' Slope= 0.0050 '/'  
Inlet Invert= 245.00', Outlet Invert= 241.00'



**Summary for Reach 206R: Forested Buffer #3**

Inflow Area = 0.940 ac, 49.45% Impervious, Inflow Depth = 2.17" for 25-Yr event  
Inflow = 2.30 cfs @ 12.10 hrs, Volume= 0.170 af  
Outflow = 1.13 cfs @ 12.69 hrs, Volume= 0.170 af, Atten= 51%, Lag= 35.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.06 fps, Min. Travel Time= 23.3 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 168.9 min

Peak Storage= 1,582 cf @ 12.30 hrs  
Average Depth at Peak Storage= 0.28'  
Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.28 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 86.0' Slope= 0.0116 '/'  
Inlet Invert= 242.00', Outlet Invert= 241.00'

**Summary for Reach 207R: Forested Buffer #2**

Inflow Area = 0.324 ac, 81.75% Impervious, Inflow Depth = 3.95" for 25-Yr event  
Inflow = 1.43 cfs @ 12.09 hrs, Volume= 0.106 af  
Outflow = 0.61 cfs @ 12.91 hrs, Volume= 0.106 af, Atten= 57%, Lag= 48.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.05 fps, Min. Travel Time= 36.3 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 257.4 min

Peak Storage= 1,332 cf @ 12.30 hrs  
Average Depth at Peak Storage= 0.19'  
Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.25 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 109.0' Slope= 0.0092 '/'  
Inlet Invert= 242.00', Outlet Invert= 241.00'



**Summary for Reach 208R: Forested Buffer #1**

Inflow Area = 0.437 ac, 78.74% Impervious, Inflow Depth = 3.74" for 25-Yr event  
 Inflow = 1.85 cfs @ 12.09 hrs, Volume= 0.136 af  
 Outflow = 0.67 cfs @ 13.16 hrs, Volume= 0.136 af, Atten= 64%, Lag= 63.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.05 fps, Min. Travel Time= 47.6 min  
 Avg. Velocity = 0.01 fps, Avg. Travel Time= 303.0 min

Peak Storage= 1,922 cf @ 12.36 hrs  
 Average Depth at Peak Storage= 0.22'  
 Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.22 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
 Length= 134.0' Slope= 0.0075 '/'  
 Inlet Invert= 242.00', Outlet Invert= 241.00'

**Summary for Reach R1: Portion of Davis Brook**

Inflow Area = 26.358 ac, 65.57% Impervious, Inflow Depth > 1.29" for 25-Yr event  
 Inflow = 27.39 cfs @ 12.15 hrs, Volume= 2.826 af  
 Outflow = 12.13 cfs @ 12.66 hrs, Volume= 2.819 af, Atten= 56%, Lag= 30.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.47 fps, Min. Travel Time= 18.2 min  
 Avg. Velocity = 0.35 fps, Avg. Travel Time= 75.9 min

Peak Storage= 13,260 cf @ 12.36 hrs  
 Average Depth at Peak Storage= 0.88'  
 Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 176.49 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
 Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
 Length= 1,600.0' Slope= 0.0031 '/'  
 Inlet Invert= 221.00', Outlet Invert= 216.00'



**Summary for Reach R2: Portion of Davis Brook**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.75" for 25-Yr event  
 Inflow = 3.52 cfs @ 13.12 hrs, Volume= 1.284 af  
 Outflow = 3.44 cfs @ 13.44 hrs, Volume= 1.282 af, Atten= 2%, Lag= 19.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.05 fps, Min. Travel Time= 9.5 min  
 Avg. Velocity = 0.31 fps, Avg. Travel Time= 32.4 min

Peak Storage= 1,971 cf @ 13.28 hrs  
 Average Depth at Peak Storage= 0.45'  
 Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 182.28 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
 Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
 Length= 600.0' Slope= 0.0033 '/'  
 Inlet Invert= 223.00', Outlet Invert= 221.00'

**Summary for Reach R3: Natural Ditch**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 0.75" for 25-Yr event  
 Inflow = 3.53 cfs @ 13.05 hrs, Volume= 1.284 af  
 Outflow = 3.52 cfs @ 13.12 hrs, Volume= 1.284 af, Atten= 0%, Lag= 3.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.31 fps, Min. Travel Time= 2.2 min  
 Avg. Velocity = 0.97 fps, Avg. Travel Time= 5.2 min

Peak Storage= 457 cf @ 13.08 hrs  
 Average Depth at Peak Storage= 0.14'  
 Bank-Full Depth= 3.00' Flow Area= 75.0 sf, Capacity= 998.06 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
 Side Slope Z-value= 5.0 '/' Top Width= 40.00'  
 Length= 300.0' Slope= 0.0433 '/'  
 Inlet Invert= 236.00', Outlet Invert= 223.00'



**Summary for Reach R4: Existing Ditch**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 0.00" for 25-Yr event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min  
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs  
 Average Depth at Peak Storage= 0.00'  
 Bank-Full Depth= 2.00' Flow Area= 28.0 sf, Capacity= 168.09 cfs

8.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight  
 Side Slope Z-value= 3.0 '/' Top Width= 20.00'  
 Length= 190.0' Slope= 0.0053 '/'  
 Inlet Invert= 244.00', Outlet Invert= 243.00'

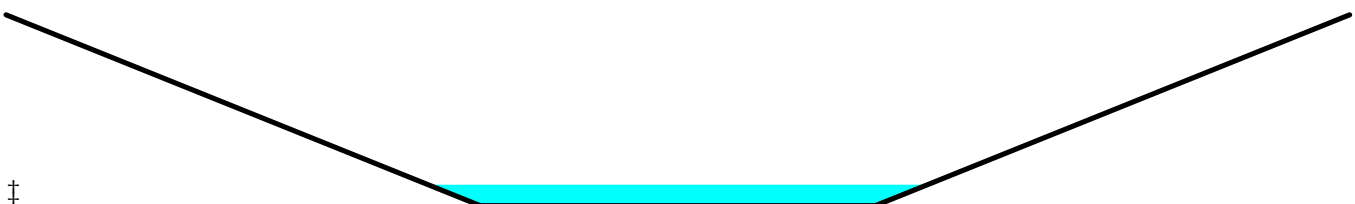
**Summary for Reach R5: Natural Ditch**

Inflow Area = 5.864 ac, 76.19% Impervious, Inflow Depth > 3.16" for 25-Yr event  
 Inflow = 29.03 cfs @ 12.10 hrs, Volume= 1.544 af  
 Outflow = 27.39 cfs @ 12.15 hrs, Volume= 1.544 af, Atten= 6%, Lag= 3.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 3.32 fps, Min. Travel Time= 1.3 min  
 Avg. Velocity = 0.77 fps, Avg. Travel Time= 5.4 min

Peak Storage= 2,334 cf @ 12.12 hrs  
 Average Depth at Peak Storage= 0.33'  
 Bank-Full Depth= 3.00' Flow Area= 165.0 sf, Capacity= 1,945.52 cfs

25.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
 Side Slope Z-value= 10.0 '/' Top Width= 85.00'  
 Length= 250.0' Slope= 0.0320 '/'  
 Inlet Invert= 229.00', Outlet Invert= 221.00'





**Summary for Pond 30A: Grassed Underdrained Soil Filter A**

Inflow Area = 3.277 ac, 81.25% Impervious, Inflow Depth = 4.70" for 25-Yr event  
 Inflow = 16.32 cfs @ 12.09 hrs, Volume= 1.284 af  
 Primary = 16.32 cfs @ 12.09 hrs, Volume= 1.284 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 30B: Grassed Underdrained Soil Filter B**

Inflow Area = 4.812 ac, 94.45% Impervious, Inflow Depth = 4.82" for 25-Yr event  
 Inflow = 24.25 cfs @ 12.09 hrs, Volume= 1.931 af  
 Primary = 24.25 cfs @ 12.09 hrs, Volume= 1.931 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 101: Pond #1 (plus wetland storage)**

Inflow Area = 38.340 ac, 65.45% Impervious, Inflow Depth > 3.27" for 25-Yr event  
 Inflow = 46.16 cfs @ 12.09 hrs, Volume= 10.457 af  
 Outflow = 5.86 cfs @ 16.14 hrs, Volume= 8.216 af, Atten= 87%, Lag= 242.9 min  
 Primary = 5.86 cfs @ 16.14 hrs, Volume= 8.216 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 242.05' @ 16.14 hrs Surf.Area= 226,132 sf Storage= 249,717 cf

Plug-Flow detention time= 823.0 min calculated for 8.216 af (79% of inflow)

Center-of-Mass det. time= 540.2 min ( 1,629.3 - 1,089.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	835,458 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	22,686	0	0
241.00	115,923	69,305	69,305
242.00	221,289	168,606	237,911
243.00	313,044	267,167	505,077
244.00	347,717	330,381	835,458

Device	Routing	Invert	Outlet Devices
#1	Primary	237.64'	<b>24.0" Round Culvert</b> L= 87.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.64' / 237.30' S= 0.0039 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.00'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=5.86 cfs @ 16.14 hrs HW=242.05' (Free Discharge)

1=Culvert (Passes 5.86 cfs of 17.21 cfs potential flow)

2=Orifice/Grate (Orifice Controls 5.86 cfs @ 3.49 fps)

**Summary for Pond 102: Pond #2**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 2.69" for 25-Yr event  
 Inflow = 23.05 cfs @ 12.38 hrs, Volume= 2.776 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 245.34' @ 25.60 hrs Surf.Area= 81,374 sf Storage= 120,862 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	190,120 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	25,000	0	0
244.68	36,400	82,276	82,276
246.00	127,000	107,844	190,120

Device	Routing	Invert	Outlet Devices
#1	Primary	246.53'	<b>18.0" Round Culvert</b> L= 165.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 246.53' / 244.00' S= 0.0153'/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf
#2	Device 1	248.05'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=242.00' (Free Discharge)

↑ **1=Culvert** ( Controls 0.00 cfs)

↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 103: Pond #3**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth = 1.73" for 25-Yr event  
 Inflow = 33.51 cfs @ 12.15 hrs, Volume= 2.950 af  
 Outflow = 3.53 cfs @ 13.05 hrs, Volume= 1.284 af, Atten= 89%, Lag= 54.4 min  
 Primary = 3.53 cfs @ 13.05 hrs, Volume= 1.284 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 241.60' @ 13.05 hrs Surf.Area= 25,745 sf Storage= 83,192 cf

Plug-Flow detention time= 426.6 min calculated for 1.283 af (43% of inflow)  
 Center-of-Mass det. time= 305.3 min ( 1,094.1 - 788.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	94,130 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	4,000	0	0
236.00	7,000	11,000	11,000
238.92	11,139	26,483	37,483
240.00	14,287	13,730	51,213
242.00	28,630	42,917	94,130

Device	Routing	Invert	Outlet Devices
#1	Primary	234.22'	<b>24.0" Round Culvert</b> L= 95.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 234.22' / 233.90' S= 0.0034 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.29'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	236.00'	<b>0.5" W x 0.5" H Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=3.53 cfs @ 13.05 hrs HW=241.60' (Free Discharge)

1=Culvert (Passes 3.53 cfs of 24.02 cfs potential flow)

2=Orifice/Grate (Weir Controls 3.51 cfs @ 1.81 fps)

3=Orifice/Grate (Orifice Controls 0.02 cfs @ 11.37 fps)

### Summary for Pond 104: Pond #4

Inflow Area = 5.864 ac, 76.19% Impervious, Inflow Depth = 4.70" for 25-Yr event  
 Inflow = 28.43 cfs @ 12.10 hrs, Volume= 2.298 af  
 Outflow = 29.03 cfs @ 12.10 hrs, Volume= 1.544 af, Atten= 0%, Lag= 0.0 min  
 Primary = 29.03 cfs @ 12.10 hrs, Volume= 1.544 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 241.29' @ 12.10 hrs Surf.Area= 16,786 sf Storage= 36,018 cf

Plug-Flow detention time= 271.3 min calculated for 1.543 af (67% of inflow)

Center-of-Mass det. time= 177.7 min ( 950.1 - 772.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	36,018 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	620	0	0
232.00	3,391	4,011	4,011
234.05	7,519	11,183	15,194
235.00	9,087	7,888	23,082
236.00	16,786	12,937	36,018

Device	Routing	Invert	Outlet Devices
#1	Primary	230.62'	<b>24.0" Round Culvert</b> L= 96.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 230.62' / 228.40' S= 0.0231 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	237.61'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

#3 Device 1 231.00' **0.5" W x 0.5" H Vert. Orifice/Grate** C= 0.600

**Primary OutFlow** Max=29.02 cfs @ 12.10 hrs HW=241.28' (Free Discharge)

1=Culvert (Passes 29.02 cfs of 33.07 cfs potential flow)

2=Orifice/Grate (Orifice Controls 28.99 cfs @ 9.23 fps)

3=Orifice/Grate (Orifice Controls 0.03 cfs @ 15.42 fps)

### Summary for Pond 201: Pond #201

Inflow Area = 3.396 ac, 86.74% Impervious, Inflow Depth = 4.48" for 25-Yr event  
 Inflow = 16.46 cfs @ 12.09 hrs, Volume= 1.268 af  
 Outflow = 4.31 cfs @ 12.45 hrs, Volume= 1.221 af, Atten= 74%, Lag= 22.0 min  
 Primary = 4.31 cfs @ 12.45 hrs, Volume= 1.221 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 250.00' @ 12.45 hrs Surf.Area= 17,657 sf Storage= 28,916 cf

Plug-Flow detention time=892.4 min calculated for 1.221 af (96% of inflow)  
 Center-of-Mass det. time=872.3 min ( 1,652.7 - 780.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	47,142 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	8,570	0	0
249.00	15,880	12,225	12,225
250.00	17,665	16,773	28,998
251.00	18,624	18,145	47,142

Device	Routing	Invert	Outlet Devices
#1	Primary	250.00'	<b>20.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	245.40'	<b>12.0" Round Culvert</b> L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 245.40' / 245.00' S= 0.0138 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	249.65'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	245.50'	<b>1.6" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	248.00'	<b>2.000 in/hr Exfiltration over Surface area above 248.00'</b> Excluded Surface area = 8,570 sf

**Primary OutFlow** Max=4.31 cfs @ 12.45 hrs HW=250.00' (Free Discharge)

1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

2=Culvert (Passes 4.31 cfs of 6.04 cfs potential flow)

3=Orifice/Grate (Weir Controls 4.17 cfs @ 1.92 fps)

4=Orifice/Grate (Orifice Controls 0.14 cfs @ 10.13 fps)

5=Exfiltration (Passes 0.14 cfs of 0.42 cfs potential flow)

**Summary for Pond 202: Pond #202**

Inflow Area = 6.315 ac, 90.17% Impervious, Inflow Depth = 4.93" for 25-Yr event  
 Inflow = 32.14 cfs @ 12.09 hrs, Volume= 2.594 af  
 Outflow = 7.48 cfs @ 12.48 hrs, Volume= 2.508 af, Atten= 77%, Lag= 23.6 min  
 Primary = 7.48 cfs @ 12.48 hrs, Volume= 2.508 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 244.07' @ 12.48 hrs Surf.Area= 28,559 sf Storage= 61,910 cf

Plug-Flow detention time= 835.4 min calculated for 2.508 af (97% of inflow)  
 Center-of-Mass det. time= 815.1 min ( 1,575.7 - 760.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	241.00'	92,645 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
241.00	12,606	0	0
242.00	18,880	15,743	15,743
243.00	20,722	19,801	35,544
244.00	27,811	24,267	59,811
245.00	37,857	32,834	92,645

Device	Routing	Invert	Outlet Devices
#1	Primary	244.00'	<b>25.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	238.40'	<b>12.0" Round Culvert</b> L= 115.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 238.40' / 237.75' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	243.50'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	238.50'	<b>2.4" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	241.00'	<b>2.000 in/hr Exfiltration over Surface area above 241.00'</b> Excluded Surface area = 12,606 sf

**Primary OutFlow** Max=7.43 cfs @ 12.48 hrs HW=244.07' (Free Discharge)

1=Broad-Crested Rectangular Weir (Weir Controls 1.24 cfs @ 0.67 fps)  
 2=Culvert (Barrel Controls 6.19 cfs @ 7.89 fps)  
 3=Orifice/Grate (Passes < 8.92 cfs potential flow)  
 4=Orifice/Grate (Passes < 0.35 cfs potential flow)  
 5=Exfiltration (Passes < 0.74 cfs potential flow)

**Summary for Pond 203: Pond #203**

Inflow Area = 9.999 ac, 86.53% Impervious, Inflow Depth = 4.59" for 25-Yr event  
 Inflow = 44.76 cfs @ 12.12 hrs, Volume= 3.826 af  
 Outflow = 3.79 cfs @ 13.23 hrs, Volume= 2.857 af, Atten= 92%, Lag= 66.1 min  
 Primary = 3.79 cfs @ 13.23 hrs, Volume= 2.857 af

**50465\_postdev**

Type III 24-hr 25-Yr Rainfall=5.40"

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Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 249.55' @ 13.23 hrs Surf.Area= 36,541 sf Storage= 109,471 cf

Plug-Flow detention time= 1,075.0 min calculated for 2.857 af (75% of inflow)  
 Center-of-Mass det. time= 989.8 min ( 1,768.7 - 778.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	246.00'	177,123 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.00	25,338	0	0
247.00	28,403	26,871	26,871
248.00	31,540	29,972	56,842
249.00	34,748	33,144	89,986
250.00	38,027	36,388	126,374
251.00	63,471	50,749	177,123

Device	Routing	Invert	Outlet Devices
#1	Primary	249.75'	<b>25.0' long x 8.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Primary	243.40'	<b>12.0" Round Culvert</b> L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 243.40' / 243.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	249.25'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	243.50'	<b>2.7" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	246.00'	<b>2.000 in/hr Exfiltration over Surface area above 246.00'</b> Excluded Surface area = 25,338 sf

**Primary OutFlow** Max=3.79 cfs @ 13.23 hrs HW=249.55' (Free Discharge)

- 1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)
- 2=Culvert (Passes 3.79 cfs of 7.09 cfs potential flow)
- 3=Orifice/Grate (Weir Controls 3.32 cfs @ 1.78 fps)
- 4=Orifice/Grate (Orifice Controls 0.47 cfs @ 11.73 fps)
- 5=Exfiltration (Passes 0.47 cfs of 0.52 cfs potential flow)

**Summary for Pond 204: Pond #204**

Inflow Area = 7.771 ac, 84.71% Impervious, Inflow Depth = 4.82" for 25-Yr event  
 Inflow = 31.36 cfs @ 12.18 hrs, Volume= 3.119 af  
 Outflow = 5.18 cfs @ 12.80 hrs, Volume= 2.701 af, Atten= 83%, Lag= 37.1 min  
 Primary = 5.18 cfs @ 12.80 hrs, Volume= 2.701 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 239.07' @ 12.80 hrs Surf.Area= 25,253 sf Storage= 83,027 cf

Plug-Flow detention time= 1,134.8 min calculated for 2.701 af (87% of inflow)  
 Center-of-Mass det. time= 1,075.0 min ( 1,848.4 - 773.4 )

**50465\_postdev**

Type III 24-hr 25-Yr Rainfall=5.40"

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Volume	Invert	Avail.Storage	Storage Description
#1	235.00'	106,903 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
235.00	11,757	0	0
236.00	18,909	15,333	15,333
237.00	20,939	19,924	35,257
238.00	23,032	21,986	57,243
239.00	25,210	24,121	81,364
240.00	25,868	25,539	106,903

Device	Routing	Invert	Outlet Devices
#1	Primary	239.00'	<b>25.0' long x 12.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#2	Primary	232.40'	<b>12.0" Round Culvert</b> L= 93.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 232.40' / 232.00' S= 0.0043 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	232.50'	<b>2.4" Vert. Orifice/Grate</b> C= 0.600
#4	Device 2	238.75'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Device 3	235.00'	<b>2.000 in/hr Exfiltration over Surface area above 235.00'</b> Excluded Surface area = 11,757 sf

**Primary OutFlow** Max=5.12 cfs @ 12.80 hrs HW=239.07' (Free Discharge)1=**Broad-Crested Rectangular Weir** (Weir Controls 1.09 cfs @ 0.66 fps)2=**Culvert** (Passes 4.03 cfs of 7.07 cfs potential flow)3=**Orifice/Grate** (Orifice Controls 0.38 cfs @ 12.24 fps)5=**Exfiltration** (Passes 0.38 cfs of 0.62 cfs potential flow)4=**Orifice/Grate** (Weir Controls 3.65 cfs @ 1.84 fps)**Summary for Pond 205: Level Lip Spreader #1**

Inflow Area = 0.437 ac, 78.74% Impervious, Inflow Depth = 3.74" for 25-Yr event  
 Inflow = 1.85 cfs @ 12.09 hrs, Volume= 0.136 af  
 Outflow = 1.85 cfs @ 12.09 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.1 min  
 Primary = 1.85 cfs @ 12.09 hrs, Volume= 0.136 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 242.55' @ 12.09 hrs Surf.Area= 154 sf Storage= 7 cf

Plug-Flow detention time=0.1 min calculated for 0.136 af (100% of inflow)

Center-of-Mass det. time=0.1 min ( 804.7 - 804.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

**50465\_postdev**

Type III 24-hr 25-Yr Rainfall=5.40"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=1.81 cfs @ 12.09 hrs HW=242.55' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 1.81 cfs @ 0.56 fps)**Summary for Pond 206: Level Lip Spreader #2**

Inflow Area = 0.324 ac, 81.75% Impervious, Inflow Depth = 3.95" for 25-Yr event  
 Inflow = 1.43 cfs @ 12.09 hrs, Volume= 0.106 af  
 Outflow = 1.43 cfs @ 12.09 hrs, Volume= 0.106 af, Atten= 0%, Lag= 0.1 min  
 Primary = 1.43 cfs @ 12.09 hrs, Volume= 0.106 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 242.54' @ 12.09 hrs Surf.Area= 152 sf Storage= 6 cf

Plug-Flow detention time=0.1 min calculated for 0.106 af (100% of inflow)

Center-of-Mass det. time=0.1 min ( 798.5 - 798.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=1.40 cfs @ 12.09 hrs HW=242.54' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 1.40 cfs @ 0.52 fps)



**Summary for Pond 207: Level Lip Spreader #3**

Inflow Area = 0.940 ac, 49.45% Impervious, Inflow Depth = 2.17" for 25-Yr event  
 Inflow = 2.30 cfs @ 12.10 hrs, Volume= 0.170 af  
 Outflow = 2.30 cfs @ 12.10 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.30 cfs @ 12.10 hrs, Volume= 0.170 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 242.56' @ 12.10 hrs Surf.Area= 157 sf Storage= 9 cf

Plug-Flow detention time=0.1 min calculated for 0.170 af (100% of inflow)  
 Center-of-Mass det. time=0.1 min ( 848.7 - 848.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=2.28 cfs @ 12.10 hrs HW=242.56' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Weir Controls 2.28 cfs @ 0.61 fps)

**Summary for Pond 208: Level Lip Spreader #4**

Inflow Area = 0.453 ac, 0.00% Impervious, Inflow Depth = 1.54" for 25-Yr event  
 Inflow = 0.74 cfs @ 12.10 hrs, Volume= 0.058 af  
 Outflow = 0.98 cfs @ 12.15 hrs, Volume= 0.054 af, Atten= 0%, Lag= 2.6 min  
 Primary = 0.98 cfs @ 12.15 hrs, Volume= 0.054 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 249.06' @ 12.14 hrs Surf.Area= 300 sf Storage= 200 cf

Plug-Flow detention time= 47.3 min calculated for 0.054 af (93% of inflow)  
 Center-of-Mass det. time= 13.0 min ( 882.8 - 869.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	200 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

**50465\_postdev**

Type III 24-hr 25-Yr Rainfall=5.40"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	100	0	0
248.50	200	75	75
249.00	300	125	200

Device	Routing	Invert	Outlet Devices
#1	Primary	249.00'	<b>25.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=0.92 cfs @ 12.15 hrs HW=249.06' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.92 cfs @ 0.62 fps)**Summary for Pond 209: Level Lip Spreader #5**

Inflow Area = 0.376 ac, 0.00% Impervious, Inflow Depth = 1.25" for 25-Yr event  
 Inflow = 0.47 cfs @ 12.11 hrs, Volume= 0.039 af  
 Outflow = 0.71 cfs @ 12.15 hrs, Volume= 0.035 af, Atten= 0%, Lag= 2.4 min  
 Primary = 0.71 cfs @ 12.15 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 249.05' @ 12.15 hrs Surf.Area= 300 sf Storage= 200 cf

Plug-Flow detention time= 68.6 min calculated for 0.035 af (90% of inflow)

Center-of-Mass det. time= 19.9 min ( 902.2 - 882.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	200 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	100	0	0
248.50	200	75	75
249.00	300	125	200

Device	Routing	Invert	Outlet Devices
#1	Primary	249.00'	<b>25.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=0.68 cfs @ 12.15 hrs HW=249.05' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.68 cfs @ 0.56 fps)

**Summary for Pond 301: Point of Analysis 301**

Inflow Area = 43.307 ac, 58.99% Impervious, Inflow Depth > 2.44" for 25-Yr event  
Inflow = 6.31 cfs @ 15.69 hrs, Volume= 8.794 af  
Primary = 6.31 cfs @ 15.69 hrs, Volume= 8.794 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 401: Point of Analysis 401**

Inflow Area = 59.444 ac, 46.27% Impervious, Inflow Depth > 2.34" for 25-Yr event  
Inflow = 55.98 cfs @ 12.30 hrs, Volume= 11.571 af  
Primary = 55.98 cfs @ 12.30 hrs, Volume= 11.571 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 501: Point of Analysis 501**

Inflow Area = 0.915 ac, 26.47% Impervious, Inflow Depth = 3.15" for 25-Yr event  
Inflow = 3.31 cfs @ 12.09 hrs, Volume= 0.240 af  
Primary = 3.31 cfs @ 12.09 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 601: Point of Analysis 601**

Inflow Area = 62.183 ac, 16.27% Impervious, Inflow Depth > 1.15" for 25-Yr event  
Inflow = 14.82 cfs @ 12.86 hrs, Volume= 5.950 af  
Primary = 14.82 cfs @ 12.86 hrs, Volume= 5.950 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link 1LA: Link 1**

Inflow Area = 2.529 ac, 42.44% Impervious, Inflow Depth = 2.38" for 25-Yr event  
Inflow = 2.54 cfs @ 12.95 hrs, Volume= 0.502 af  
Primary = 2.54 cfs @ 12.95 hrs, Volume= 0.502 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link 1LB: Link 1**

Inflow Area = 2.529 ac, 42.44% Impervious, Inflow Depth = 2.38" for 25-Yr event  
Inflow = 2.54 cfs @ 12.95 hrs, Volume= 0.502 af  
Primary = 2.54 cfs @ 12.95 hrs, Volume= 0.502 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Subcatchment S30: Subcatchment 30**

Runoff = 43.95 cfs @ 12.75 hrs, Volume= 7.522 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	379,829	98	
	151,673	30	Woods, Good, HSG A
	129,474	70	Woods, Good, HSG C
*	22,394	98	Water Surface
	99,405	39	>75% Grass cover, Good, HSG A
	99,405	74	>75% Grass cover, Good, HSG C
	882,180	73	Weighted Average
	479,957		54.41% Pervious Area
	402,223		45.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	75	0.0400	1.66		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
4.9	481	0.0104	1.64		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
49.2	1,094	0.0055	0.37		<b>Shallow Concentrated Flow, C to D</b> Woodland Kv= 5.0 fps
54.9	1,650	Total			

**Summary for Subcatchment S30A: Subcatchment 30A**

Runoff = 23.40 cfs @ 12.09 hrs, Volume= 1.880 af, Depth= 6.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	115,960	98	
	24,290	79	50-75% Grass cover, Fair, HSG C
	2,477	49	50-75% Grass cover, Fair, HSG A
	142,727	94	Weighted Average
	26,767		18.75% Pervious Area
	115,960		81.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.8	333	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.9	408	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S30B: Subcatchment 30B**

Runoff = 34.59 cfs @ 12.09 hrs, Volume= 2.808 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	197,982	98	
	947	79	50-75% Grass cover, Fair, HSG C
	10,676	49	50-75% Grass cover, Fair, HSG A
	209,605	95	Weighted Average
	11,623		5.55% Pervious Area
	197,982		94.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.9	312	0.0300	2.79		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
2.9	387	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S30C: Subcatchment 30C**

Runoff = 64.56 cfs @ 12.12 hrs, Volume= 5.638 af, Depth= 6.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	360,000	98	
	24,598	39	>75% Grass cover, Good, HSG A
	34,063	74	>75% Grass cover, Good, HSG C
*	16,903	98	Water Surface
	435,564	93	Weighted Average
	58,661		13.47% Pervious Area
	376,903		86.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.2	300	0.0200	2.28		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
1.8	200	0.0150	1.84		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
0.6	30	0.0100	0.79		<b>Sheet Flow, D to E</b> Smooth surfaces n= 0.011 P2= 3.00"
3.5	46	0.0600	0.22		<b>Sheet Flow, E to F</b> Grass: Short n= 0.150 P2= 3.00"
9.1	651	Total			

### Summary for Subcatchment S32: Subcatchment 32

Runoff = 9.12 cfs @ 12.43 hrs, Volume= 1.170 af, Depth= 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

Area (sf)	CN	Description
* 19,706	98	
30,613	74	>75% Grass cover, Good, HSG C
59,971	39	>75% Grass cover, Good, HSG A
46,847	80	>75% Grass cover, Good, HSG D
46,898	30	Woods, Good, HSG A
4,056	70	Woods, Good, HSG C
8,274	77	Woods, Good, HSG D
216,365	58	Weighted Average
196,659		90.89% Pervious Area
19,706		9.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	75	0.0080	0.07		<b>Sheet Flow, A to B</b> Grass: Dense n= 0.240 P2= 3.00"
12.1	360	0.0050	0.49		<b>Shallow Concentrated Flow, B to C</b> Short Grass Pasture Kv= 7.0 fps
29.0	435	Total			

### Summary for Subcatchment S40: Subcatchment 40

Runoff = 92.82 cfs @ 12.29 hrs, Volume= 10.116 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	158,513	98	
	31,707	55	Woods, Good, HSG B
	217,840	70	Woods, Good, HSG C
	189,606	77	Woods, Good, HSG D
	950	30	Woods, Good, HSG A
	26,357	39	>75% Grass cover, Good, HSG A
	97,705	61	>75% Grass cover, Good, HSG B
	190,000	74	>75% Grass cover, Good, HSG C
	190,000	80	>75% Grass cover, Good, HSG D
	1,102,678	76	Weighted Average
	944,165		85.62% Pervious Area
	158,513		14.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
4.4	550	0.0164	2.06		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
1.6	325	0.0500	3.35		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
14.3	2,100	0.0030	2.45	73.44	<b>Channel Flow, D to E</b> Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.030 Earth, grassed & winding
21.4	3,050	Total			

### Summary for Subcatchment S40A: Subcatchment 40A

Runoff = 44.76 cfs @ 12.18 hrs, Volume= 4.535 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	275,000	98	
	4,986	39	>75% Grass cover, Good, HSG A
	43,462	80	>75% Grass cover, Good, HSG D
	3,315	74	>75% Grass cover, Good, HSG C
*	11,757	98	Water Surface
	338,520	95	Weighted Average
	51,763		15.29% Pervious Area
	286,757		84.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
1.7	204	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
7.0	629	0.0100	1.50		<b>Shallow Concentrated Flow, C to D</b> Grassed Waterway Kv= 15.0 fps
0.2	148	0.0400	14.40	45.24	<b>Pipe Channel, D to E</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
1.9	37	0.0010	0.33		<b>Sheet Flow, E to F</b> Smooth surfaces n= 0.011 P2= 3.00"
1.8	32	0.1600	0.30		<b>Sheet Flow, F to G</b> Grass: Short n= 0.150 P2= 3.00"
13.7	1,125	Total			

### Summary for Subcatchment S41: Subcatchment 41

Runoff = 40.75 cfs @ 12.10 hrs, Volume= 3.364 af, Depth= 6.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

Area (sf)	CN	Description
* 187,081	98	
22,827	79	50-75% Grass cover, Fair, HSG C
37,988	84	50-75% Grass cover, Fair, HSG D
* 7,519	98	Water Surface
255,415	94	Weighted Average
60,815		23.81% Pervious Area
194,600		76.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
3.3	383	0.0143	1.93		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
2.5	243	0.0535	1.62		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
7.1	701	Total			

### Summary for Subcatchment S42: Subcatchment 42

Runoff = 48.95 cfs @ 12.15 hrs, Volume= 4.407 af, Depth= 6.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"



	Area (sf)	CN	Description
*	278,726	98	
*	11,139	98	Water Surface
	26,977	49	50-75% Grass cover, Fair, HSG A
	29,325	69	50-75% Grass cover, Fair, HSG B
	6,630	79	50-75% Grass cover, Fair, HSG C
	352,797	91	Weighted Average
	62,932		17.84% Pervious Area
	289,865		82.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	75	0.0100	0.95		<b>Sheet Flow, A to B</b> Smooth surfaces n= 0.011 P2= 3.00"
6.1	700	0.0140	1.90		<b>Shallow Concentrated Flow, B to C</b> Unpaved Kv= 16.1 fps
3.4	225	0.0250	1.11		<b>Shallow Concentrated Flow, C to D</b> Short Grass Pasture Kv= 7.0 fps
10.8	1,000	Total			

### Summary for Subcatchment S43: Subcatchment 43

Runoff = 39.37 cfs @ 12.37 hrs, Volume= 4.720 af, Depth= 4.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	232,052	98	
*	36,376	98	Water Surface
	122,740	49	50-75% Grass cover, Fair, HSG A
	38,160	79	50-75% Grass cover, Fair, HSG C
	8,153	69	50-75% Grass cover, Fair, HSG B
	86,000	36	Woods, Fair, HSG A
	5,923	60	Woods, Fair, HSG B
	10,549	77	Woods, Poor, HSG C
	539,953	74	Weighted Average
	271,525		50.29% Pervious Area
	268,428		49.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	75	0.0100	0.12		<b>Sheet Flow, A to B</b> Grass: Short n= 0.150 P2= 3.00"
16.3	488	0.0100	0.50		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
26.9	563	Total			

**Summary for Subcatchment S50: Subcatchment 50**

Runoff = 5.33 cfs @ 12.09 hrs, Volume= 0.391 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	10,546	98	
	4,431	61	>75% Grass cover, Good, HSG B
	24,859	74	>75% Grass cover, Good, HSG C
	39,836	79	Weighted Average
	29,290		73.53% Pervious Area
	10,546		26.47% Impervious Area

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

**Summary for Subcatchment S60: Subcatchment 60**

Runoff = 21.82 cfs @ 12.74 hrs, Volume= 4.072 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
	841,049	30	Woods, Good, HSG A
	344,078	77	Woods, Good, HSG D
	22,871	70	Woods, Good, HSG C
	37,335	39	>75% Grass cover, Good, HSG A
	32,830	80	>75% Grass cover, Good, HSG D
*	17,570	98	
	15,415	77	Woods, Good, HSG D
	1,311,148	46	Weighted Average
	1,293,578		98.66% Pervious Area
	17,570		1.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7	75	0.0200	0.04		<b>Sheet Flow, A to B</b> Woods: Dense underbrush n= 0.800 P2= 3.00"
14.4	530	0.0150	0.61		<b>Shallow Concentrated Flow, B to C</b> Woodland Kv= 5.0 fps
1.4	430	0.0100	5.10	122.30	<b>Channel Flow, C to D</b> Area= 24.0 sf Perim= 23.0' r= 1.04' n= 0.030 Earth, grassed & winding
46.5	1,035	Total			

**Summary for Subcatchment S60A: Subcatchment 60A**

Runoff = 2.46 cfs @ 13.90 hrs, Volume= 1.112 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

Area (sf)	CN	Description
735,140	30	Woods, Good, HSG A
71,251	70	Woods, Good, HSG C
22,354	77	Woods, Good, HSG D
26,632	39	>75% Grass cover, Good, HSG A
9,029	74	>75% Grass cover, Good, HSG C
864,406	35	Weighted Average
864,406		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7	75	0.0200	0.04		<b>Sheet Flow, A to B</b>
					Woods: Dense underbrush n= 0.800 P2= 3.00"
71.5	1,175	0.0030	0.27		<b>Shallow Concentrated Flow, B to C</b>
					Woodland Kv= 5.0 fps
102.2	1,250	Total			

**Summary for Subcatchment S61: Subcatchment 61**

Runoff = 23.86 cfs @ 12.09 hrs, Volume= 1.881 af, Depth= 6.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

Area (sf)	CN	Description
1,448	86	<50% Grass cover, Poor, HSG C
18,168	49	50-75% Grass cover, Fair, HSG A
* 8,570	98	Water Surface
* 119,736	98	
147,922	92	Weighted Average
19,616		13.26% Pervious Area
128,306		86.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	75	0.0200	1.26		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
3.7	500	0.0200	2.28		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
1.2	100	0.0080	1.34		<b>Shallow Concentrated Flow, C to D</b>
					Grassed Waterway Kv= 15.0 fps
5.9	675	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S62: Subcatchment 62**

Runoff = 45.64 cfs @ 12.09 hrs, Volume= 3.748 af, Depth= 7.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	11,953	98	Water Surface
*	236,076	98	
	20,275	84	50-75% Grass cover, Fair, HSG D
	6,756	49	50-75% Grass cover, Fair, HSG A
	275,060	96	Weighted Average
	27,031		9.83% Pervious Area
	248,029		90.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	75	0.0150	1.12		<b>Sheet Flow, A to B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.3	150	0.0150	1.97		<b>Shallow Concentrated Flow, B to C</b>
					Unpaved Kv= 16.1 fps
2.5	600	0.0300	4.05	24.32	<b>Channel Flow, C to D</b>
					Area= 6.0 sf Perim= 12.0' r= 0.50'
					n= 0.040 Earth, cobble bottom, clean sides
4.9	825	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment S63: Subcatchment 63**

Runoff = 2.83 cfs @ 12.09 hrs, Volume= 0.212 af, Depth= 5.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	15,000	98	
	4,049	39	>75% Grass cover, Good, HSG A
	19,049	85	Weighted Average
	4,049		21.26% Pervious Area
	15,000		78.74% Impervious Area

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

**Summary for Subcatchment S64: Subcatchment 64**

Runoff = 2.15 cfs @ 12.09 hrs, Volume= 0.163 af, Depth= 6.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	11,520	98	
	2,572	39	>75% Grass cover, Good, HSG A
	14,092	87	Weighted Average
	2,572		18.25% Pervious Area
	11,520		81.75% Impervious Area

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

**Summary for Subcatchment S65: Subcatchment 65**

Runoff = 4.21 cfs @ 12.09 hrs, Volume= 0.306 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
*	20,240	98	
	20,692	39	>75% Grass cover, Good, HSG A
	40,932	68	Weighted Average
	20,692		50.55% Pervious Area
	20,240		49.45% Impervious Area

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

**Summary for Subcatchment S66: Subcatchment 66**

Runoff = 1.55 cfs @ 12.10 hrs, Volume= 0.115 af, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

	Area (sf)	CN	Description
	9,622	39	>75% Grass cover, Good, HSG A
	10,094	80	>75% Grass cover, Good, HSG D
	19,716	60	Weighted Average
	19,716		100.00% Pervious Area

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

**Summary for Subcatchment S67: Subcatchment 67**

Runoff = 1.09 cfs @ 12.10 hrs, Volume= 0.082 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Yr Rainfall=7.60"

Area (sf)	CN	Description
9,767	39	>75% Grass cover, Good, HSG A
6,617	80	>75% Grass cover, Good, HSG D
16,384	56	Weighted Average
16,384		100.00% Pervious Area

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

**Summary for Reach 8R: Forested Buffer #4**

Inflow Area = 0.453 ac, 0.00% Impervious, Inflow Depth = 2.92" for 100-Yr event  
Inflow = 1.52 cfs @ 12.10 hrs, Volume= 0.110 af  
Outflow = 0.76 cfs @ 12.67 hrs, Volume= 0.110 af, Atten= 50%, Lag= 34.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.11 fps, Min. Travel Time= 22.2 min  
Avg. Velocity = 0.02 fps, Avg. Travel Time= 164.4 min

Peak Storage= 1,011 cf @ 12.30 hrs  
Average Depth at Peak Storage= 0.27'  
Bank-Full Depth= 0.10' Flow Area= 2.5 sf, Capacity= 0.20 cfs

25.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 150.0' Slope= 0.0400 '/'  
Inlet Invert= 249.00', Outlet Invert= 243.00'



**Summary for Reach 9R: Forested Buffer #5**

Inflow Area = 0.376 ac, 0.00% Impervious, Inflow Depth = 2.48" for 100-Yr event  
Inflow = 1.28 cfs @ 12.10 hrs, Volume= 0.078 af  
Outflow = 0.51 cfs @ 12.71 hrs, Volume= 0.078 af, Atten= 60%, Lag= 36.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.11 fps, Min. Travel Time= 22.4 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 171.5 min

Peak Storage= 684 cf @ 12.33 hrs  
Average Depth at Peak Storage= 0.18'  
Bank-Full Depth= 0.10' Flow Area= 2.5 sf, Capacity= 0.21 cfs

25.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 150.0' Slope= 0.0467 '/'  
Inlet Invert= 249.00', Outlet Invert= 242.00'

**Summary for Reach 34R: Wetland**

Inflow Area = 3.396 ac, 86.74% Impervious, Inflow Depth > 6.48" for 100-Yr event  
Inflow = 14.40 cfs @ 12.20 hrs, Volume= 1.832 af  
Outflow = 2.50 cfs @ 15.95 hrs, Volume= 1.742 af, Atten= 83%, Lag= 224.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.08 fps, Min. Travel Time= 163.4 min  
Avg. Velocity = 0.04 fps, Avg. Travel Time= 378.4 min

Peak Storage= 24,476 cf @ 13.23 hrs  
Average Depth at Peak Storage= 0.31'  
Bank-Full Depth= 0.10' Flow Area= 10.0 sf, Capacity= 0.57 cfs

100.00' x 0.10' deep channel, n= 0.400 Sheet flow: Woods+light brush  
Length= 800.0' Slope= 0.0050 '/'  
Inlet Invert= 245.00', Outlet Invert= 241.00'



**Summary for Reach 206R: Forested Buffer #3**

Inflow Area = 0.940 ac, 49.45% Impervious, Inflow Depth = 3.90" for 100-Yr event  
Inflow = 4.22 cfs @ 12.09 hrs, Volume= 0.306 af  
Outflow = 2.12 cfs @ 12.63 hrs, Volume= 0.306 af, Atten= 50%, Lag= 32.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.07 fps, Min. Travel Time= 21.8 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 142.6 min

Peak Storage= 2,781 cf @ 12.27 hrs  
Average Depth at Peak Storage= 0.50'  
Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.28 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 86.0' Slope= 0.0116 '/'  
Inlet Invert= 242.00', Outlet Invert= 241.00'

**Summary for Reach 207R: Forested Buffer #2**

Inflow Area = 0.324 ac, 81.75% Impervious, Inflow Depth = 6.06" for 100-Yr event  
Inflow = 2.15 cfs @ 12.09 hrs, Volume= 0.163 af  
Outflow = 0.94 cfs @ 12.85 hrs, Volume= 0.163 af, Atten= 56%, Lag= 45.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.05 fps, Min. Travel Time= 33.6 min  
Avg. Velocity = 0.01 fps, Avg. Travel Time= 224.7 min

Peak Storage= 1,902 cf @ 12.28 hrs  
Average Depth at Peak Storage= 0.27'  
Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.25 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
Length= 109.0' Slope= 0.0092 '/'  
Inlet Invert= 242.00', Outlet Invert= 241.00'





**Summary for Reach 208R: Forested Buffer #1**

Inflow Area = 0.437 ac, 78.74% Impervious, Inflow Depth = 5.83" for 100-Yr event  
 Inflow = 2.83 cfs @ 12.09 hrs, Volume= 0.212 af  
 Outflow = 1.06 cfs @ 13.08 hrs, Volume= 0.212 af, Atten= 63%, Lag= 59.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.05 fps, Min. Travel Time= 44.5 min  
 Avg. Velocity = 0.01 fps, Avg. Travel Time= 264.9 min

Peak Storage= 2,823 cf @ 12.34 hrs  
 Average Depth at Peak Storage= 0.32'  
 Bank-Full Depth= 0.10' Flow Area= 6.5 sf, Capacity= 0.22 cfs

65.00' x 0.10' deep channel, n= 0.800 Sheet flow: Woods+dense brush  
 Length= 134.0' Slope= 0.0075 '/'  
 Inlet Invert= 242.00', Outlet Invert= 241.00'

**Summary for Reach R1: Portion of Davis Brook**

Inflow Area = 26.358 ac, 65.57% Impervious, Inflow Depth > 2.60" for 100-Yr event  
 Inflow = 38.67 cfs @ 12.13 hrs, Volume= 5.705 af  
 Outflow = 28.38 cfs @ 12.84 hrs, Volume= 5.698 af, Atten= 27%, Lag= 42.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.84 fps, Min. Travel Time= 14.5 min  
 Avg. Velocity = 0.39 fps, Avg. Travel Time= 67.9 min

Peak Storage= 24,738 cf @ 12.59 hrs  
 Average Depth at Peak Storage= 1.33'  
 Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 176.49 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
 Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
 Length= 1,600.0' Slope= 0.0031 '/'  
 Inlet Invert= 221.00', Outlet Invert= 216.00'



**Summary for Reach R2: Portion of Davis Brook**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 1.81" for 100-Yr event  
 Inflow = 32.29 cfs @ 12.33 hrs, Volume= 3.097 af  
 Outflow = 23.02 cfs @ 12.51 hrs, Volume= 3.095 af, Atten= 29%, Lag= 10.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.78 fps, Min. Travel Time= 5.6 min  
 Avg. Velocity = 0.36 fps, Avg. Travel Time= 28.1 min

Peak Storage= 7,805 cf @ 12.41 hrs  
 Average Depth at Peak Storage= 1.19'  
 Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 182.28 cfs

5.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
 Side Slope Z-value= 5.0 '/' Top Width= 35.00'  
 Length= 600.0' Slope= 0.0033 '/'  
 Inlet Invert= 223.00', Outlet Invert= 221.00'

**Summary for Reach R3: Natural Ditch**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth > 1.81" for 100-Yr event  
 Inflow = 50.70 cfs @ 12.30 hrs, Volume= 3.097 af  
 Outflow = 32.29 cfs @ 12.33 hrs, Volume= 3.097 af, Atten= 36%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 5.27 fps, Min. Travel Time= 0.9 min  
 Avg. Velocity = 1.07 fps, Avg. Travel Time= 4.7 min

Peak Storage= 2,234 cf @ 12.31 hrs  
 Average Depth at Peak Storage= 0.58'  
 Bank-Full Depth= 3.00' Flow Area= 75.0 sf, Capacity= 998.06 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
 Side Slope Z-value= 5.0 '/' Top Width= 40.00'  
 Length= 300.0' Slope= 0.0433 '/'  
 Inlet Invert= 236.00', Outlet Invert= 223.00'



**Summary for Reach R4: Existing Ditch**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 0.35" for 100-Yr event  
Inflow = 2.10 cfs @ 19.85 hrs, Volume= 0.358 af  
Outflow = 1.14 cfs @ 20.00 hrs, Volume= 0.358 af, Atten= 46%, Lag= 9.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 1.15 fps, Min. Travel Time= 2.8 min  
Avg. Velocity = 0.88 fps, Avg. Travel Time= 3.6 min

Peak Storage= 189 cf @ 19.95 hrs  
Average Depth at Peak Storage= 0.12'  
Bank-Full Depth= 2.00' Flow Area= 28.0 sf, Capacity= 168.09 cfs

8.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight  
Side Slope Z-value= 3.0 '/' Top Width= 20.00'  
Length= 190.0' Slope= 0.0053 '/'  
Inlet Invert= 244.00', Outlet Invert= 243.00'

**Summary for Reach R5: Natural Ditch**

Inflow Area = 5.864 ac, 76.19% Impervious, Inflow Depth > 5.34" for 100-Yr event  
Inflow = 44.72 cfs @ 12.10 hrs, Volume= 2.610 af  
Outflow = 38.66 cfs @ 12.13 hrs, Volume= 2.610 af, Atten= 14%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Max. Velocity= 3.66 fps, Min. Travel Time= 1.1 min  
Avg. Velocity = 0.79 fps, Avg. Travel Time= 5.3 min

Peak Storage= 2,741 cf @ 12.11 hrs  
Average Depth at Peak Storage= 0.38'  
Bank-Full Depth= 3.00' Flow Area= 165.0 sf, Capacity= 1,945.52 cfs

25.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds  
Side Slope Z-value= 10.0 '/' Top Width= 85.00'  
Length= 250.0' Slope= 0.0320 '/'  
Inlet Invert= 229.00', Outlet Invert= 221.00'



**Summary for Pond 30A: Grassed Underdrained Soil Filter A**

Inflow Area = 3.277 ac, 81.25% Impervious, Inflow Depth = 6.88" for 100-Yr event  
 Inflow = 23.40 cfs @ 12.09 hrs, Volume= 1.880 af  
 Primary = 23.40 cfs @ 12.09 hrs, Volume= 1.880 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 30B: Grassed Underdrained Soil Filter B**

Inflow Area = 4.812 ac, 94.45% Impervious, Inflow Depth = 7.00" for 100-Yr event  
 Inflow = 34.59 cfs @ 12.09 hrs, Volume= 2.808 af  
 Primary = 34.59 cfs @ 12.09 hrs, Volume= 2.808 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 101: Pond #1 (plus wetland storage)**

Inflow Area = 38.340 ac, 65.45% Impervious, Inflow Depth > 5.28" for 100-Yr event  
 Inflow = 70.90 cfs @ 12.47 hrs, Volume= 16.870 af  
 Outflow = 12.33 cfs @ 15.04 hrs, Volume= 14.614 af, Atten= 83%, Lag= 153.9 min  
 Primary = 12.33 cfs @ 15.04 hrs, Volume= 14.614 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 242.67' @ 15.04 hrs Surf.Area= 282,742 sf Storage= 406,699 cf

Plug-Flow detention time= 650.4 min calculated for 14.604 af (87% of inflow)

Center-of-Mass det. time= 473.0 min ( 1,459.7 - 986.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	835,458 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	22,686	0	0
241.00	115,923	69,305	69,305
242.00	221,289	168,606	237,911
243.00	313,044	267,167	505,077
244.00	347,717	330,381	835,458

Device	Routing	Invert	Outlet Devices
#1	Primary	237.64'	<b>24.0" Round Culvert</b> L= 87.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.64' / 237.30' S= 0.0039 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.00'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=12.33 cfs @ 15.04 hrs HW=242.67' (Free Discharge)

1=Culvert (Passes 12.33 cfs of 19.04 cfs potential flow)

2=Orifice/Grate (Orifice Controls 12.33 cfs @ 4.40 fps)

**Summary for Pond 102: Pond #2**

Inflow Area = 12.396 ac, 49.71% Impervious, Inflow Depth = 4.57" for 100-Yr event  
 Inflow = 39.37 cfs @ 12.37 hrs, Volume= 4.720 af  
 Outflow = 2.10 cfs @ 19.85 hrs, Volume= 0.358 af, Atten= 95%, Lag= 448.7 min  
 Primary = 2.10 cfs @ 19.85 hrs, Volume= 0.358 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 248.65' @ 19.85 hrs Surf.Area= 127,000 sf Storage= 190,120 cf

Plug-Flow detention time= 685.0 min calculated for 0.357 af (8% of inflow)  
 Center-of-Mass det. time= 478.8 min ( 1,316.6 - 837.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	190,120 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	25,000	0	0
244.68	36,400	82,276	82,276
246.00	127,000	107,844	190,120

Device	Routing	Invert	Outlet Devices
#1	Primary	246.53'	<b>18.0" Round Culvert</b> L= 165.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 246.53' / 244.00' S= 0.0153 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf
#2	Device 1	248.05'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=2.10 cfs @ 19.85 hrs HW=248.65' (Free Discharge)

↑ **1=Culvert** (Passes 2.10 cfs of 6.97 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 2.10 cfs @ 2.64 fps)

**Summary for Pond 103: Pond #3**

Inflow Area = 20.495 ac, 62.54% Impervious, Inflow Depth = 2.79" for 100-Yr event  
 Inflow = 48.95 cfs @ 12.15 hrs, Volume= 4.765 af  
 Outflow = 50.70 cfs @ 12.30 hrs, Volume= 3.097 af, Atten= 0%, Lag= 9.2 min  
 Primary = 50.70 cfs @ 12.30 hrs, Volume= 3.097 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 261.29' @ 12.30 hrs Surf.Area= 28,630 sf Storage= 94,130 cf

Plug-Flow detention time= 312.6 min calculated for 3.097 af (65% of inflow)  
 Center-of-Mass det. time= 180.1 min ( 999.4 - 819.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	94,130 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	4,000	0	0
236.00	7,000	11,000	11,000
238.92	11,139	26,483	37,483
240.00	14,287	13,730	51,213
242.00	28,630	42,917	94,130

Device	Routing	Invert	Outlet Devices
#1	Primary	234.22'	<b>24.0" Round Culvert</b> L= 95.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 234.22' / 233.90' S= 0.0034 '/ Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	241.29'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	236.00'	<b>0.5" W x 0.5" H Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=50.67 cfs @ 12.30 hrs HW=261.26' (Free Discharge)

- 1=Culvert (Barrel Controls 50.67 cfs @ 16.13 fps)  
 2=Orifice/Grate (Passes < 67.61 cfs potential flow)  
 3=Orifice/Grate (Passes < 0.04 cfs potential flow)

### Summary for Pond 104: Pond #4

Inflow Area = 5.864 ac, 76.19% Impervious, Inflow Depth = 6.88" for 100-Yr event  
 Inflow = 40.75 cfs @ 12.10 hrs, Volume= 3.364 af  
 Outflow = 44.72 cfs @ 12.10 hrs, Volume= 2.610 af, Atten= 0%, Lag= 0.0 min  
 Primary = 44.72 cfs @ 12.10 hrs, Volume= 2.610 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 250.30' @ 12.10 hrs Surf.Area= 16,786 sf Storage= 36,018 cf

Plug-Flow detention time= 203.4 min calculated for 2.610 af (78% of inflow)  
 Center-of-Mass det. time= 122.7 min ( 886.3 - 763.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	36,018 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	620	0	0
232.00	3,391	4,011	4,011
234.05	7,519	11,183	15,194
235.00	9,087	7,888	23,082
236.00	16,786	12,937	36,018

Device	Routing	Invert	Outlet Devices
#1	Primary	230.62'	<b>24.0" Round Culvert</b> L= 96.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 230.62' / 228.40' S= 0.0231 '/ Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf
#2	Device 1	237.61'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

#3 Device 1 231.00' **0.5" W x 0.5" H Vert. Orifice/Grate** C= 0.600

**Primary OutFlow** Max=44.71 cfs @ 12.10 hrs HW=250.29' (Free Discharge)

1=Culvert (Barrel Controls 44.71 cfs @ 14.23 fps)

2=Orifice/Grate (Passes < 53.86 cfs potential flow)

3=Orifice/Grate (Passes < 0.04 cfs potential flow)

### Summary for Pond 201: Pond #201

Inflow Area = 3.396 ac, 86.74% Impervious, Inflow Depth = 6.65" for 100-Yr event  
 Inflow = 23.86 cfs @ 12.09 hrs, Volume= 1.881 af  
 Outflow = 14.40 cfs @ 12.20 hrs, Volume= 1.832 af, Atten= 40%, Lag= 7.1 min  
 Primary = 14.40 cfs @ 12.20 hrs, Volume= 1.832 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 250.30' @ 12.20 hrs Surf.Area= 17,949 sf Storage= 34,270 cf

Plug-Flow detention time= 618.8 min calculated for 1.832 af (97% of inflow)  
 Center-of-Mass det. time= 602.8 min ( 1,373.3 - 770.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	47,142 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	8,570	0	0
249.00	15,880	12,225	12,225
250.00	17,665	16,773	28,998
251.00	18,624	18,145	47,142

Device	Routing	Invert	Outlet Devices
#1	Primary	250.00'	<b>20.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	245.40'	<b>12.0" Round Culvert</b> L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 245.40' / 245.00' S= 0.0138 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	249.65'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	245.50'	<b>1.6" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	248.00'	<b>2.000 in/hr Exfiltration over Surface area above 248.00'</b> Excluded Surface area = 8,570 sf

**Primary OutFlow** Max=14.32 cfs @ 12.20 hrs HW=250.29' (Free Discharge)

1=Broad-Crested Rectangular Weir (Weir Controls 8.06 cfs @ 1.37 fps)

2=Culvert (Inlet Controls 6.26 cfs @ 7.97 fps)

3=Orifice/Grate (Passes < 10.63 cfs potential flow)

4=Orifice/Grate (Passes < 0.15 cfs potential flow)

5=Exfiltration (Passes < 0.43 cfs potential flow)

**Summary for Pond 202: Pond #202**

Inflow Area = 6.315 ac, 90.17% Impervious, Inflow Depth = 7.12" for 100-Yr event  
 Inflow = 45.64 cfs @ 12.09 hrs, Volume= 3.748 af  
 Outflow = 25.50 cfs @ 12.22 hrs, Volume= 3.659 af, Atten= 44%, Lag= 7.8 min  
 Primary = 25.50 cfs @ 12.22 hrs, Volume= 3.659 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 244.44' @ 12.22 hrs Surf.Area= 32,263 sf Storage= 73,122 cf

Plug-Flow detention time= 601.4 min calculated for 3.659 af (98% of inflow)  
 Center-of-Mass det. time= 586.3 min ( 1,339.6 - 753.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	241.00'	92,645 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
241.00	12,606	0	0
242.00	18,880	15,743	15,743
243.00	20,722	19,801	35,544
244.00	27,811	24,267	59,811
245.00	37,857	32,834	92,645

Device	Routing	Invert	Outlet Devices
#1	Primary	244.00'	<b>25.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	238.40'	<b>12.0" Round Culvert</b> L= 115.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 238.40' / 237.75' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	243.50'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	238.50'	<b>2.4" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	241.00'	<b>2.000 in/hr Exfiltration over Surface area above 241.00'</b> Excluded Surface area = 12,606 sf

**Primary OutFlow** Max=25.15 cfs @ 12.22 hrs HW=244.44' (Free Discharge)

1=Broad-Crested Rectangular Weir (Weir Controls 18.75 cfs @ 1.71 fps)  
 2=Culvert (Barrel Controls 6.40 cfs @ 8.15 fps)  
 3=Orifice/Grate (Passes < 14.65 cfs potential flow)  
 4=Orifice/Grate (Passes < 0.37 cfs potential flow)  
 5=Exfiltration (Passes < 0.91 cfs potential flow)

**Summary for Pond 203: Pond #203**

Inflow Area = 9.999 ac, 86.53% Impervious, Inflow Depth = 6.77" for 100-Yr event  
 Inflow = 64.56 cfs @ 12.12 hrs, Volume= 5.638 af  
 Outflow = 23.30 cfs @ 12.43 hrs, Volume= 4.660 af, Atten= 64%, Lag= 18.5 min  
 Primary = 23.30 cfs @ 12.43 hrs, Volume= 4.660 af



**50465\_postdev**

Type III 24-hr 100-Yr Rainfall=7.60"

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Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 250.15' @ 12.43 hrs Surf.Area= 41,749 sf Storage= 132,209 cf

Plug-Flow detention time= 710.1 min calculated for 4.660 af (83% of inflow)  
 Center-of-Mass det. time= 640.3 min ( 1,409.8 - 769.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	246.00'	177,123 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.00	25,338	0	0
247.00	28,403	26,871	26,871
248.00	31,540	29,972	56,842
249.00	34,748	33,144	89,986
250.00	38,027	36,388	126,374
251.00	63,471	50,749	177,123

Device	Routing	Invert	Outlet Devices
#1	Primary	249.75'	<b>25.0' long x 8.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Primary	243.40'	<b>12.0" Round Culvert</b> L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 243.40' / 243.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	249.25'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	243.50'	<b>2.7" Vert. Orifice/Grate</b> C= 0.600
#5	Device 4	246.00'	<b>2.000 in/hr Exfiltration over Surface area above 246.00'</b> Excluded Surface area = 25,338 sf

**Primary OutFlow** Max=23.19 cfs @ 12.43 hrs HW=250.14' (Free Discharge)

1=Broad-Crested Rectangular Weir (Weir Controls 15.73 cfs @ 1.59 fps)

2=Culvert (Inlet Controls 7.46 cfs @ 9.50 fps)

3=Orifice/Grate (Passes &lt; 14.31 cfs potential flow)

4=Orifice/Grate (Passes &lt; 0.49 cfs potential flow)

5=Exfiltration (Passes &lt; 0.76 cfs potential flow)

**Summary for Pond 204: Pond #204**

Inflow Area = 7.771 ac, 84.71% Impervious, Inflow Depth = 7.00" for 100-Yr event  
 Inflow = 44.76 cfs @ 12.18 hrs, Volume= 4.535 af  
 Outflow = 27.72 cfs @ 12.37 hrs, Volume= 4.106 af, Atten= 38%, Lag= 11.5 min  
 Primary = 27.72 cfs @ 12.37 hrs, Volume= 4.106 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 239.46' @ 12.37 hrs Surf.Area= 25,511 sf Storage= 92,962 cf

Plug-Flow detention time= 775.6 min calculated for 4.104 af (90% of inflow)  
 Center-of-Mass det. time= 729.7 min ( 1,495.0 - 765.3 )

**50465\_postdev**

Type III 24-hr 100-Yr Rainfall=7.60"

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Volume	Invert	Avail.Storage	Storage Description
#1	235.00'	106,903 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
235.00	11,757	0	0
236.00	18,909	15,333	15,333
237.00	20,939	19,924	35,257
238.00	23,032	21,986	57,243
239.00	25,210	24,121	81,364
240.00	25,868	25,539	106,903

Device	Routing	Invert	Outlet Devices
#1	Primary	239.00'	<b>25.0' long x 12.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#2	Primary	232.40'	<b>12.0" Round Culvert</b> L= 93.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 232.40' / 232.00' S= 0.0043 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	232.50'	<b>2.4" Vert. Orifice/Grate</b> C= 0.600
#4	Device 2	238.75'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Device 3	235.00'	<b>2.000 in/hr Exfiltration over Surface area above 235.00'</b> Excluded Surface area = 11,757 sf

**Primary OutFlow** Max=27.37 cfs @ 12.37 hrs HW=239.45' (Free Discharge)

1=Broad-Crested Rectangular Weir (Weir Controls 20.08 cfs @ 1.78 fps)

2=Culvert (Barrel Controls 7.29 cfs @ 9.28 fps)

3=Orifice/Grate (Passes &lt; 0.40 cfs potential flow)

5=Exfiltration (Passes &lt; 0.64 cfs potential flow)

4=Orifice/Grate (Passes &lt; 12.09 cfs potential flow)

**Summary for Pond 205: Level Lip Spreader #1**

Inflow Area = 0.437 ac, 78.74% Impervious, Inflow Depth = 5.83" for 100-Yr event  
 Inflow = 2.83 cfs @ 12.09 hrs, Volume= 0.212 af  
 Outflow = 2.83 cfs @ 12.09 hrs, Volume= 0.212 af, Atten= 0%, Lag= 0.1 min  
 Primary = 2.83 cfs @ 12.09 hrs, Volume= 0.212 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 242.57' @ 12.09 hrs Surf.Area= 159 sf Storage= 10 cf

Plug-Flow detention time=0.1 min calculated for 0.212 af (100% of inflow)

Center-of-Mass det. time=0.1 min ( 792.3 - 792.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

**50465\_postdev**

Type III 24-hr 100-Yr Rainfall=7.60"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=2.76 cfs @ 12.09 hrs HW=242.57' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Weir Controls 2.76 cfs @ 0.65 fps)

**Summary for Pond 206: Level Lip Spreader #2**

Inflow Area = 0.324 ac, 81.75% Impervious, Inflow Depth = 6.06" for 100-Yr event  
 Inflow = 2.15 cfs @ 12.09 hrs, Volume= 0.163 af  
 Outflow = 2.15 cfs @ 12.09 hrs, Volume= 0.163 af, Atten= 0%, Lag= 0.1 min  
 Primary = 2.15 cfs @ 12.09 hrs, Volume= 0.163 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 242.56' @ 12.09 hrs Surf.Area= 156 sf Storage= 8 cf

Plug-Flow detention time=0.1 min calculated for 0.163 af (100% of inflow)

Center-of-Mass det. time=0.1 min ( 786.8 - 786.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=2.09 cfs @ 12.09 hrs HW=242.55' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Weir Controls 2.09 cfs @ 0.59 fps)

**Summary for Pond 207: Level Lip Spreader #3**

Inflow Area = 0.940 ac, 49.45% Impervious, Inflow Depth = 3.90" for 100-Yr event  
 Inflow = 4.21 cfs @ 12.09 hrs, Volume= 0.306 af  
 Outflow = 4.22 cfs @ 12.09 hrs, Volume= 0.306 af, Atten= 0%, Lag= 0.0 min  
 Primary = 4.22 cfs @ 12.09 hrs, Volume= 0.306 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 242.59' @ 12.09 hrs Surf.Area= 166 sf Storage= 13 cf

Plug-Flow detention time=0.1 min calculated for 0.305 af (100% of inflow)  
 Center-of-Mass det. time=0.1 min ( 831.5 - 831.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	306 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	139	0	0
243.00	292	108	108
243.50	500	198	306

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	<b>65.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=4.15 cfs @ 12.09 hrs HW=242.59' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Weir Controls 4.15 cfs @ 0.74 fps)

**Summary for Pond 208: Level Lip Spreader #4**

Inflow Area = 0.453 ac, 0.00% Impervious, Inflow Depth = 3.04" for 100-Yr event  
 Inflow = 1.55 cfs @ 12.10 hrs, Volume= 0.115 af  
 Outflow = 1.52 cfs @ 12.10 hrs, Volume= 0.110 af, Atten= 2%, Lag= 0.0 min  
 Primary = 1.52 cfs @ 12.10 hrs, Volume= 0.110 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 249.08' @ 12.10 hrs Surf.Area= 300 sf Storage= 200 cf

Plug-Flow detention time=29.5 min calculated for 0.110 af (96% of inflow)  
 Center-of-Mass det. time=7.8 min ( 856.7 - 848.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	200 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

**50465\_postdev**

Type III 24-hr 100-Yr Rainfall=7.60"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	100	0	0
248.50	200	75	75
249.00	300	125	200

Device	Routing	Invert	Outlet Devices
#1	Primary	249.00'	<b>25.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=1.51 cfs @ 12.10 hrs HW=249.08' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 1.51 cfs @ 0.73 fps)**Summary for Pond 209: Level Lip Spreader #5**

Inflow Area = 0.376 ac, 0.00% Impervious, Inflow Depth = 2.62" for 100-Yr event  
 Inflow = 1.09 cfs @ 12.10 hrs, Volume= 0.082 af  
 Outflow = 1.28 cfs @ 12.10 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.28 cfs @ 12.10 hrs, Volume= 0.078 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 249.07' @ 12.10 hrs Surf.Area= 300 sf Storage= 200 cf

Plug-Flow detention time= 37.1 min calculated for 0.078 af (95% of inflow)

Center-of-Mass det. time= 10.0 min ( 868.4 - 858.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	248.00'	200 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
248.00	100	0	0
248.50	200	75	75
249.00	300	125	200

Device	Routing	Invert	Outlet Devices
#1	Primary	249.00'	<b>25.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=1.28 cfs @ 12.10 hrs HW=249.07' (Free Discharge)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 1.28 cfs @ 0.69 fps)

**Summary for Pond 301: Point of Analysis 301**

Inflow Area = 43.307 ac, 58.99% Impervious, Inflow Depth > 4.37" for 100-Yr event  
Inflow = 13.42 cfs @ 14.60 hrs, Volume= 15.783 af  
Primary = 13.42 cfs @ 14.60 hrs, Volume= 15.783 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 401: Point of Analysis 401**

Inflow Area = 59.444 ac, 46.27% Impervious, Inflow Depth > 4.02" for 100-Yr event  
Inflow = 133.82 cfs @ 12.36 hrs, Volume= 19.921 af  
Primary = 133.82 cfs @ 12.36 hrs, Volume= 19.921 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 501: Point of Analysis 501**

Inflow Area = 0.915 ac, 26.47% Impervious, Inflow Depth = 5.14" for 100-Yr event  
Inflow = 5.33 cfs @ 12.09 hrs, Volume= 0.391 af  
Primary = 5.33 cfs @ 12.09 hrs, Volume= 0.391 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Pond 601: Point of Analysis 601**

Inflow Area = 62.183 ac, 16.27% Impervious, Inflow Depth > 2.21" for 100-Yr event  
Inflow = 36.86 cfs @ 12.60 hrs, Volume= 11.454 af  
Primary = 36.86 cfs @ 12.60 hrs, Volume= 11.454 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link 1LA: Link 1**

Inflow Area = 2.529 ac, 42.44% Impervious, Inflow Depth = 4.12" for 100-Yr event  
Inflow = 4.76 cfs @ 12.83 hrs, Volume= 0.869 af  
Primary = 4.76 cfs @ 12.83 hrs, Volume= 0.869 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Summary for Link 1LB: Link 1**

Inflow Area = 2.529 ac, 42.44% Impervious, Inflow Depth = 4.12" for 100-Yr event  
Inflow = 4.76 cfs @ 12.83 hrs, Volume= 0.869 af  
Primary = 4.76 cfs @ 12.83 hrs, Volume= 0.869 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**ATTACHMENT C**

**WATER QUALITY TREATMENT SUMMARY**

Water Quality Treatment Summary - New Development (Westerly Portion of the Project Site)					
Subcatchment ID	Total Developed Area		Treatment Method	Treated Developed Area	
	New Impervious Area (sf)	New Landscaped Area (sf)		Treated Impervious Area (sf)	Treated Landscaped Area (sf)
S32	0	7,974	Untreated	0	0
S60	32,985	66,824	Untreated	0	0
S60A	0	36,652	Untreated	0	0
S61	119,736	28,185	Wet Pond	119,736	28,185
S62	236,076	38,984	Wet Pond	236,076	38,984
S63	15,000	4,049	Forested Buffer	15,000	4,049
S64	11,520	2,572	Forested Buffer	11,520	2,572
S65	20,240	20,692	Forested Buffer	20,240	20,692
S66	0	19,716	Forested Buffer	0	19,716
S67	0	16,384	Forested Buffer	0	16,384
<b>Total</b>	<b>435,557</b>	<b>242,032</b>		<b>402,572</b>	<b>130,582</b>

Treatment Summary		
	Required	Provided
Treated Impervious (%)	90% <sup>1</sup>	92.43%
Treated Landscaped (%)	75% <sup>1</sup>	78.68%

Notes:

1. Required treatment values were computed by applying Table 1 of Maine DEP's Chapter 500 Rules for Stormwater Management section 4.C.2.a.iii where 15.64 acres of land is developed of the available 43.07 acres deemed developable (36%).



Water Quality Treatment Summary - Redevelopment (Easterly Portion of the Project Site)					
Subcatchment ID	Total Redeveloped Area		Treatment Method	Treated Redeveloped Area	
	Impervious Area (sf)	Landscaped Area (sf)		Treated Impervious Area (sf)	Treated Landscaped Area (sf)
S30	118,003	50,950	Untreated	0	0
S30C	360,000	75,913	Wet Pond	360,000	75,913
S32	0	11,713	Untreated	0	0
S40	36,663	145,817	Untreated	0	0
S40A	275,000	63,336	Wet Pond	275,000	63,336
S41	68,079	13,568	Untreated	0	0
<b>Total</b>	<b>857,745</b>	<b>361,297</b>		<b>635,000</b>	<b>139,249</b>

Treatment Summary		
	Required	Provided
Treated Impervious (%)	N/A	74.03%
Treated Landscaped (%)	60% <sup>1</sup>	63.51%

Notes:

1. Required treatment values were computed by applying section 4.C.2.d.i of Maine DEP's Chapter 500 Rules for Stormwater Management for Redevelopment Projects.

**ATTACHMENT D**

**REDEVELOPMENT COMPUTATIONS AND FIGURES**

Redevelopment Treatment Calculation						
	Existing Condition			Proposed Condition		
Pollutant Ranking	Area (sf)	Area (ac)	Impact Rating	Area (sf)	Area (ac)	Impact Rating
0	9,710	0.22	0.00	0	0	0
1	0	0.00	0.00	69,041	1.58	1.58
2	297,062	6.82	13.64	279,119	6.41	12.82
3	113,575	2.61	7.82	0	0.00	0.00
4	798,695	18.34	73.34	870,882	19.99	79.97
5	0	0.00	0.00	0	0	0
<b>Total</b>	<b>1,219,042</b>	<b>27.99</b>	<b>94.80</b>	<b>1,219,042</b>	<b>27.99</b>	<b>94.37</b>

Redevelopment Treatment Summary	
Total Redevelopment Area (ac)	27.99
Existing Impact Rating	94.80
Proposed Impact Rating	94.37
Existing Ranked Impact	3.39
Proposed Ranked Impact	3.37
Resultant Ranked Impact Change	-0.02
<b>Redeveloped Area Treatment Designation (Site Law project)</b>	<b>50%</b>

LEGEND

- REDEVELOPMENT LIMITS
- POLLUTANT RATING 0

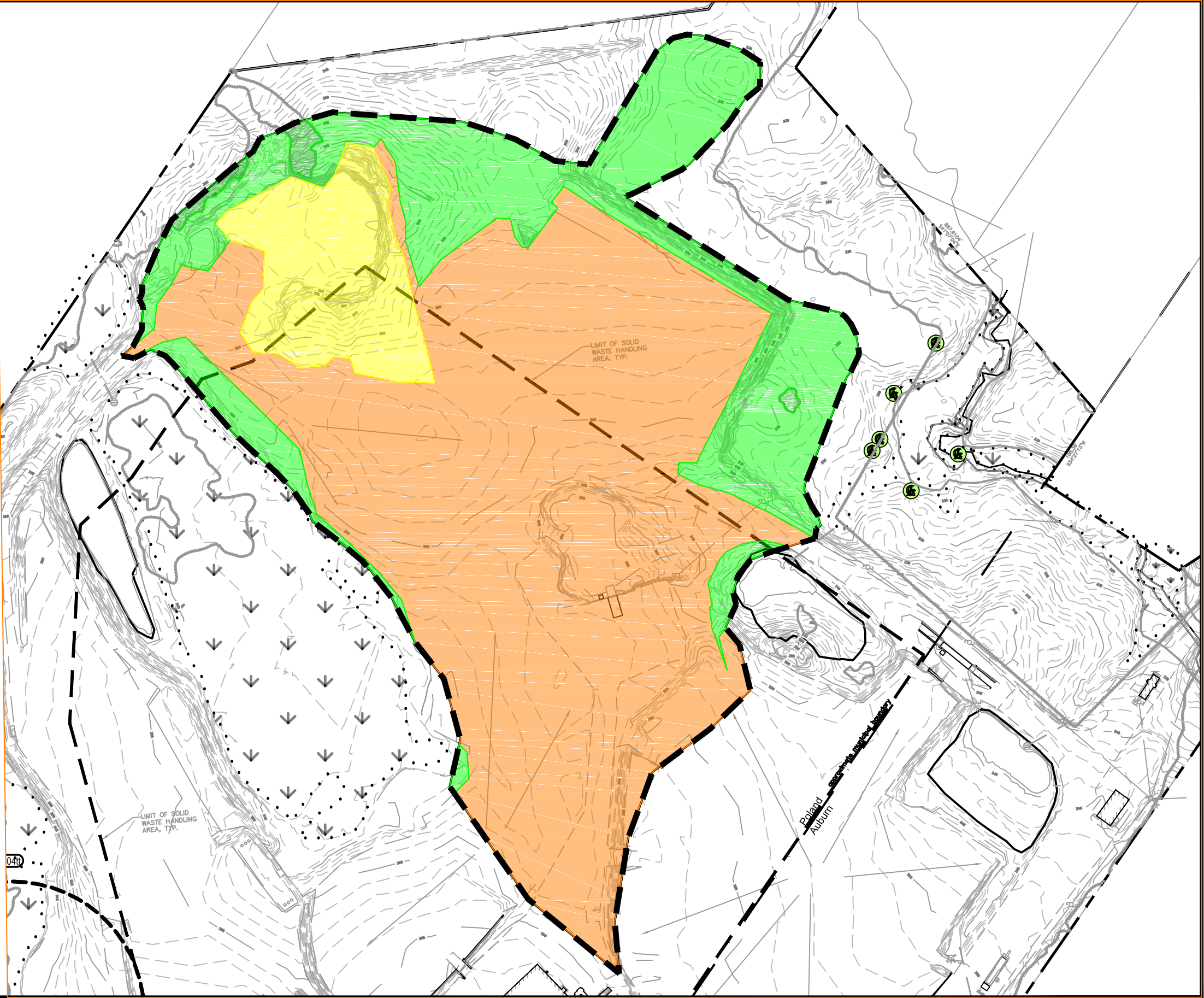
POLLUTANT RATING 1

POLLUTANT RATING 2

POLLUTANT RATING 3

POLLUTANT RATING 4

POLLUTANT RATING 5



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MB BARK RECYCLING FACILITY EXPANSION			
POLAND/AUBURN, ME			
File Name: ex_redeve_calc	AMS	DBS	AMS
	DWN.	CHKD.	DSGN.
			18.02.02
			DATE

Title  
REDEVELOPMENT FIGURE 1  
EXISTING  
Figure No.  
1

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LEGEND

REDEVELOPMENT LIMITS

POLLUTANT RATING 0

POLLUTANT RATING 1

POLLUTANT RATING 2

POLLUTANT RATING 3

POLLUTANT RATING 4

POLLUTANT RATING 5

GRAPHIC SCALE

0 100 200 400

1" = 200'

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Title

REDEVELOPMENT FIGURE 1  
PROPOSED

Figure No.  
2

**ATTACHMENT E**

**WET POND COMPUTATIONS SUMMARY**

## **Wet Pond Summary**

### **Wet Pond #1**

Tributary Impervious Area	119,736 sf
Tributary Landscaped Area	28,185 sf
Required Permanent Pool Volume	21,835 cf
Required Channel Protection Volume	10,918 cf
Provided Permanent Pool Volume	33,566 cf
Provided Channel Protection Volume	10,918 cf

### **Wet Pond #2**

Tributary Impervious Area	236,076 sf
Tributary Landscaped Area	38,984 sf
Required Permanent Pool Volume	41,945 cf
Required Channel Protection Volume	20,972 cf
Provided Permanent Pool Volume	46,728 cf
Provided Channel Protection Volume	21,102 cf

### **Wet Pond #3**

Tributary Impervious Area	360,000 sf
Tributary Landscaped Area	75,913 sf
Required Permanent Pool Volume	65,061 cf
Required Channel Protection Volume	32,530 cf
Provided Permanent Pool Volume	69,139 cf
Provided Channel Protection Volume	32,692 cf

### **Wet Pond #4**

Tributary Impervious Area	275,000 sf
Tributary Landscaped Area	50,000 sf
Required Permanent Pool Volume	49,167 cf
Required Channel Protection Volume	24,583 cf
Provided Permanent Pool Volume	49,669 cf
Provided Channel Protection Volume	24,643 cf

## **ATTACHMENT F**

### **WET POND STAGE STORAGE COMPUTATIONS**



Wet Pond #1 Sizing						
Elevation	Surface Area	Average Area	Stage Volume	Cumulative Volume	Volume Above PPE	Mean Depth
242	874			0		0.00
		2094.5	2094.5			
243	3315			2094.5	0	0.63
		4212.5	4212.5			
244	5110			6307	0	1.23
		5536.5	5536.5			
245	5963			11843.5	0	1.99
		6376	6376			
246	6789			18219.5	0	2.68
		7228	7228			
247	7667			25447.5	0	3.32
		8118.5	8118.5			
248	8570			33566	0	PPV
		11867	10917.64			
248.92	15164			36365.14	10917.64	CPV
		12225	12225			
249	15880			45791	23142.64	
		16772.5	16772.5			
250	17665			62563.5	39915.14	

Wet Pond #2 Sizing						
Elevation	Surface Area	Average Area	Stage Volume	Cumulative Volume	Volume Above PPE	Mean Depth
236.2	6045			0	0	0.00
		6812	5449			
237	7578			5449	0	0.72
		8352	8352			
238	9125			13801	0	1.51
		9820	9820			
239	10514			23620	0	2.25
		11031	11031			
240	11548			34651	0	3.00
		12077	12077			
241	12606			46728	0	PPV
		15743	15743			
242	18880			62471	15743	
		19138	5359			
242.28	19396			67830	21102	CPV
		20059	14442			
243	20722			82272	35544	
		24267	24267			
244	27811			106539	59811	

Wet Pond #3 Sizing						
Elevation	Surface Area	Average Area	Stage Volume	Cumulative Volume	Volume Above PPE	Mean Depth
239	1522			0	0	0.00
		2651	2651			
240	3780			2651	0	0.70
		5028.5	5028.5			
241	6277			7679.5	0	1.22
		7669.5	7669.5			
242	9062			15349	0	1.69
		10519.5	10519.5			
243	11977			25868.5	0	2.16
		12785.5	12785.5			
244	13594			38654	0	2.84
		14415	14415			
245	15236			53069	0	3.48
		16069.5	16069.5			
246	16903			69138.5	0	PPV
		22599.5	22599.5			
247	28296			91738	22599.5	
		28835.35	10092.3725			
247.35	29374.7			101830.3725	32691.8725	CPV
		30376.35	19744.6275			
248	31378			121575	52436.5	
		32947.5	32947.5			
249	34517			154522.5	85384	

Wet Pond #4 Sizing						
Elevation	Surface Area	Average Area	Stage Volume	Cumulative Volume	Volume Above PPE	Mean Depth
229	3318			0	0	0
		4412.5	4412.5			
230	5507			4412.5	0	0.80
		6445	6445			
231	7383			10857.5	0	1.47
		8075	8075			
232	8767			18932.5	0	2.16
		9253	9253			
233	9739			28185.5	0	2.89
		10237	10237			
234	10735			38422.5	0	3.58
		11246	11246			
235	11757			49668.5	0	PPV
		15333	15333			
236	18909			65001.5	15333	
		19396.2	9310.176			
236.48	19883.4			74311.676	24643.176	CPV
		20411.2	10613.824			
237	20939			84925.5	35257	
		21985.5	21985.5			
238	23032			106911	57242.5	
		24121	24121			
239	25210			131032	81363.5	

8



ZONING

G-2, GENERAL PURPOSE 2 [POLAND]
ID, INDUSTRIAL DISTRICT [AUBURN]

TAX ASSESSOR'S
TAX MAP and LOT

Table with 3 columns: MAP, LOT, AREA. Row 1: 0004, 0015-0002 [POLAND], 119.20 AC. Row 2: 167, 001-001 [AUBURN], 23.98 AC.

OWNER

MB INVESTMENTS, LLC

70 PLEASANT HILL ROAD
SCARBOROUGH, MAINE 04074
[207] 883-3325

APPLICANT

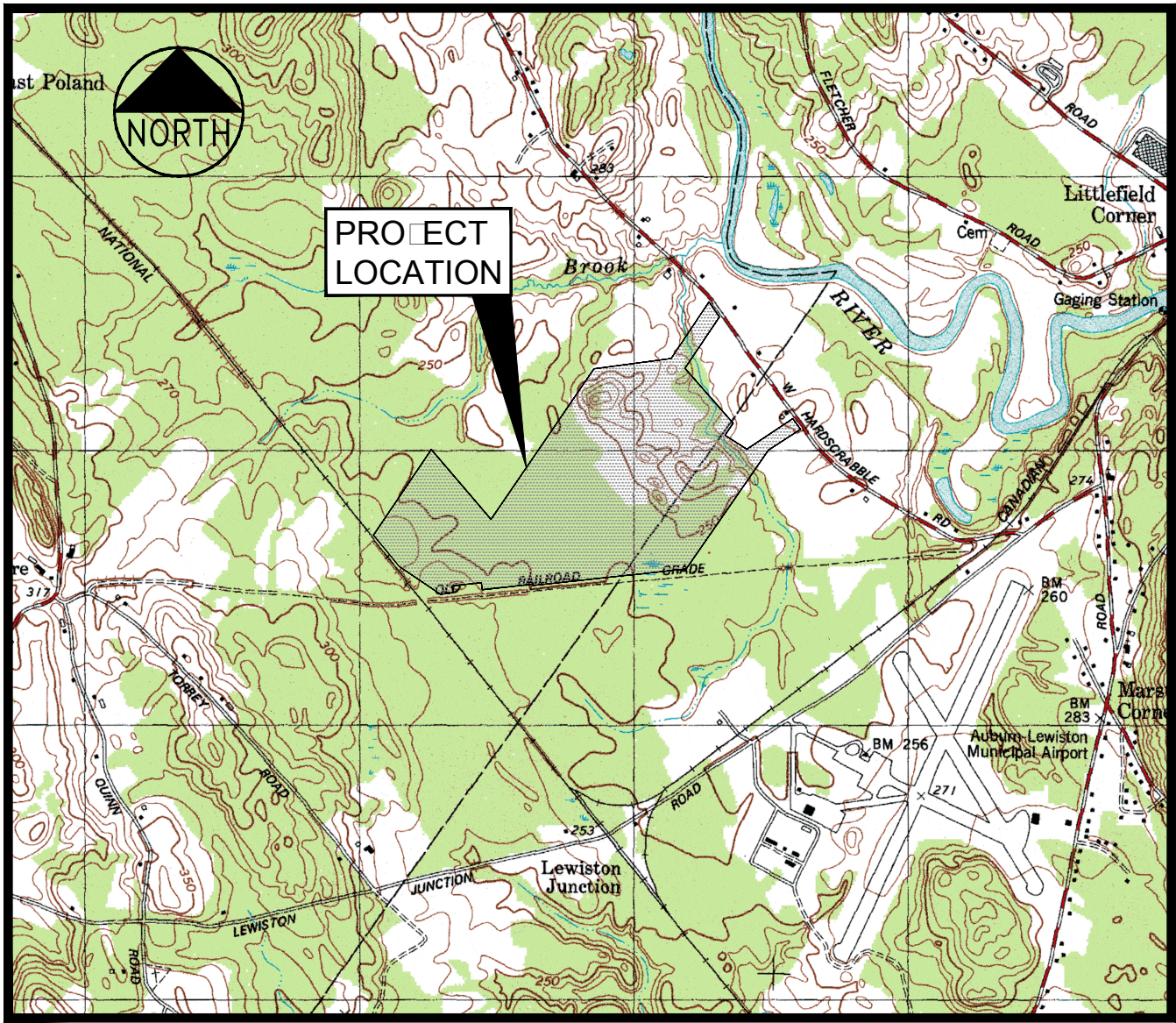
MB BARK, LLC

100 BARK MULCH DRIVE
AUBURN, MAINE 04210
[207] 786-0600

SITE DEVELOPMENT PLANS FOR
MB BARK RECYCLING FACILITY
EXPANSION

100 BARK MULCH DRIVE
AUBURN, MAINE / POLAND, MAINE

PERMIT SET
FEBRUARY 2019



USGS LOCATION MAP
SCALE: 1" = 2000'



Stantec
482 Payne Road Scarborough Court
Scarborough, Maine 04074-8929
Tel. [207] 883.3355
www.stantec.com

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Consultants



846 Main Street
Westbrook, Maine 04092
Tel. [207] 591.7000

Notes

INDEX

Table with 2 columns: Index Number, Description. Includes items like COVER SHEET, GENERAL NOTES & LEGEND, EXISTING CONDITIONS SURVEY 1 OF 3, etc.

UTILITIES

WATER
AUBURN WATER DISTRICT
268 COURT STREET - P.O. BOX 414
AUBURN, MAINE 04212-0414
[207] 784-6469

ELECTRIC
CENTRAL MAINE POWER
162 CANCO ROAD
PORTLAND, MAINE 04103
[207] 753-3117

TELEPHONE
FAIRPOINT COMMUNICATIONS
5 DAVIS FARM ROAD
PORTLAND, MAINE 04103
[207] 761-1200

CABLE
SPECTRUM/TIME WARNER
118 JOHNSON ROAD
PORTLAND, MAINE 04102

CALL BEFORE YOU DIG
811

PERMITS

Table with 4 columns: TYPE, ISSUING AGENCY, DATE OF APPLICATION, STATUS. Rows include LOCAL, STATE, NRPA INDIVIDUAL PERMIT, and FEDERAL permits.

PREPARED BY

PROJECT MANAGEMENT & PERMITTING:
ST.GERMAIN COLLINS
846 MAIN STREET
WESTBROOK, MAINE 04092
TEL: [207] 591-7000
ATTN: PETER MOHLIN
PETERM@STGERMAINCOLLINS.COM

CIVIL ENGINEER:
STANTEC
482 PAYNE ROAD SCARBOROUGH COURT
SCARBOROUGH, MAINE 04074
TEL: [207] 883-3355
ATTN: DARRIN STAIRS, P.E.
DARRIN.STAIRS@STANTEC.COM

WETLAND/NATURAL RESOURCES:
STANTEC
30 PARK DR
TOPSHAM, ME 04086
TEL: [207] 729-1199
ATTN: THOMAS TETREAU
TOM.TETREAU@STANTEC.COM

SURVEYOR:
TITCOMB ASSOCIATES
133 GRAY ROAD,
FALMOUTH, MAINE 04105
TEL: [207] 797-9199
ATTN.: REX CROTEAU
RCROTEAU@TITCOMBSURVEY.COM

GEOTECHNICAL ENGINEER:
SUMMIT GEOENGINEERING
145 LISBON STREET, SUITE 701
LEWISTON, MAINE 04240
TEL: [207] 576-3313
ATTN: BILL PETERLEIN
BPETERLEIN@SUMMITGEOENG.COM

I HEREBY ACKNOWLEDGE THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MAINE AND THAT I AM COMPETENT TO PREPARE THIS DOCUMENT.

DARRIN STAIRS, P.E. [Signature]

Table with 4 columns: File Name, CDD, SRB, DBS, 17.10.11. Row 1: 50465\_cover, DWN., CHKD., DSGN., DATE.

Permit-Seal



Client/Project

ST.GERMAIN COLLINS
MB BARK, LLC

MB BARK RECYCLING FACILITY
EXPANSION

AUBURN, MAINE / POLAND, MAINE

Title

COVER SHEET

Project No. 195350465
Scale

Sheet



1. THIS PROJECT WILL BE SUBJECT TO THE TERMS AND CONDITIONS OF ALL PERMITS ISSUED BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, ARMY CORPS OF ENGINEERS, LOCAL UTILITY COMPANIES, AND THE TOWN OF POLAND.
2. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE MOST RESTRICTIVE OF THE MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, THE PROJECT SPECIFICATIONS, THE LOCAL UTILITY COMPANIES AND TOWN OF POLAND REQUIREMENTS.
3. THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COLLECTION, TRANSPORT, AND DISPOSAL OF ALL CONSTRUCTION AND DEMOLITION WASTES IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
4. THE SITE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION SHOULD BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE AND A PRIVATE UTILITY LOCATION COMPANY SUCH AS DIG SMART AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
5. MAINTENANCE OF EROSION CONTROL MEASURES IS OF PARAMOUNT IMPORTANCE TO THE OWNER. THE SITE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTIONS OF THE OWNER, REPRESENTATIVES OF THE DEP, OR REPRESENTATIVES OF THE TOWN OF POLAND, AT NO ADDITIONAL COST TO THE OWNER.
6. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE SITE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.
7. ALL REQUIRED AND NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO THE FINAL SERVICE CONNECTIONS IN THE CONTRACT.
9. RECORD DRAWINGS REQUIRE ALL BURIED BENES, APPURTENANCES, AND OTHER FEATURES TO BE LOCATED BY COORDINATES. SEE SURVEY AND LAYOUT SPECIFICATIONS FOR EXACT REQUIREMENTS.
10. TEST PITS SHALL BE PERFORMED WITH IN 3 DAYS OF THE START OF WORK.

1. LIMITS OF TREE AND SHRUB CLEARING TO BE FLAGGED BY THE SITE CONTRACTOR, THE ENGINEER AND/OR THE OWNER'S REPRESENTATIVE SHALL APPROVE ALL CLEARING LIMITS AND SHALL FLAG AND MARK EXISTING TREES NEAR CLEARING LIMIT TO REMAIN. THIS LAYOUT AND OWNER'S REVIEW SHALL BE CONDUCTED PRIOR TO ANY TREE OR SHRUB CUTTING.
2. ALL DISTURBED AREAS ARE TO RECEIVE A MINIMUM OF 4" OF TOPSOIL PRIOR TO PERMANENT SEEDING.

1. REFER TO THE EROSION CONTROL REPORT FOR REQUIREMENTS FOR THIS PROJECT.

2. THE LIMITS OF GRADING SHALL BE ESTABLISHED IN THE FIELD, BY THE CONTRACTOR BY SURVEY LAYOUT AND APPROVED BY THE OWNER, IN WRITING, PRIOR TO ANY OTHER WORK. PRIOR TO BEGINNING OTHER LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL THE PERIMETER SILT FENCES AND THE CONSTRUCTION ENTRANCES.
3. ALL AREAS OUTSIDE THE PROPOSED PAVEMENT AND BUILDING LIMITS SHALL BE GRADED, LOAMED, MULCHED, MESHD (IF REQUIRED BY SLOPE) AND SEEDED AS SOON AS POSSIBLE EXCEPT WHERE RIPRAP IS SPECIFIED. SEED MIXTURES SHALL CONFORM TO THE SEEDING PLAN CONTAINED IN THE EROSION CONTROL REPORT PREPARED FOR THIS PROJECT.
4. ALL STORM DRAIN INLETS AND OUTLETS NOT IN PAVED AREAS ARE TO RECEIVE RIPRAP PROTECTION APRONS.
5. SILT FENCES SHALL BE INSPECTED, REPAIRED AND CLEANED AS NOTED IN THE EROSION CONTROL NOTES SHOWN ON THE EROSION CONTROL DETAIL SHEET.
6. THE SITE CONTRACTOR SHALL REPAIR AND ADD STONE TO THE CONSTRUCTION ENTRANCE AS IT BECOMES SATURATED WITH MUD TO ENSURE THAT IT WORKS AS PLANNED DURING CONSTRUCTION AND KEEP ALL OFFSITE ROADS CLEAR OF DIRT AND MUD.
7. SILT REMOVED FROM AROUND INLETS AND BEHIND THE SILT FENCES SHALL BE PLACED AND MIXED INTO TOPSOIL FOR USE IN LANDSCAPING OPERATIONS.
8. EROSION CONTROL MEASURES ARE SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN SHEET OF THIS PLAN SET. THESE ARE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES SHALL BE INSTALLED AS NECESSARY. THE USE OF CHEMICAL AGENTS OR FLOCCULANTS MAY BE REQUIRED AND SHALL BE USED IF NECESSARY TO CONTROL AND PREVENT TURBID DISCHARGES.
9. LAND DISTURBING ACTIVITIES SHALL BE ACCOMPLISHED IN A MANNER AND SEQUENCE THAT CAUSES THE LEAST PRACTICAL DISTURBANCE OF THE SITE AND COMPLIES WITH THE EROSION CONTROL PLANS AND SPECIFICATIONS FOR THE PROJECT.

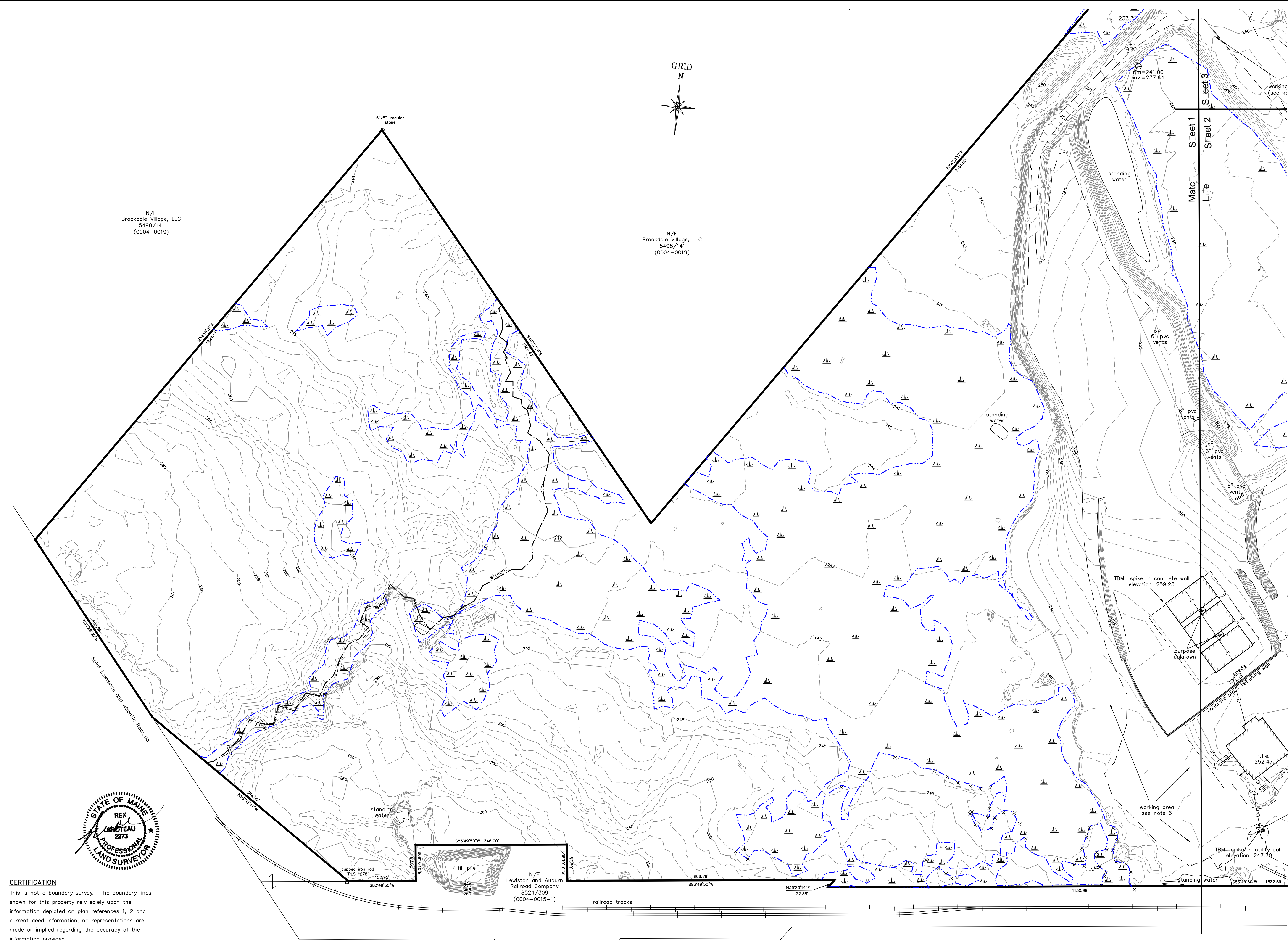
1. THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE REMOVAL & DISPOSAL OF DEMOLITION & CONSTRUCTION DEBRIS GENERATED FROM SITE WORK ACTIVITIES.

1. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNING'S ROUGHNESS COEFFICIENT OF N = .012 OR LESS EXCEPT WHERE CONCRETE IS USED FOR INLET FLARES, SEE SPECIFICATION SECTION 02670.
2. ALL SLOPES IN EXCESS OF 3:1 HORIZONTAL TO VERTICAL ARE TO RECEIVE SPECIAL SLOPE TREATMENT AS DEFINED BY THE EROSION CONTROL NARRATIVE, DETAIL SHEETS, OR TYPICAL SECTIONS OF THIS PLAN SET. ALL SLOPES OVER 10% ARE TO BE MULCHED AND NETTED.
3. AN "AS-BUILT" CERTIFICATION OF THE STORMWATER DRAINAGE SYSTEM PREPARED BY A REGISTERED ENGINEER IS REQUIRED PRIOR TO SUBMITTING A REQUEST FOR SUBSTANTIAL COMPLETION OF THE PROJECT. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ANY DEVIATION FROM THE PLANS MAY DELAY THE ACCEPTANCE OF THE PROJECT.
4. ALL EXPOSED PIPES OVER 18" IN DIAMETER ARE TO HAVE A REINFORCED CONCRETE FLARE WITH BAR RACK. PIPES 18" DIAMETER AND UNDER ARE TO HAVE AN HOPE FLARE AS SHOWN ON THE DETAILS OF THE DRAWINGS.

1. ALL REQUIRED UTILITIES SERVING THE PROJECT SHALL BE COORDINATED AND CONSTRUCTED BY THE SITE CONTRACTOR AND THEIR SUBCONTRACTORS.
2. THE SITE CONTRACTOR SHALL COORDINATE THE PROTECTION OF THE UNDERGROUND ELECTRIC POWER SERVICE WITH CENTRAL MAINE POWER.

C-1.1





**LEGEND**

	Monument — found
	Iron marker — found
	Property line (locus)
	Property line (abutter)
	Fence
	Edge of gravel
	Lamp or light pole
	Utility pole
	Water valve
	Catch basin (round)
	Guy wire
	Wetlands
	Overhead utility line
	Manhole
	Underground gas line
	Underground electric line
	Contours (1ft)
	Contours (5ft)
	Now or formerly of
	Deed reference (Book/Page)
	Tax map ID
	Existing building
	Hydrant
	Sign

N/F  
1234/567  
(167-001)

**NOTES**

1) Book and Page references are to the Androscoggin County Registry of Deeds.

2) Bearings are referenced to grid north, Maine State Plane Coordinate System, NAD83, West Zone.

3) Elevations are based on NAVD88 datum derived from GPS observations.

4) Utility information on this plan is approximate, based on location of visible features. DigSafe and/or the appropriate utilities should be contacted prior to any construction.

5) A portion of the property lies within Zone A, an Area of Special Flood Hazard, based on FIRM Map Number 23001C0308E and 23001C0316E, dated July 8, 2013.

6) Contour information is based on a photogrammetric survey, utilizing 2013 Maine Orthophoto Program imagery and Androscoggin 2009 Lidar data, provided by Cornerstone Energy Services, Inc. Certain areas were supplemented and revised based on ground surveys to clarify obscured areas and to update obvious areas of excavation since the date of the aerial imagery. The easterly portion of the property is under periodic man made grade changes due to stockpiling of materials; current grades may differ from those depicted on this plan in locations noted as "working areas".

7) The site is serviced by underground water which has not been located (possible plastic pipe).

8) Wetlands delineated and located by Stantec Consulting Services, Inc.

**PLAN REFERENCES**

1) Standard Boundary Survey Plan of Property made for Morse Brothers by Cullenberg Land Surveying dated January 31, 1997.

2) Plan of Property made for Dancing Bear Realty Trust by Cullenberg Land Surveying dated June 12, 2001.

**EASEMENTS / ENCUMBRANCES**

1) Property benefits from an Easement Agreement between George H. Field and MB Investment Properties, LLC recorded in Book 6897, Page 40.

**AREA**

172 acres ±

**OWNERS OF RECORD**

MB Investment Properties, LLC  
Book 6674, Page 60  
Book 6674, Page 64

**SCALE IN FEET**

100 0 100 200  
1" = 100'

Rev.2	02/06/18	Tax Map IDs Added	JMS
Rev.1	10/26/17	Revised Contours	JMS

**PLAN OF**

Existing Conditions Survey

Hardscrabble Road Auburn and Poland, Maine

**MADE FOR**

St. Germain Collins

846 Main Street Westbrook, Maine

JOB #217062	DATE: October 10, 2017	SCALE: 1" = 100'
BOOK #904, 907		
217062 Ex Cond_R1		

**SHEET 1 of 3**

**Titcomb Associates**  
133 Grand Road, Falmouth, Maine 04105  
207.797-9199 www.ttc.msbsurvey.com

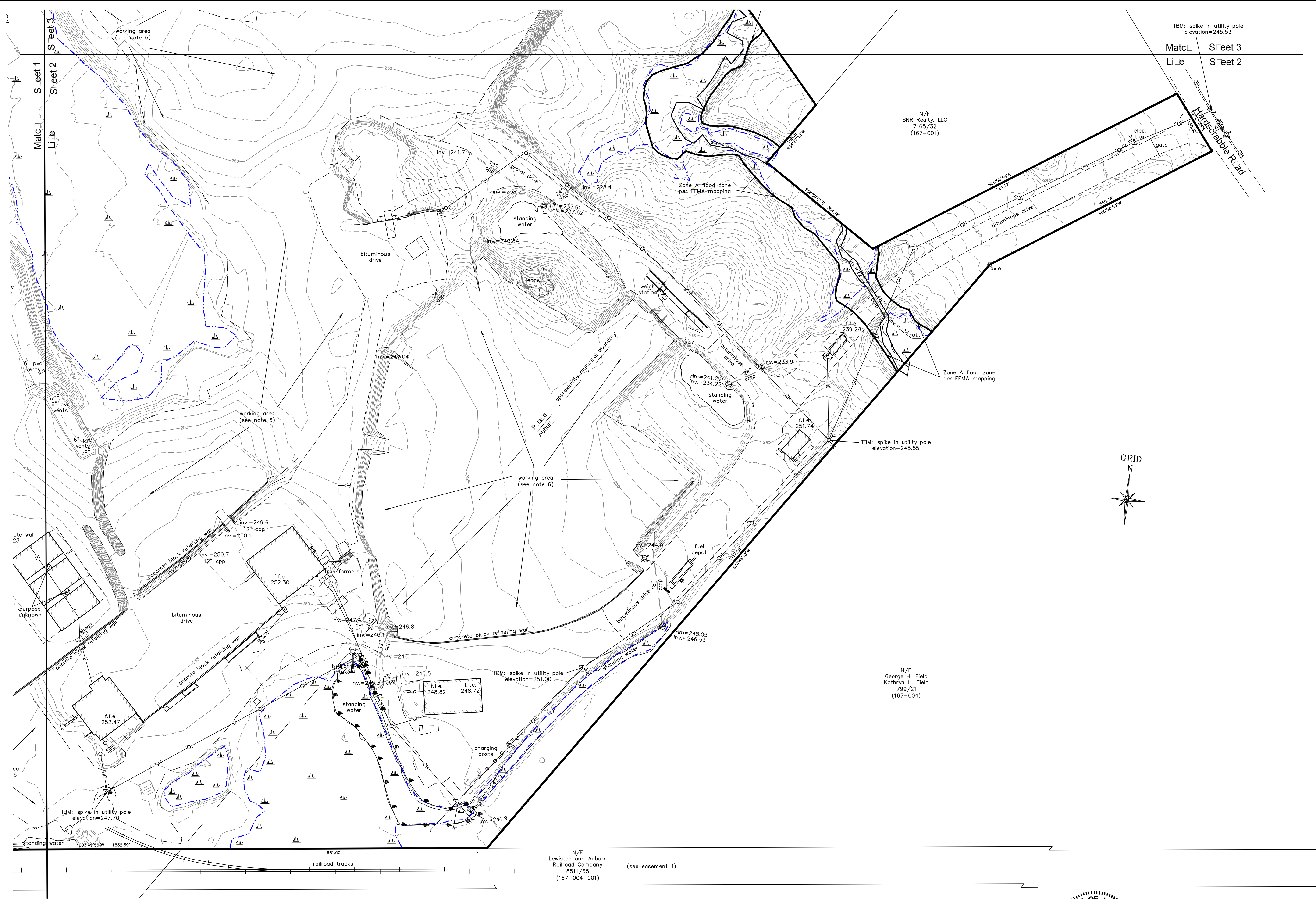
**CERTIFICATION**

This is not a boundary survey. The boundary lines shown for this property rely solely upon the information depicted on plan references 1, 2 and current deed information, no representations are made or implied regarding the accuracy of the information provided.

Rex J. Croteau, P.L.S. #2273







**LEGEND**

□	Monument — found
○	Iron marker — found
—	Property line (locus)
— X —	Property line (abutter)
—	Fence
—	Edge of pavement
—	Edge of gravel
☆	Lamp or light pole
⊙	Utility pole
⊙	Water valve
⊙	Catch basin (round)
—	Guy wire
—	Wetlands
—	Overhead utility line
—	Manhole
—	Underground gas line
—	Underground electric line
—	Contours (1ft)
—	Contours (5ft)
—	Now or formerly of
—	Deed reference (Book/Page)
—	Tax map ID
—	Existing building
—	Hydrant
—	Sign

N/F  
1234/567  
(167-001)

**NOTES**

1) Book and Page references are to the Androscoggin County Registry of Deeds.

2) Bearings are referenced to grid north, Maine State Plane Coordinate System, NAD83, West Zone.

3) Elevations are based on NAVD88 datum derived from GPS observations.

4) Utility information on this plan is approximate, based on location of visible features. DigSafe and/or the appropriate utilities should be contacted prior to any construction.

5) A portion of the property lies within Zone A, an Area of Special Flood Hazard, based on FIRM Map Number 23001C0308E and 23001C0316E, dated July 8, 2013.

6) Contour information is based on a photogrammetric survey, utilizing 2013 Maine Orthophoto Program imagery and Androscoggin 2009 Lidar data, provided by Cornerstone Energy Services, Inc. Certain areas were supplemented and revised based on ground surveys to clarify obscured areas and to update obvious areas of excavation since the date of the aerial imagery. The easterly portion of the property is under periodic man made grade changes due to stockpiling of materials; current grades may differ from those depicted on this plan in locations noted as "working areas".

7) The site is serviced by underground water which has not been located (possible plastic pipe).

8) Wetlands delineated and located by Stantec Consulting Services, Inc.

**PLAN REFERENCES**

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**AREA**

172 acres ±

**OWNERS OF RECORD**

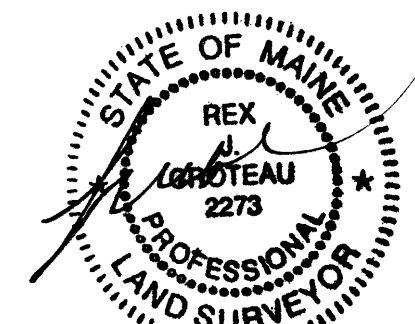
MB Investment Properties, LLC  
Book 6674, Page 60  
Book 6674, Page 64

SCALE IN FEET

100 0 100 200

1" = 100'

Rev.2	02/06/18	Tax Map IDs Added	JMS
Rev.1	10/26/17	Revised Contours	JMS



**CERTIFICATION**

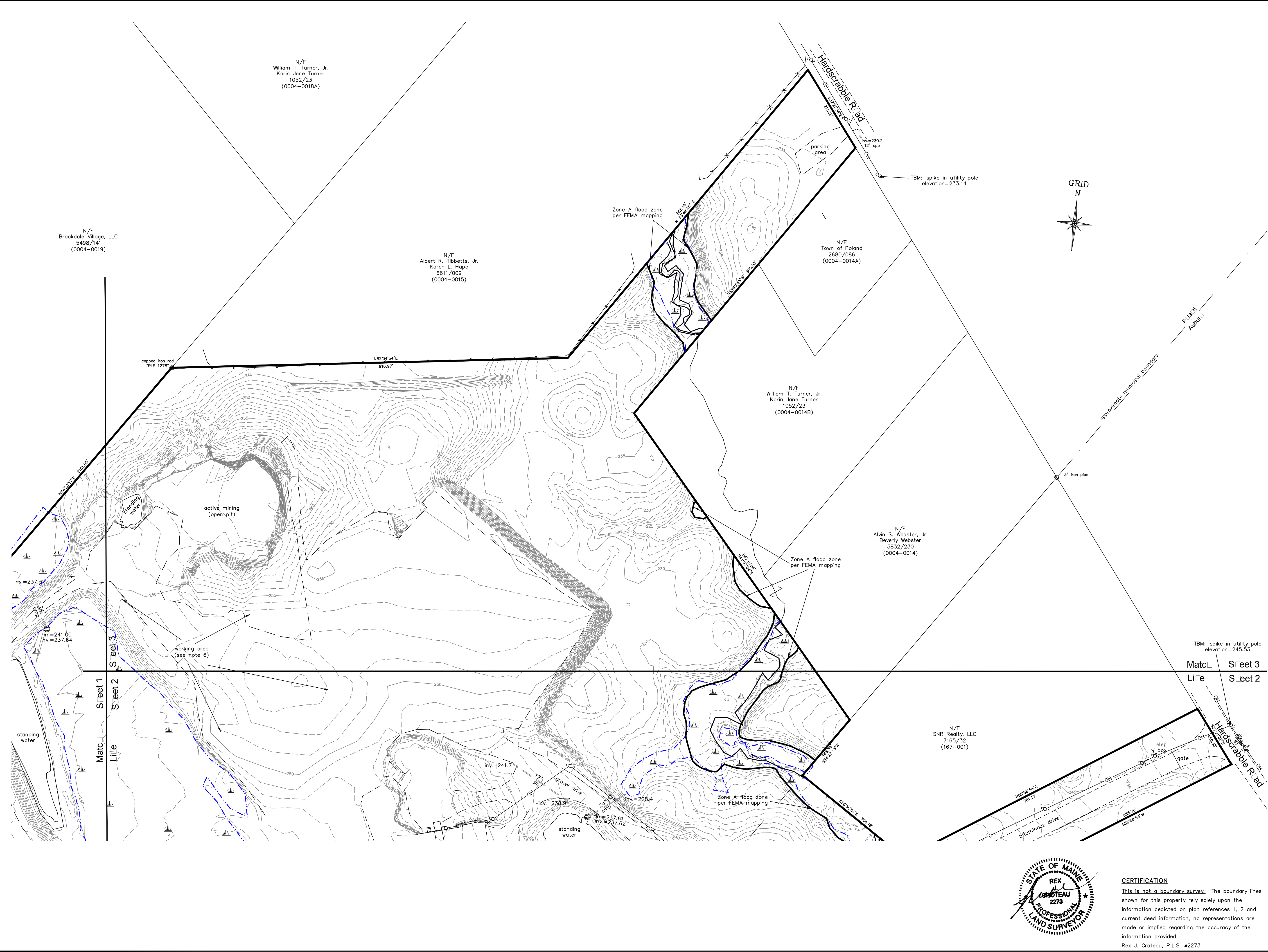
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Rex J. Croteau, P.L.S. #2273

PLAN OF		
Existing Conditions Survey		
Hardscrabble Road Auburn and Poland, Maine		
MADE FOR		
St. Germain Collins		
846 Main Street Westbrook, Maine		
JOB #217062	DATE: October 10, 2017	SCALE: 1" = 100'
BOOK #904, 907		
217062 Ex Cond_R1		
SHEET 2 of 3		







LEGEND

Monument — found

Iron marker — found

Property line (locus)

Property line (abutter)

Fence

Edge of pavement

Edge of gravel

Lamp or light pole

Utility pole

Water valve

Catch basin (round)

Guy wire

Wetlands

Overhead utility line

Manhole

Underground gas line

Underground electric line

Contours (1ft)

Contours (5ft)

Now or formerly of

Deed reference (Book/Page)

Tax map ID

Existing building

Hydrant

Sign

NOTES

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5) A portion of the property lies within Zone A, an Area of Special Flood Hazard, based on FIRM Map Number 23001C0308E and 23001C0316E, dated July 8, 2013.

6) Contour information is based on a photogrammetric survey, utilizing 2013 Maine Orthophoto Program imagery and Androscoggin 2009 Lidar data, provided by Cornerstone Energy Services, Inc. Certain areas were supplemented and revised based on ground surveys to clarify obscured areas and to update obvious areas of excavation since the date of the aerial imagery. The easterly portion of the property is under periodic man made grade changes due to stockpiling of materials; current grades may differ from those depicted on this plan in locations noted as "working areas".

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1) Property benefits from an Easement Agreement between George H. Field and MB Investment Properties, LLC recorded in Book 6897, Page 40.

AREA

172 acres ±

OWNERS OF RECORD

MB Investment Properties, LLC  
Book 6674, Page 60  
Book 6674, Page 64

SCALE IN FEET

100 0 100 200

1" = 100'

Rev.2 02/06/18 Tax Map IDs Added JMS

Rev.1 10/26/17 Revised Contours JMS

PLAN OF

Existing Conditions Survey

Hardscrabble Road Auburn and Poland, Maine

MADE FOR

St. Germain Collieries

846 Main Street Westbrook, Maine

JOB #217062 DATE: October 10, 2017 SCALE: 1" = 100'

BOOK #904, 907

217062 Ex Cond\_R1

SHEET 3 of 3

STATE OF MAINE

REX J. CROTEAU

PROFESSIONAL LAND SURVEYOR

2273

CERTIFICATION

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Rex J. Croteau, P.L.S. #2273

Titcomb Associates

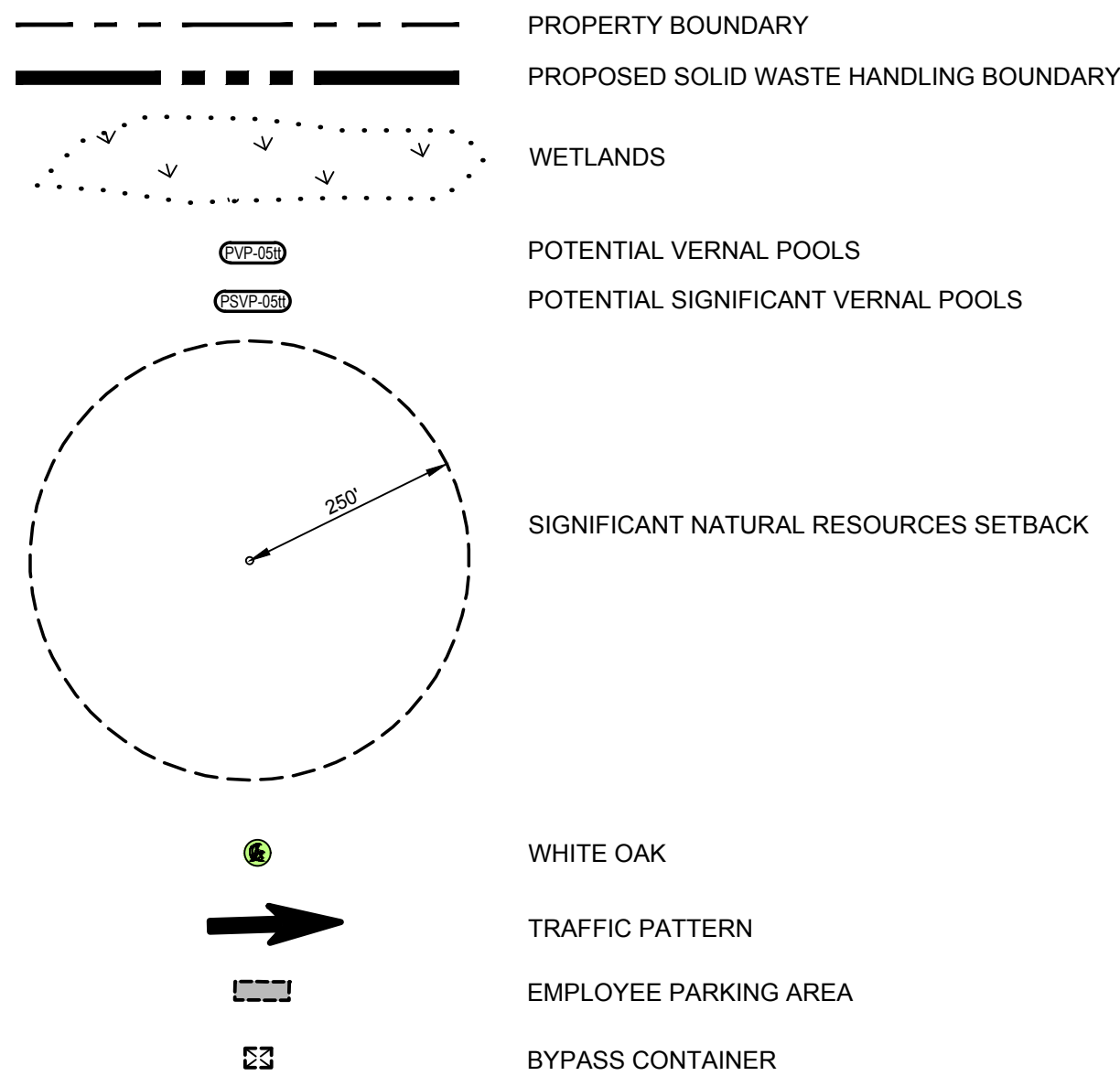
133 Gray Road, Falmouth, Maine 04105

207.797-9199 www.ttc.msbsurvey.com



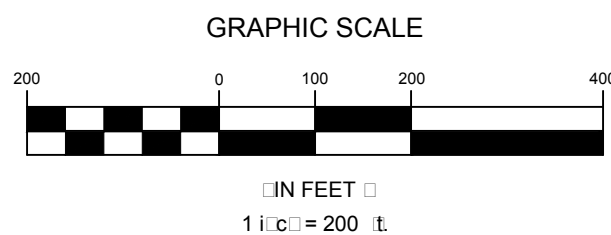
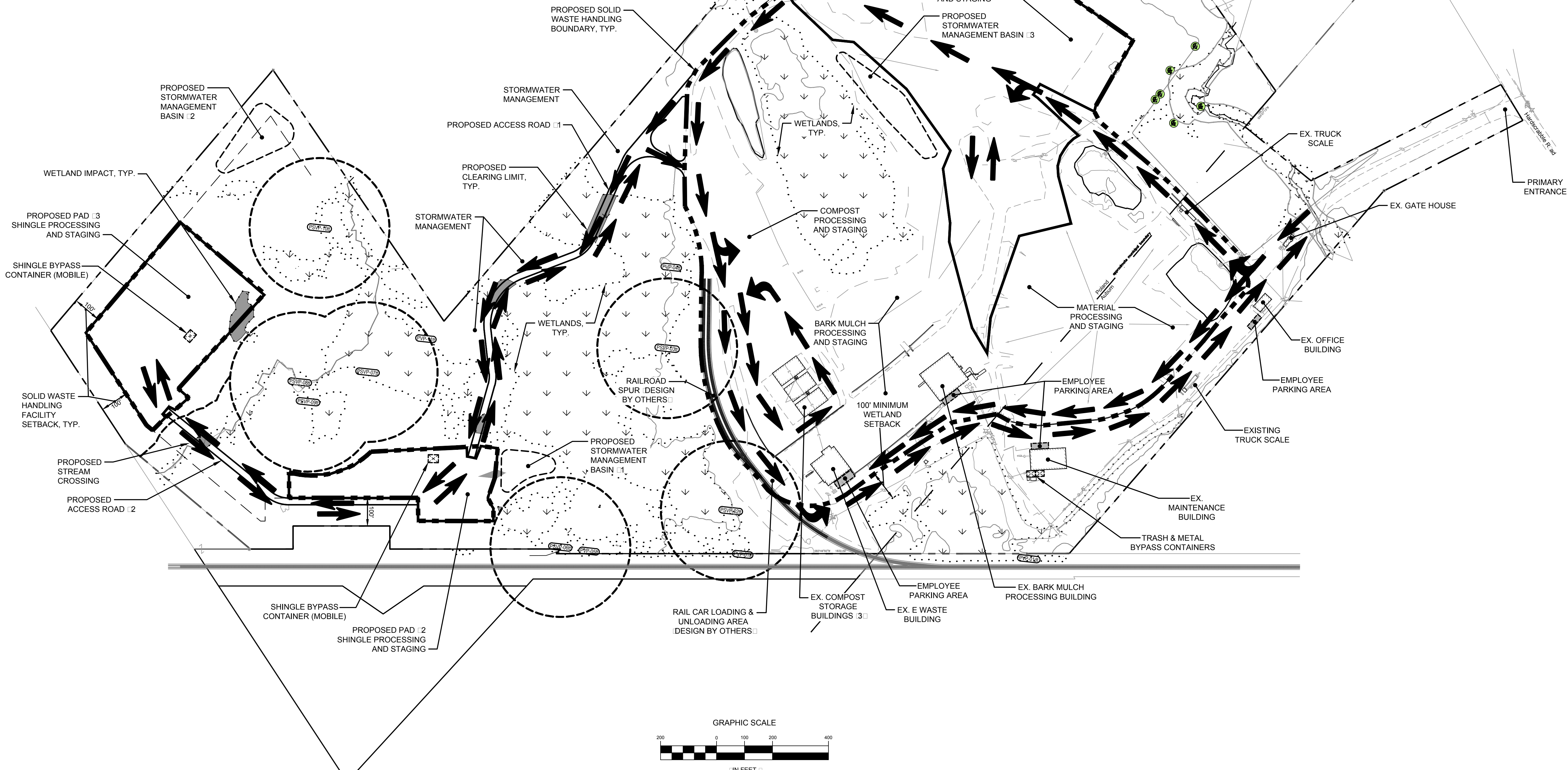
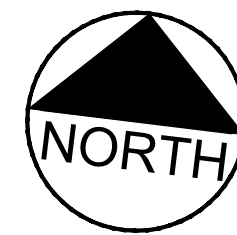
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## LEGEND



APPROVED BY THE TOWN OF POLAND, MAINE  
PLANNING BOARD dated \_\_\_\_\_

CONDITIONS OF APPROVAL



Stantec  
482 Payne Road Scarborough Court  
Scarborough, Maine 04074-8929  
Tel. 207.883.3355  
www.stantec.com

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## Consultants



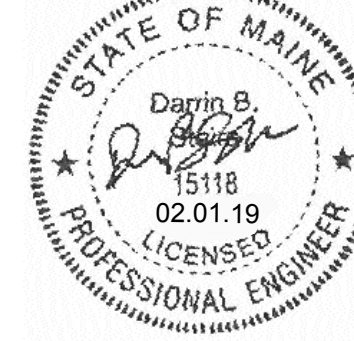
846 Main Street  
Westbrook, Maine 04092  
Tel. 207.591.7000

## Notes

Revision	By	Date	Description
1	DBS	12.02.01	SUBMITTED TO TOWN OF POLAND FOR SITE PLAN APPROVAL
2	DBS	12.02.13	REVISED AND RESUBMITTED TO MAINE DEP
3	DBS	12.09.21	REVISED AND RESUBMITTED TO MAINE DEP
4	DBS	12.08.27	ADDED PHASING PLAN & EDC CONSTRUCTION MATERIALS HANDLING PLAN
5	DBS	12.07.12	REVISED PHASING PLAN & EDC CONSTRUCTION MATERIALS HANDLING PLAN
6	DBS	12.08.15	REVISED PER CITY COMMENTS & RESUBMITTED TO MAINE DEP
7	DBS	12.02.28	REVISED PER CITY COMMENTS & RESUBMITTED TO CLIENT
8	DBS	12.02.08	ISSUED FOR PERMIT
9	DBS	12.01.19	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET

File Name: 50465\_site CDD DWN. SRB CHKD. DBS DSGN. 17.10.11 DATE

## Permit-Seal



## Client/Project

ST. GERMAIN COLLINS  
MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION

AUBURN, MAINE / POLAND, MAINE

## Title

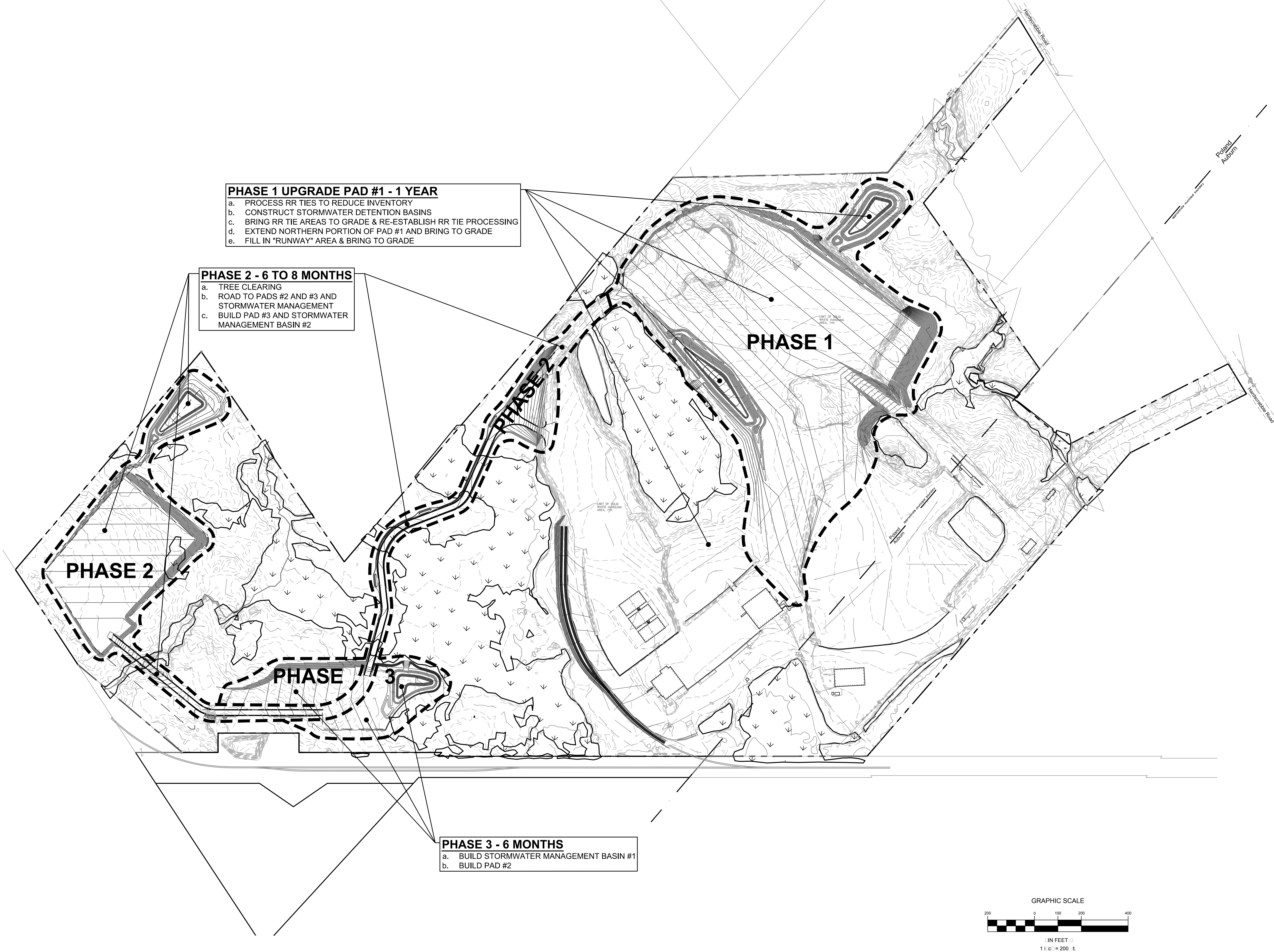
OVERALL SITE PLAN

Project No. 195350465 Scale 1" = 200'

Sheet C-3.0



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Scarborough, Maine 04074-8929  
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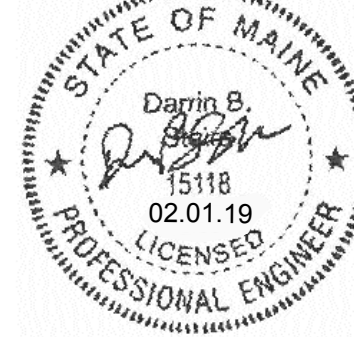
**St. Germain Collins**  
846 Main Street  
Westbrook, Maine 04092  
Tel. 207.591.7000

Notes

9	SUBMITTED TO TOWN OF POLAND FOR SITE PLAN APPROVAL	CDD	12.02.01	DBS	12.02.01	YJAM/DD
8	REVISED AND RESUBMITTED TO MAINE DEP	CDD	12.02.13	DBS	12.02.13	
7	REVISED AND RESUBMITTED TO MAINE DEP	CDD	12.09.21	DBS	12.09.21	
6	ADDED PHASING PLAN & POST CONSTRUCTION MATERIALS HANDLING PLAN	CDD	12.08.27	DBS	12.08.27	
5	REVISED PHASING PLAN & POST CONSTRUCTION MATERIALS HANDLING PLAN	CDD	12.07.12	DBS	12.07.12	
4	REVISED PERM COMMENT & RESUBMITTED TO MAINE DEP	AMS	12.08.15	DBS	12.08.15	
3	REVISED PERM COMMENT & RESUBMITTED TO CLIENT	AMS	12.02.28	DBS	12.02.28	
2	ISSUED FOR PERMIT	AMS	12.02.08	DBS	12.02.08	
1	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	AMS	12.01.19	DBS	12.01.19	
Revision		By				

File Name: 50465_grad.dwg	CDD	SRB	DBS	17.10.11
	DWN.	CHKD.	DSGN.	DATE

Permit-Seal



Client/Project  
ST. GERMAIN COLLINS  
MB BARK, LLC  
  
MB BARK RECYCLING FACILITY  
EXPANSION  
AUBURN, MAINE / POLAND, MAINE

Title  
**CONSTRUCTION PHASING PLAN**

Project No. 195350465  
Scale 1" = 200'

Sheet  
**C-3.1**



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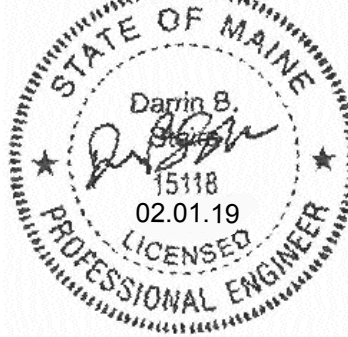
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846 Main Street  
Westbrook, Maine 04092  
Tel. 207.591.7000

Notes

1	12.02.01	Y	AM/DD
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3	12.02.28	AMS	
4	12.02.15	AMS	
5	12.07.12	AMS	
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File Name: 50465_site	CDD	SRB	DBS	17.10.11
	DWN.	CHKD.	DSGN.	DATE

Permit-Seal



Client/Project

ST. GERMAIN COLLINS  
MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION

AUBURN, MAINE / POLAND, MAINE

Title

POST-CONSTRUCTION  
MATERIALS HANDLING PLAN

Project No.	Scale
195350465	1" = 200'

Sheet

C-3.2

LEGEND

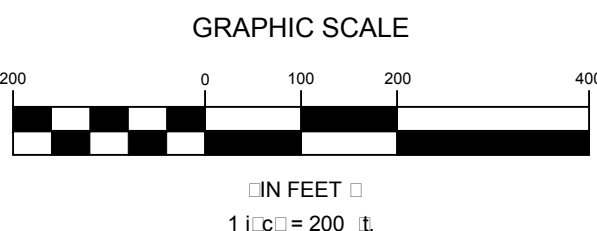
	PROPERTY BOUNDARY
	WETLANDS
	EMPLOYEE PARKING AREA
	BYPASS CONTAINER



PROPOSED PAD #3  
SHINGLE PROCESSING  
AND STAGING  
TOTAL AREA 5.42 ac.

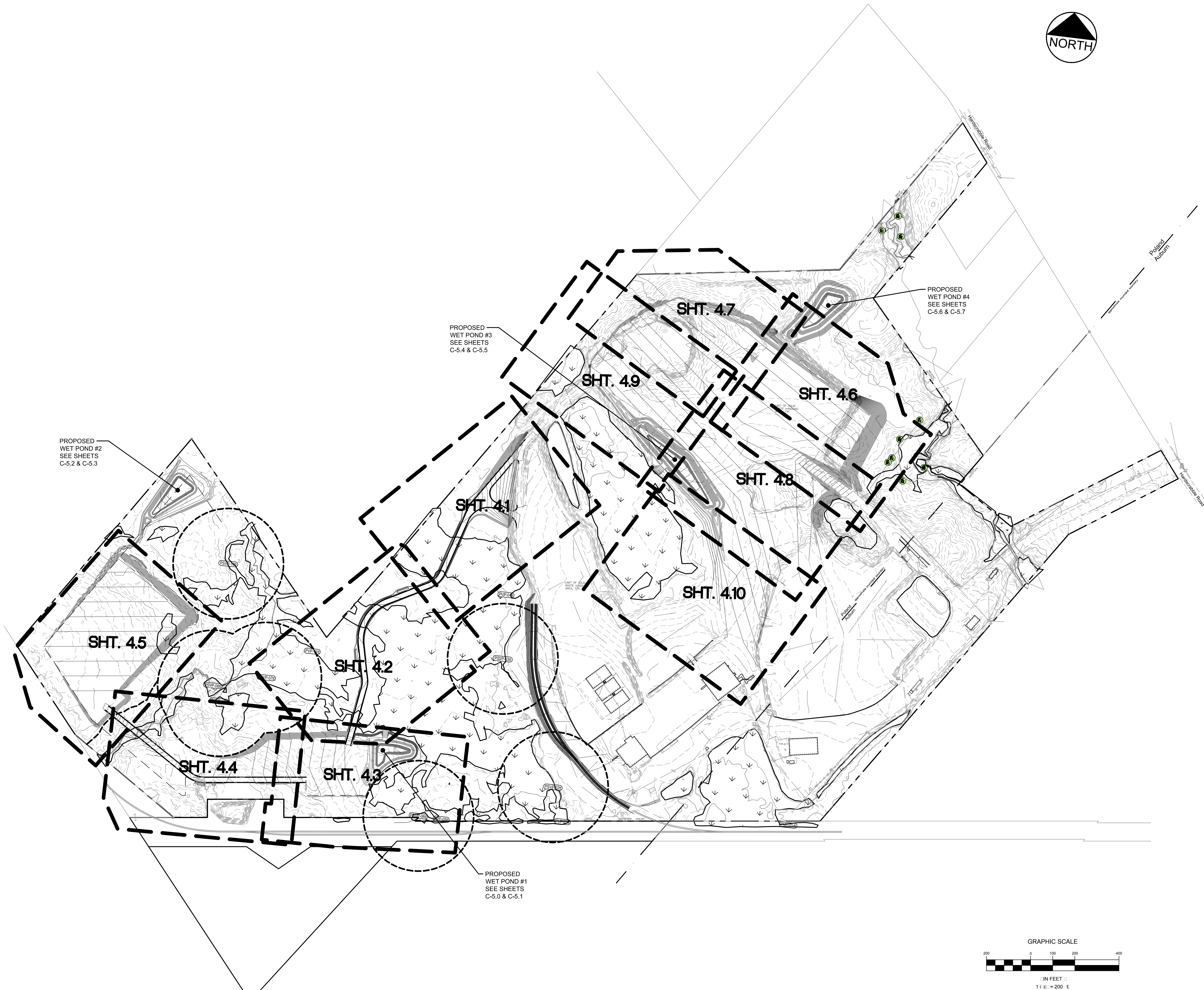
PROPOSED PAD #1  
TOTAL AREA 35.88 ac.

PROPOSED PAD #2  
SHINGLE SCREENING  
AND STAGING  
TOTAL AREA 2.75 ac.





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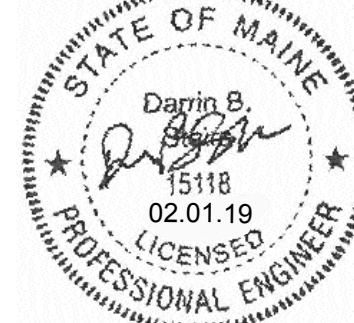
**St.Germain Collins**  
846 Main Street  
Westbrook, Maine 04092  
Tel. 207.591.7000

Notes

1	ISSUED FOR PERMIT	AMS	18.01.19	By	AMS	18.01.19	YJAM/DD
2	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	AMS	18.02.08				
3	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	AMS	18.06.15				
4	REVISED PER CLIENT COMMENTS & RESUBMITTED TO MOHEP	AMS	18.07.12				
5	REVISED MATERIALS HANDLING PLAN & POST CONSTRUCTION MATERIALS HANDLING PLAN	AMS	18.08.27				
6	ADDED PLACING PLAN & POST CONSTRUCTION MATERIALS HANDLING PLAN	CDD	18.09.21				
7	REVISED AND RESUBMITTED TO MAINE DEP	CDD	18.12.13				
8	REVISED AND RESUBMITTED TO MAINE DEP	CDD	18.12.13				
9	SUBMITTED TO TOWN OF POLAND FOR SITE PLAN APPROVAL	CDD	18.02.01				

File Name:	50465_grading	CDD	SRB	DBS	17.10.11
		DWN.	CHKD.	DSGN.	DATE

Permit-Seal



Client/Project

ST.GERMAIN COLLINS  
MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION

AUBURN, MAINE / POLAND, MAINE

Title

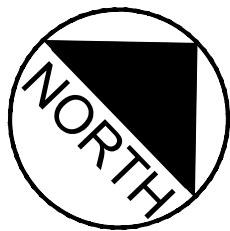
OVERALL GRADING PLAN -  
INDEX SHEET

Project No.	Scale
195350465	1" = 200'

Sheet

C-4.0





N/F  
Brookdale Village, LLC  
5498/141



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Notes

1	ISSUED FOR PERMIT	DBS	18.01.19	YTM/DD
2	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	DBS	18.02.08	
3	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	DBS	18.06.15	
4	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	DBS	18.07.12	
5	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	DBS	18.08.27	
6	ADDED PAVING PLAN & PCC CONSTRUCTION MATERIALS HANDLING PLAN	DBS	18.09.21	
7	REVISED AND RESUBMITTED TO MAINE DEP	DBS	18.12.13	
8	REVISED AND RESUBMITTED TO MAINE DEP	DBS	19.02.01	
9	SUBMITTED TO TOWN OF POLAND FOR SITE PLAN APPROVAL	DBS	19.02.01	
By				

File Name:	50465_grading	CDD	SRB	DBS	17.10.11
		DWN.	CHKD.	DSGN.	DATE

Permit-Seal



Client/Project  
**ST. GERMAIN COLLINS**  
**MB BARK, LLC**  
  
**MB BARK RECYCLING FACILITY**  
**EXPANSION**  
**AUBURN, MAINE / POLAND, MAINE**

Title  
**GRADING, DRAINAGE &**  
**EROSION CONTROL PLAN 1 OF 10**

Project No.  
195350465

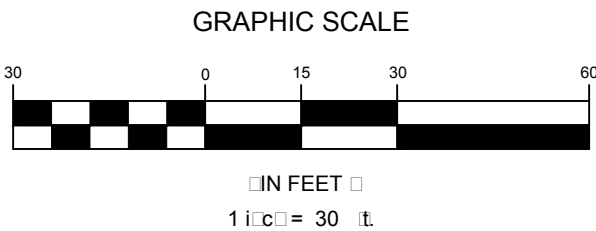
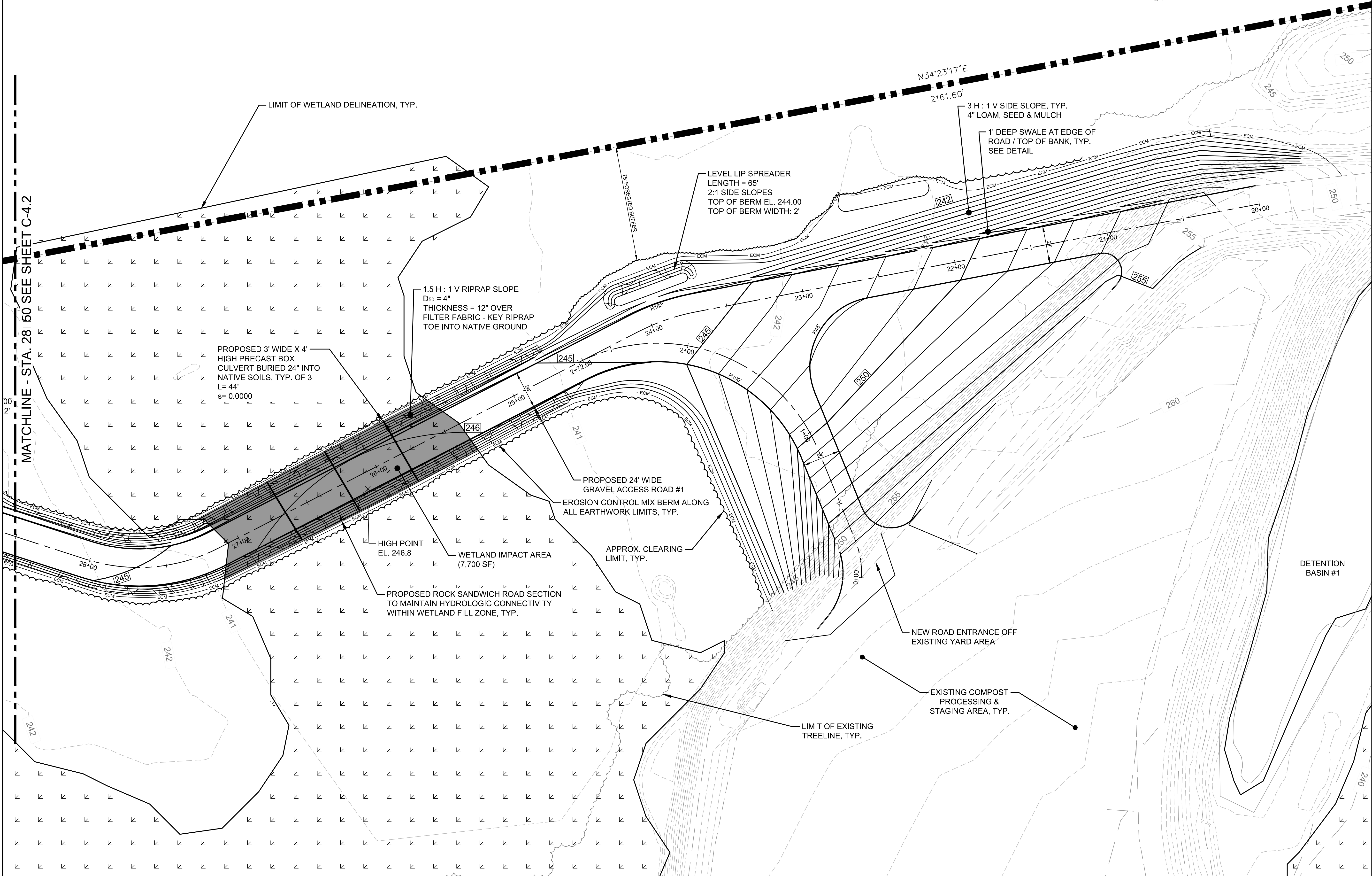
Scale  
1" = 30'

Sheet

C-4.1

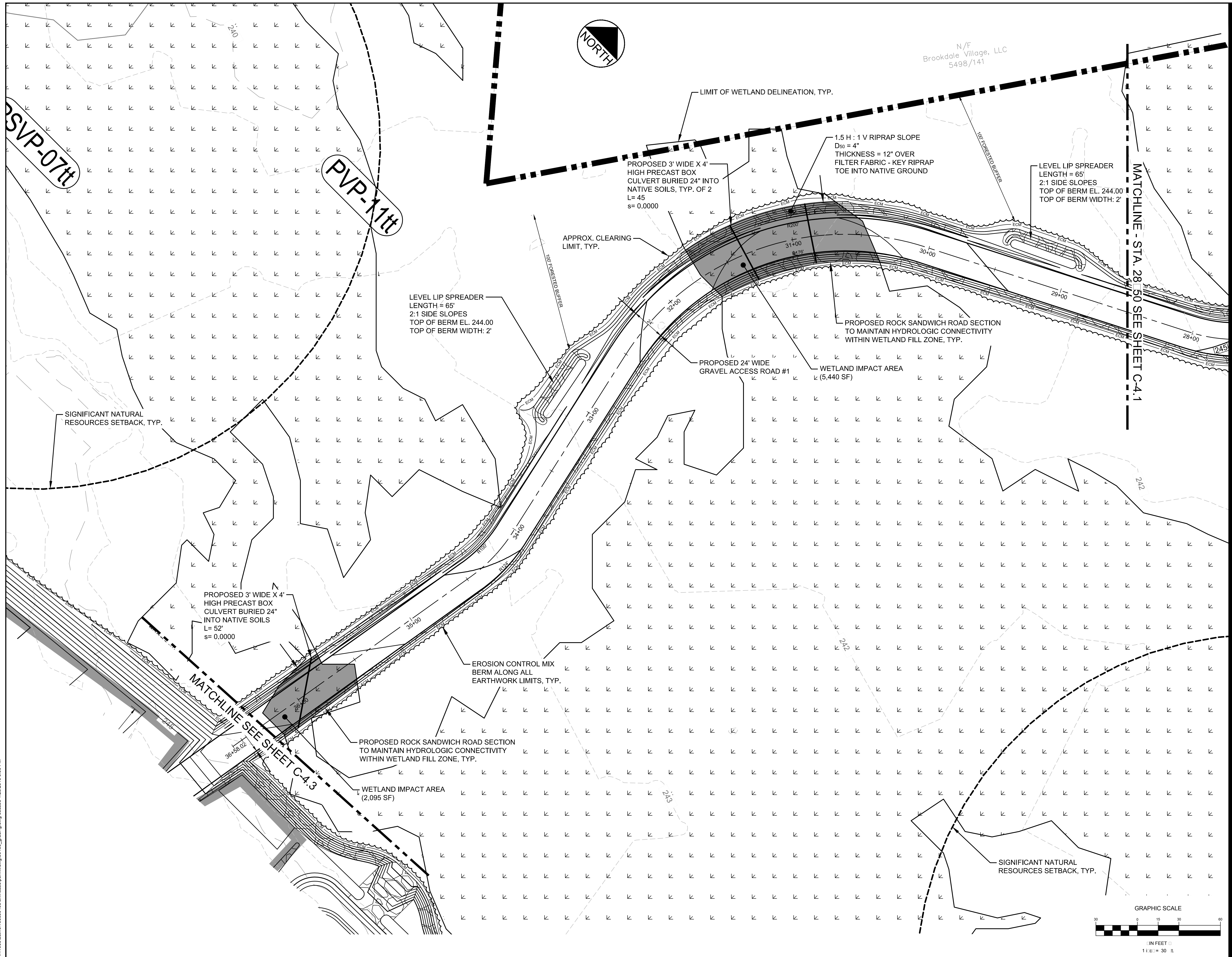
MATCHLINE - STA. 28+50 SEE SHEET C-4.2


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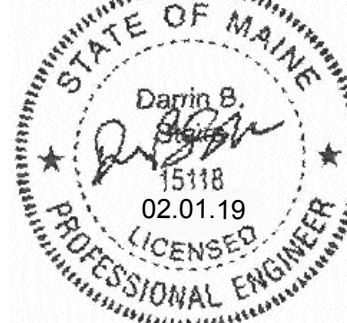
  
846 Main Street  
Westbrook, Maine 04092  
Tel. 207.591.7000

Notes

1	ISSUED FOR PERMIT	DBS	18.01.19	By	YTM/DD
2	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT	DBS	18.02.08		
3	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT	DBS	18.06.15		
4	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT	DBS	18.07.12		
5	REVISED PERMIT PLAN & POST CONSTRUCTION MATERIALS HANDLING PLAN	DBS	18.08.27		
6	ADDED PLACING PLAN & POST CONSTRUCTION MATERIALS HANDLING PLAN	DBS	18.09.21		
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9	SUBMITTED TO TOWN OF POLAND FOR PERMIT PLAN APPROVAL	DBS	19.02.01		

File Name:	50465_grading	CDD	SRB	DBS	17.10.11
		DWN.	CHKD.	DSGN.	DATE

Permit-Seal



Client/Project

ST. GERMAIN COLLINS  
MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION  
AUBURN, MAINE / POLAND, MAINE

Title

GRADING, DRAINAGE &  
EROSION CONTROL PLAN 2 OF 10

Project No.

195350465

Scale

1" = 30'

Sheet

C-4.2





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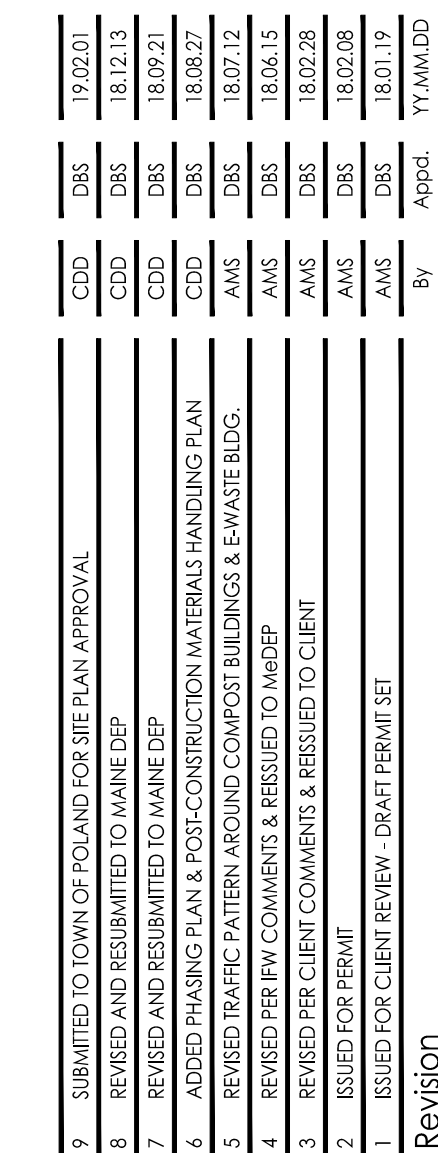
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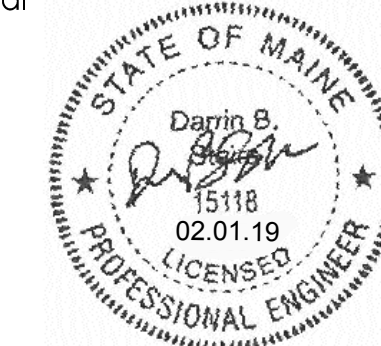
St. Germain Collins

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Notes



Permit-Seq



MB BARK RECYCLING FACILITY  
EXPANSION  
AUBURN, MAINE / POLAND, MAINE

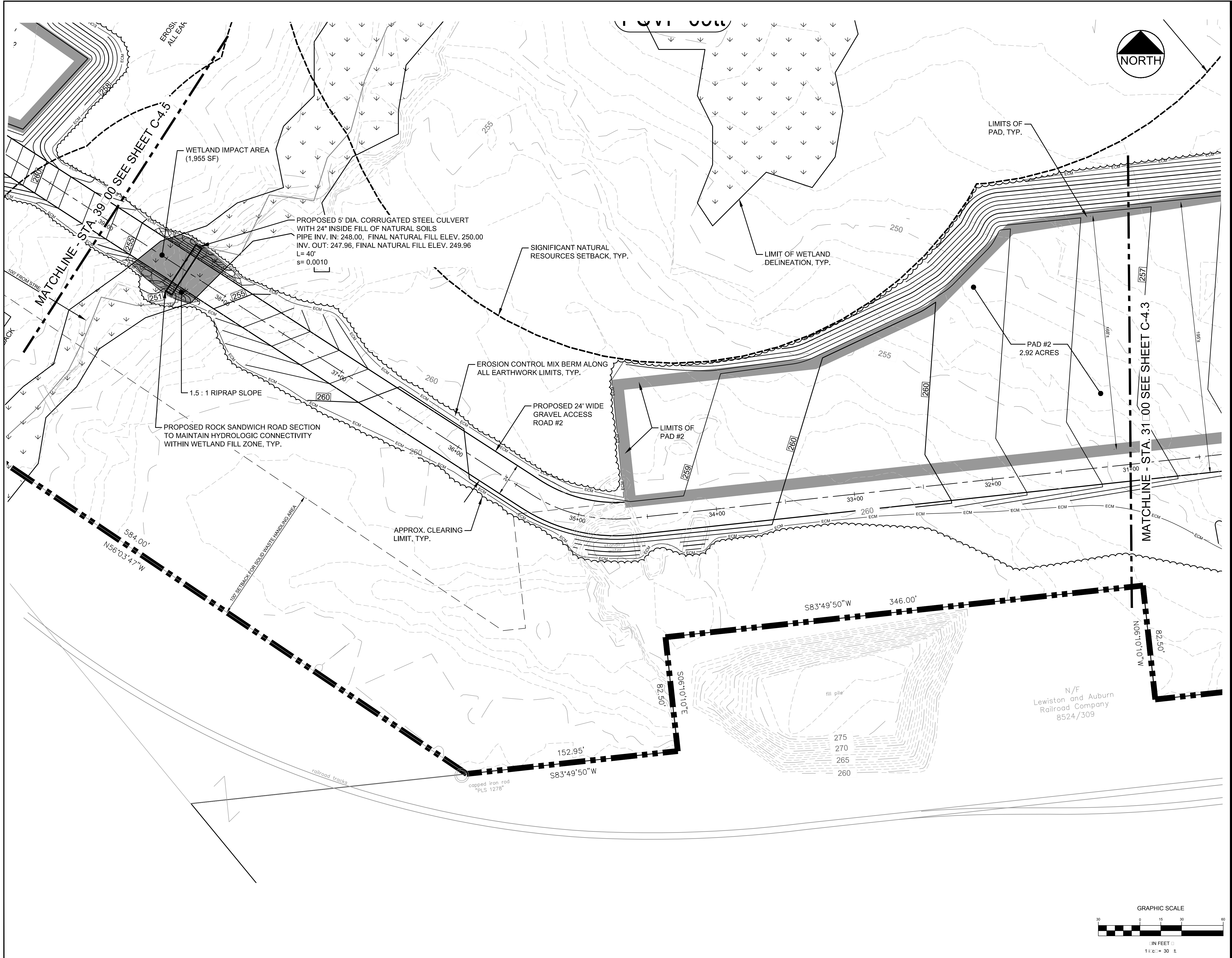
GRADING, DRAINAGE &  
EROSION CONTROL PLAN 3 OF 10


Sheet

C-4.3



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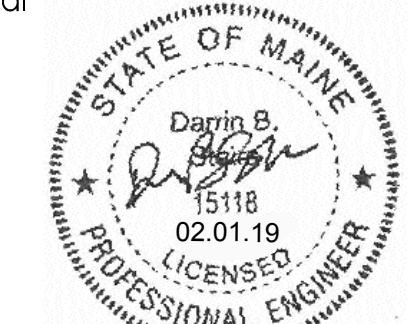
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Revision	By	Appr.	Date
1	AMS	DBS	18.01.19
2	AMS	DBS	18.02.28
3	AMS	DBS	18.08.15
4	AMS	DBS	18.07.12
5	AMS	DBS	18.08.27
6	AMS	DBS	18.09.21
7	AMS	DBS	18.12.13
8	AMS	DBS	18.12.13
9	AMS	DBS	18.02.01

File Name: 50465\_grading

CHKD.	DSGN.	DATE
CDD	DBS	17.10.11

Permit-Seal



Client/Project

ST. GERMAIN COLLINS  
MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION

AUBURN, MAINE / POLAND, MAINE

Title

GRADING, DRAINAGE &  
EROSION CONTROL PLAN 4 OF 10

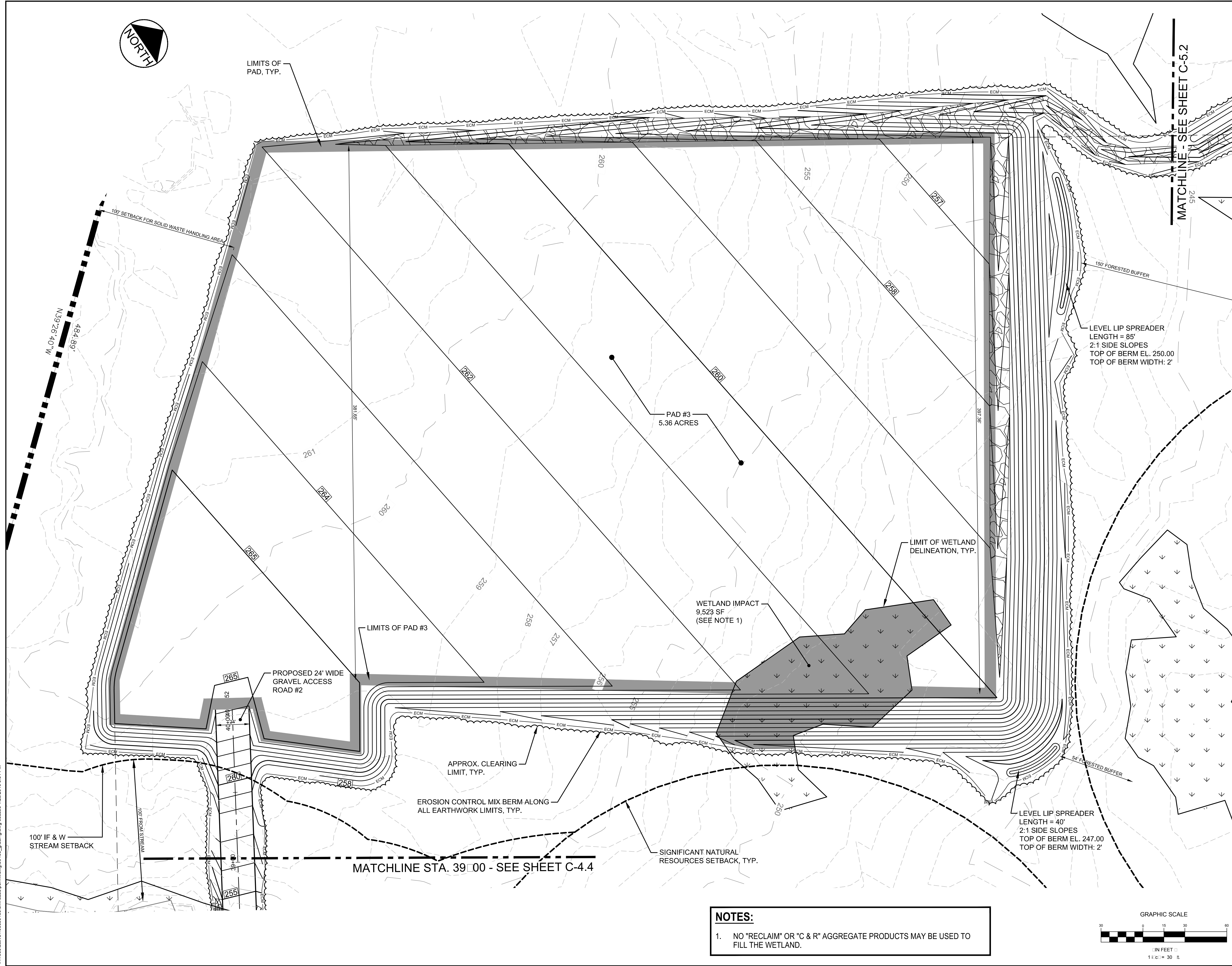
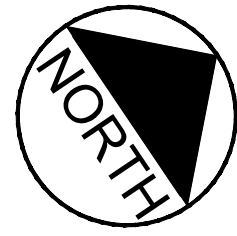
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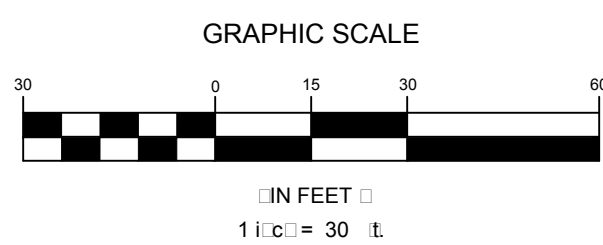
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C-4.4





- NOTES:**
- NO "RECLAIM" OR "C & R" AGGREGATE PRODUCTS MAY BE USED TO FILL THE WETLAND.



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Westbrook, Maine 04092  
Tel. 207.591.7000

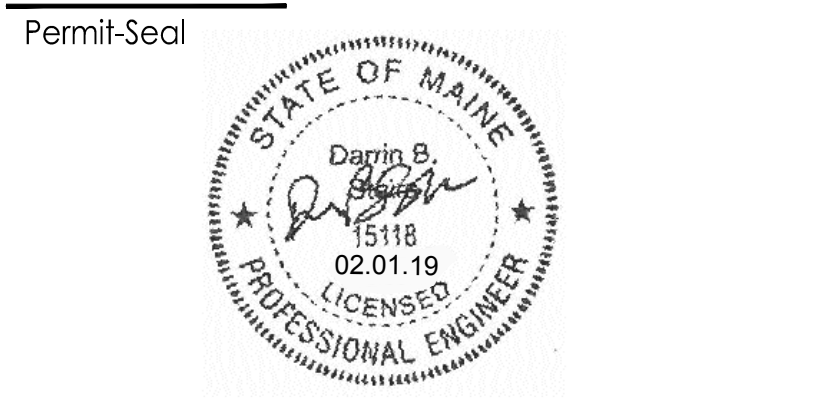
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Revision	By	Appr.	Date
1	AMS	DBS	18.01.19
2	AMS	DBS	18.02.28
3	AMS	DBS	18.08.15
4	AMS	DBS	18.07.12
5	AMS	DBS	18.08.27
6	AMS	DBS	18.09.21
7	AMS	DBS	18.08.31
8	AMS	DBS	18.08.31

1	ISSUED FOR PERMIT	DBS	18.01.19
2	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT	DBS	18.02.28
3	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT	DBS	18.08.15
4	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT	DBS	18.07.12
5	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT	DBS	18.08.27
6	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT	DBS	18.09.21
7	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT	DBS	18.08.31
8	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT	DBS	18.08.31

1	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	DBS	18.01.19
2	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	DBS	18.02.28
3	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	DBS	18.08.15
4	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	DBS	18.07.12
5	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	DBS	18.08.27
6	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	DBS	18.09.21
7	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	DBS	18.08.31
8	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	DBS	18.08.31

File Name: 50465\_grading CDD DWN. SRB CHKD. DBS DSGN. 17.10.11



Client/Project  
ST. GERMAIN COLLINS  
MB BARK, LLC  
MB BARK RECYCLING FACILITY  
EXPANSION  
AUBURN, MAINE / POLAND, MAINE

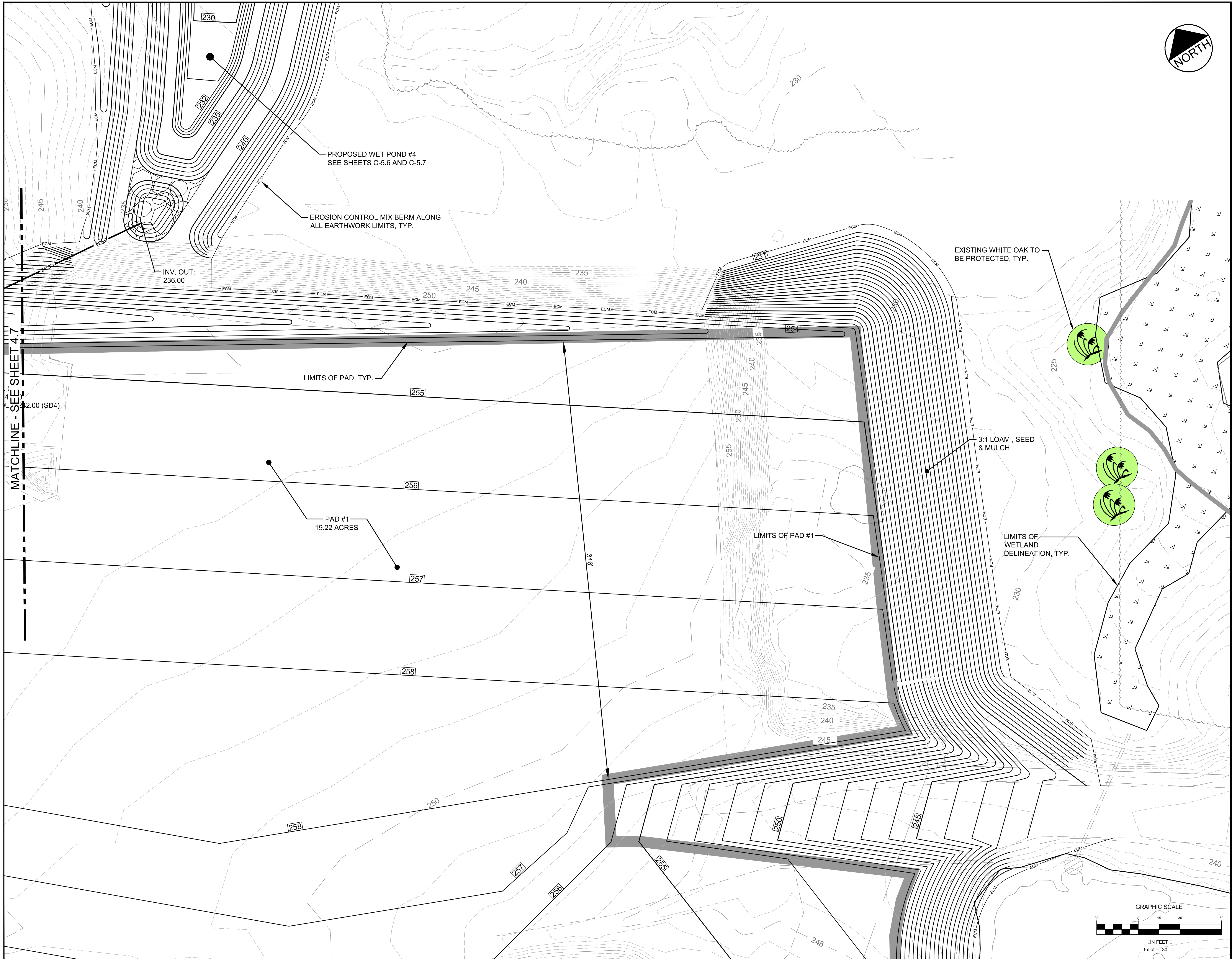
Title  
GRADING, DRAINAGE &  
EROSION CONTROL PLAN 5 OF 10

Project No. 195350465 Scale 1" = 30'

Sheet C-4.5



V:\1953\active\195350465\civil\head\perm\dwg\50465\_main.dwg cdate: 1/29/2019 3:52 PM



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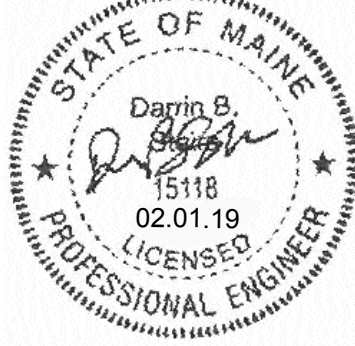
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2	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	AMS	18.02.08	DBS	18.01.19	YTM/DD
3	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	AMS	18.06.15	DBS	18.02.28	YTM/DD
4	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	AMS	18.07.12	DBS	18.07.12	YTM/DD
5	REVISED PERMIT PATTERN AROUND COMPOST BUILDINGS & EVASTE BLDG.	AMS	18.08.27	DBS	18.08.27	YTM/DD
6	ADDED PAVING PLAN & POST-CONSTRUCTION MATERIALS HANDLING PLAN	CDD	18.09.21	DBS	18.09.21	YTM/DD
7	REVISED AND RESUBMITTED TO MAINE DEP	CDD	18.09.21	DBS	18.09.21	YTM/DD
8	REVISED AND RESUBMITTED TO MAINE DEP	CDD	18.09.21	DBS	18.09.21	YTM/DD
9	SUBMITTED TO TOWN OF POLAND FOR SITE PLAN APPROVAL	CDD	18.09.21	DBS	18.09.21	YTM/DD

File Name: 50465\_grading

CDD DWN. SRB CHKD. DBS DSGN. 17.10.11

Permit-Seal



Client/Project

ST. GERMAIN COLLINS  
MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION

AUBURN, MAINE / POLAND, MAINE

Title

GRADING, DRAINAGE &  
EROSION CONTROL PLAN 6 OF 10

Project No.

195350465

Scale

1" = 30'

Sheet

C-4.6





V:\1953\active\195350465\civil\road\permit\dwg\50465\_grad1.dwg cdlabx 1/29/2019 3:52 PM

N/F  
Brookdale Village, LLC  
5498/141

N/F  
Albert R. Tibbatts, Jr.  
Koren L. Hope  
6011/009

APPROX. CLEARING  
LIMIT, TYP.

100' SETBACK  
TO SOLID WASTE  
HANDLING BOUNDARY

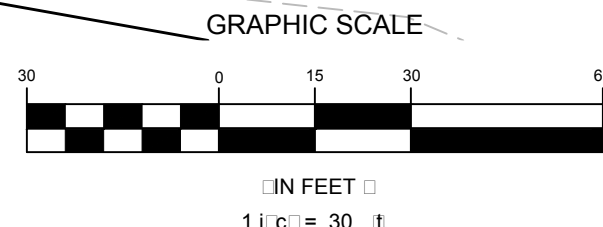
EROSION CONTROL MIX BERM ALONG  
ALL EARTHWORK LIMITS, TYP.

LIMITS OF PAD #1

4" DIA. CB1  
RIM: 247.50  
INV. OUT: 242.00 (SD4)

MATCHLINE SEE SHEET C-4.6

MATCHLINE SEE SHEET C-4.9



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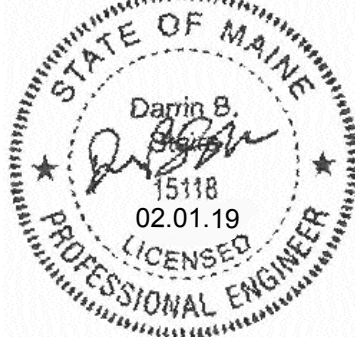
846 Main Street  
Westbrook, Maine 04092  
Tel. 207.591.7000

Notes

Revision	By	Appr.	CD	DB	12/02/01
9	DBS	DBS	CD	DBS	12/02/01
8	DBS	DBS	CD	DBS	12/02/01
7	DBS	DBS	CD	DBS	12/02/01
6	DBS	DBS	CD	DBS	12/02/01
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3	DBS	DBS	CD	DBS	12/02/01
2	DBS	DBS	CD	DBS	12/02/01
1	DBS	DBS	CD	DBS	12/02/01

File Name: 50465\_grading  
DWN. CHKO. DSGN. DATE

Permit-Seal



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ST. GERMAIN COLLINS  
MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION  
AUBURN, MAINE / POLAND, MAINE

Title

GRADING, DRAINAGE &  
EROSION CONTROL PLAN 7 OF 10

Project No.

195350465

Scale

1" = 30'

Sheet

C-4.7





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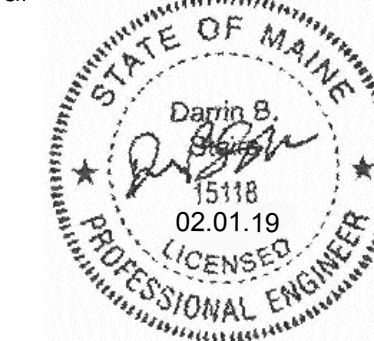
Notes

9	REMITTED TO TOWN OF FOLAND FOR SITE PLAN APPROVAL	CDD	DBS	1/26/2011
8	REVISED AND RESUBMITTED TO MAINE DEP	CDD	DBS	18.12.13
7	REVISED AND RESUBMITTED TO MAINE DEP	CDD	DBS	18.08.21
6	ADDED PHASING PLAN & POST-CONSTRUCTION MATERIALS HANDLING PLAN	CDD	DBS	18.06.27
5	REVISED TRAFFIC PATTERN AROUND COMFORT BUILDINGS & E-WASTE BLDG.	AMS	DBS	18.07.12
4	REVISED PER RW COMMENTS & RESUBMITTED TO mdep	AMS	DBS	18.04.15
3	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	AMS	DBS	18.02.28
2	ISSUED FOR PERMIT	AMS	DBS	18.02.08
1	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	AMS	DBS	18.01.19
Revision	By	Appd.		YJAMLD0

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File Name: 50465 grading
CDD
SRB
DBS
17.10.11

Permit-Seal



ST.GERMAIN COLLINS  
MB BARK, LLC

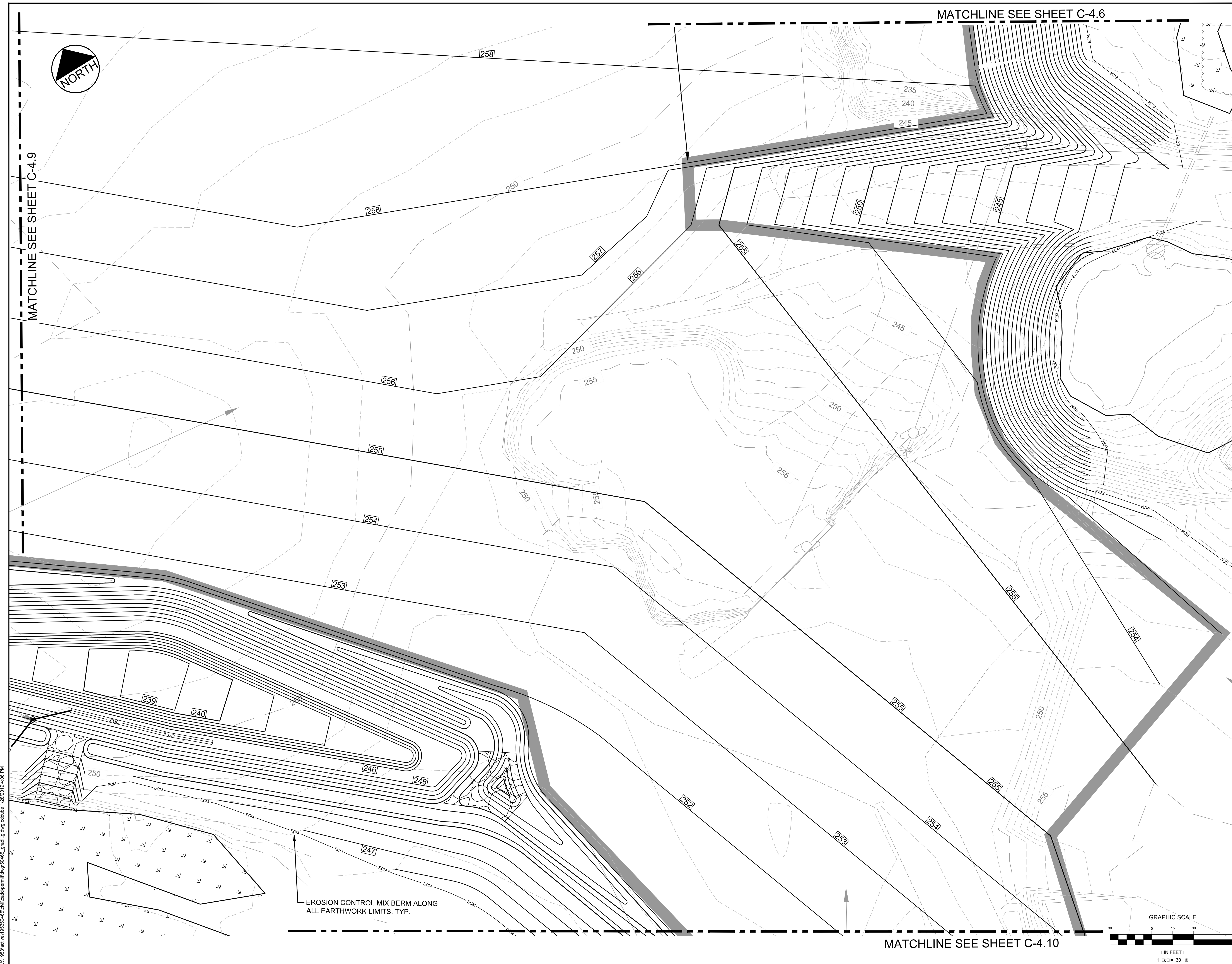
MB BARK RECYCLING FACILITY  
EXPANSION  
AUBURN, MAINE / POLAND, MAINE

GRADING, DRAINAGE &  
EROSION CONTROL PLAN 8 OF 10

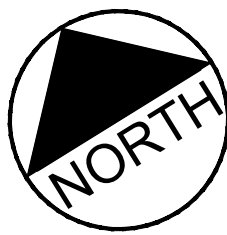
Project No.	Scale
195350465	1" = 30'

Sheet

C-4.8







N/F  
Brookdale Village, LLC  
5498/141

APPROX. CLEARING  
LIMIT, TYP.

100' SETBACK  
TO SOLID WASTE  
HANDLING BOUNDARY

MATCHLINE - SEE SHEET C-4.7

MATCHLINE SEE SHEET 4.8

PROPOSED WET POND #3  
REFER TO SHEETS C-5.4 &  
C-5.5 FOR DETAILS

EROSION CONTROL MIX BERM ALONG  
ALL EARTHWORK LIMITS, TYP.

INV. OUT: 243.00

GRAPHIC SCALE

1" = 30'



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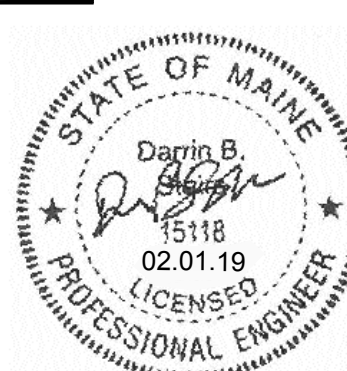
846 Main Street  
Westbrook, Maine 04092  
Tel. 207.591.7000

Notes

Revision	By	Appr.	Date	Notes
1	DBS	DBS	18.01.19	ISSUED FOR PERMIT
2	DBS	DBS	18.02.28	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT
3	DBS	DBS	18.06.15	REVISED PER CLIENT COMMENT & RESUBMITTED TO CLIENT
4	DBS	DBS	18.07.12	REVISED PERMIT COMMENT & RESUBMITTED TO MAINE DEP.
5	DBS	DBS	18.08.27	ADDED PLANTING PLAN & P&S CONSTRUCTION MATERIALS HANDLING PLAN
6	DBS	DBS	18.09.21	REVISED AND SUBMITTED TO MAINE DEP.
7	DBS	DBS	18.12.13	REVISED AND SUBMITTED TO MAINE DEP.
8	DBS	DBS	18.02.01	SUBMITTED TO TOWN OF POLAND FOR SITE PLAN APPROVAL

File Name: 50465\_grading CDD DWN. SRB CHKD. DBS DSGN. 17.10.11 DATE

Permit-Seal



Client/Project

ST.GERMAIN COLLINS  
MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION

AUBURN, MAINE / POLAND, MAINE

Title

GRADING, DRAINAGE &  
EROSION CONTROL PLAN 9 OF 10

Project No.

195350465

Scale

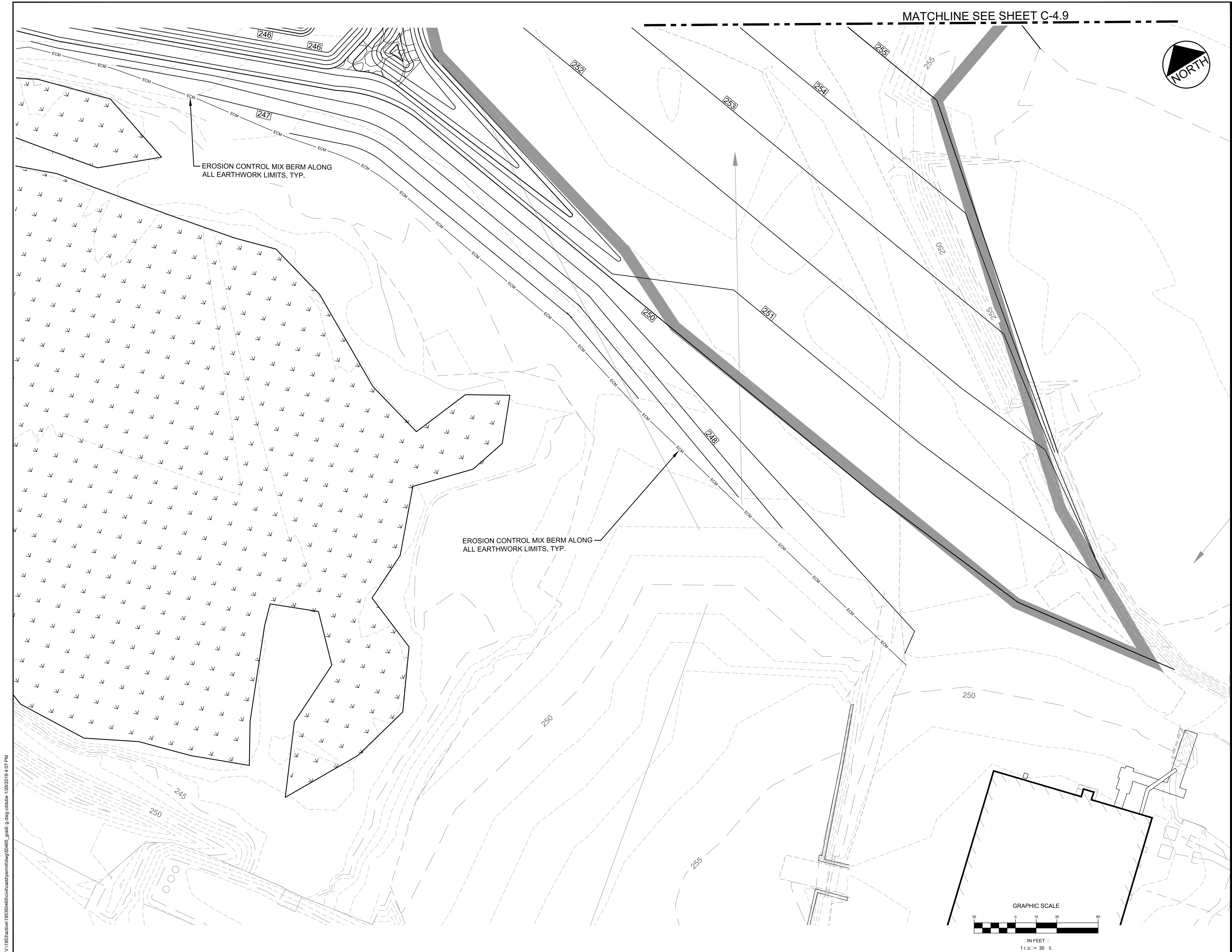
1" = 30'


Sheet

C-4.9




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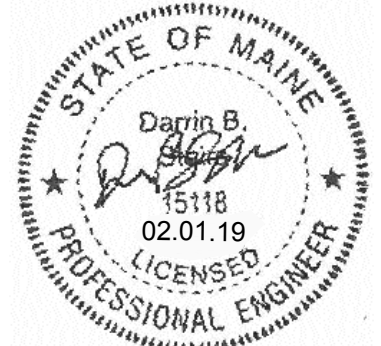
Consultants  
  
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Westbrook, Maine 04092  
Tel. 207.591.7000

Notes

Revision	By	Date	Appr.
1	AMS	18.01.19	DBS
2	AMS	18.02.28	DBS
3	AMS	18.08.15	DBS
4	AMS	18.07.12	DBS
5	AMS	18.08.27	DBS
6	AMS	18.08.27	DBS
7	CDD	18.09.21	DBS
8	CDD	18.12.13	DBS
9	CDD	18.02.01	DBS

File Name: 50465\_grading

Permit-Seal



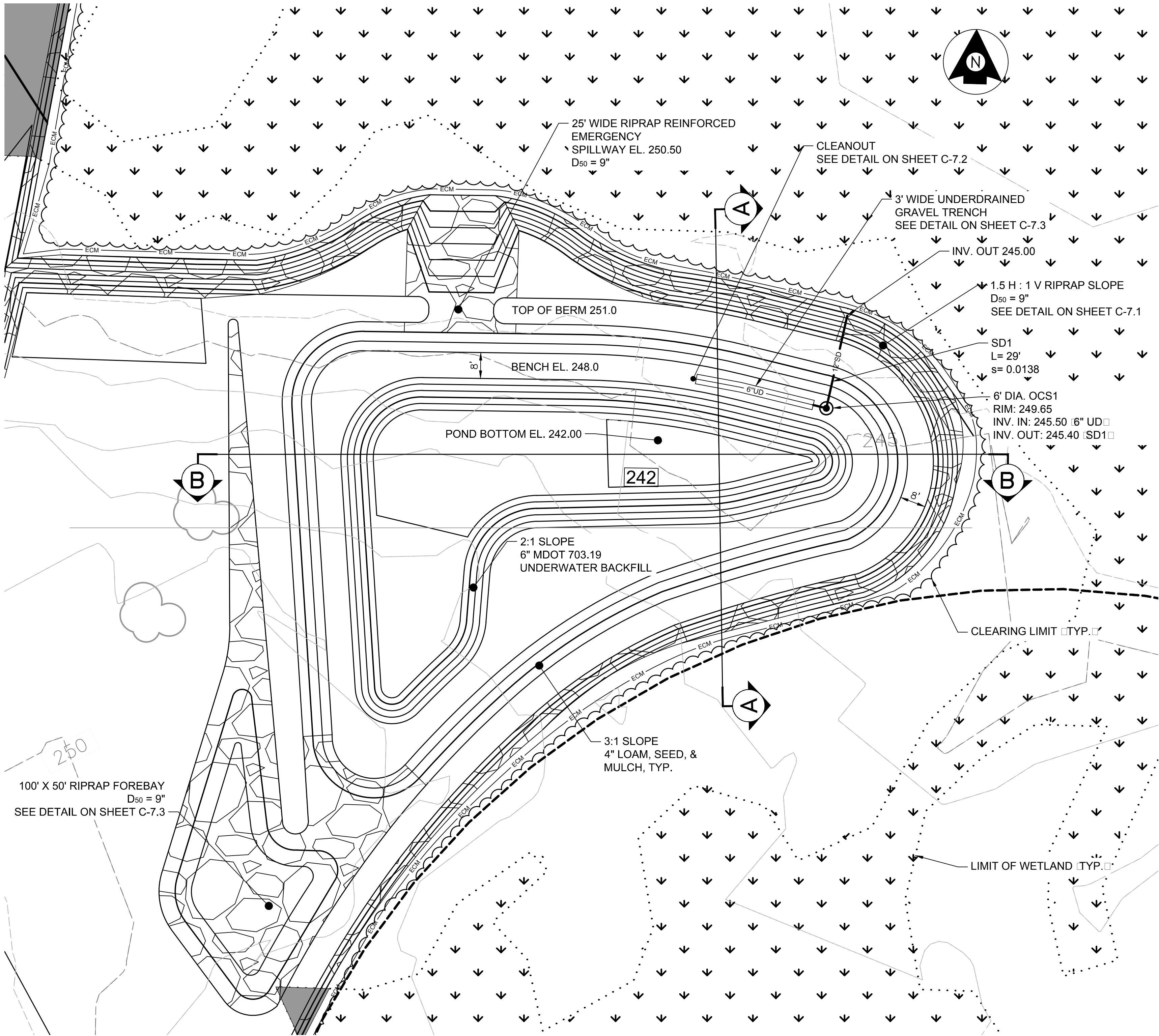
Client/Project  
ST. GERMAIN COLLINS  
MB BARK, LLC  
MB BARK RECYCLING FACILITY  
EXPANSION  
AUBURN, MAINE / POLAND, MAINE

Title  
GRADING, DRAINAGE &  
EROSION CONTROL PLAN 10 OF 10

Project No. 195350465  
Scale 1" = 30'

Sheet C-4.10



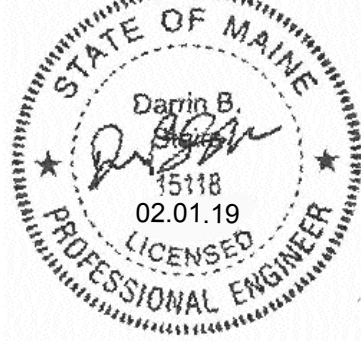


Wet Pond #1 Design Criteria				
Tributary Impervious Area	119,736	s		
Tributary Landscaped Area	28,185	s		
Required Permanent Pervious Volume	21,835	c		
Required Catchment Pervious Volume	10,918	c		
Provided Permanent Pervious Volume	33,566	c		
Provided Catchment Pervious Volume	10,918	c		
Length of Permanent Pervious	211	t		
Average Width of Permanent Pervious	41	t		
Length of Width Ratio	5.19	:	1	
UD Length Required 3' / 1000 CF of CPV	32.75	t		
UD Length Provided	37	t		

10/20/01	DBS	CDD	1	ISSUED FOR PERMIT	By	Y.M.A.M.D.D.
10/23/03	DBS	CDD	2	REVISED AND RESUBMITTED TO MAINE DEP	Appr.	
10/29/21	DBS	CDD	3	REVISED AND RESUBMITTED TO MAINE DEP		
10/28/27	DBS	CDD	4	ADDED PAVING PLAN & POST CONSTRUCTION MATERIALS HANDLING PLAN		
10/07/12	DBS	AMS	5	REVISED PAVING PATTERN AROUND COMPOST BUILDINGS & E-STATE BLDG.		
10/08/15	DBS	AMS	6	REVISED PERMIT COMMENTS & RESUBMITTED TO MAINE DEP		
10/02/28	DBS	AMS	7	REVISED PERMIT COMMENTS & RESUBMITTED TO MAINE DEP		
10/02/08	DBS	AMS	8	ISSUED FOR PERMIT		
10/01/19	DBS	AMS	9	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET		

File Name: 50465_pond_sections	CDD	SRB	DBS	17.10.11
DWN.	CHKD.	DSGN.	DATE	

Permit-Seal



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MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION

AUBURN, MAINE / POLAND, MAINE

Title

WET POND #1 PLAN VIEW

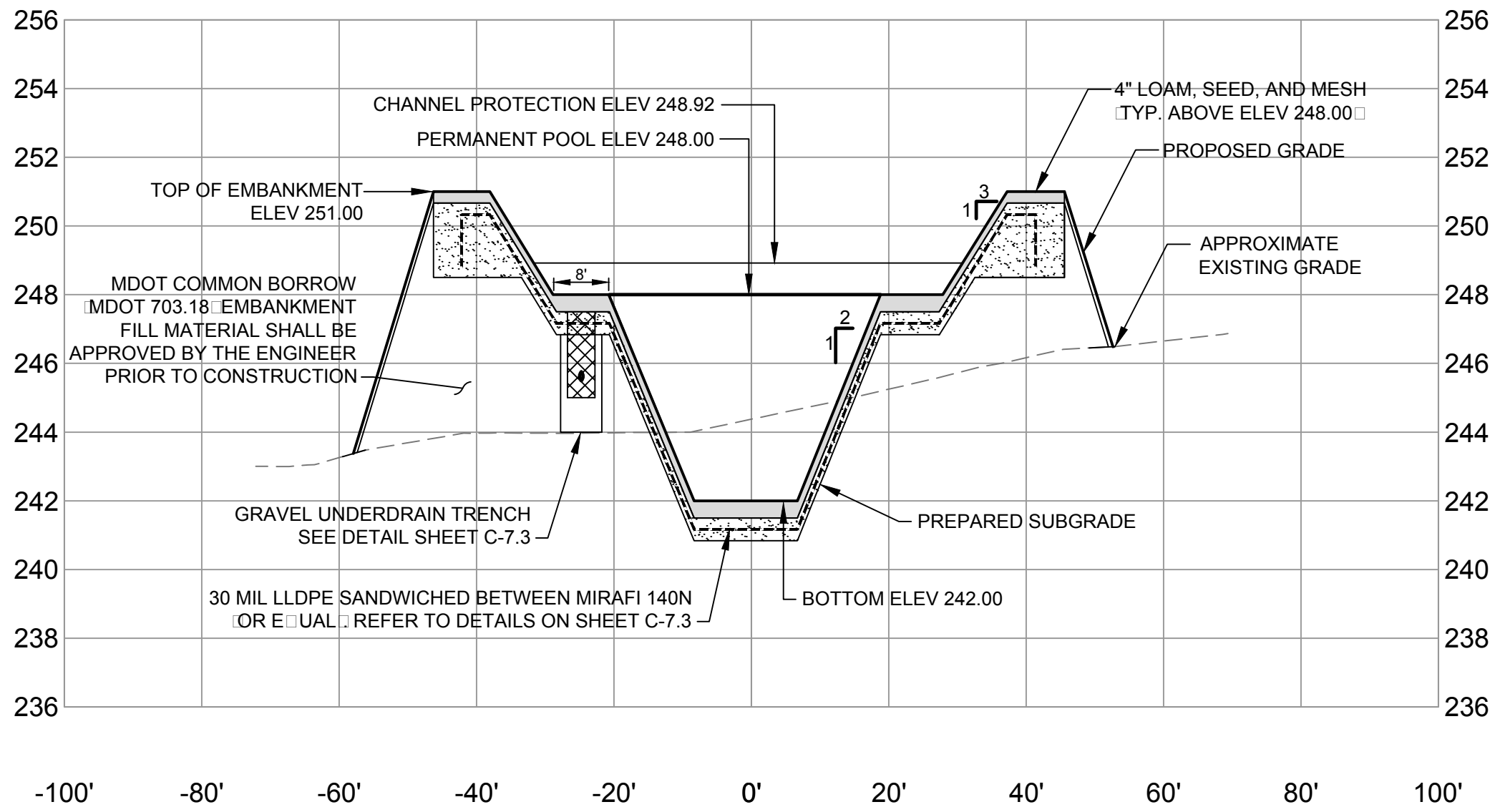
Project No.	Scale
195350465	AS NOTED

Sheet

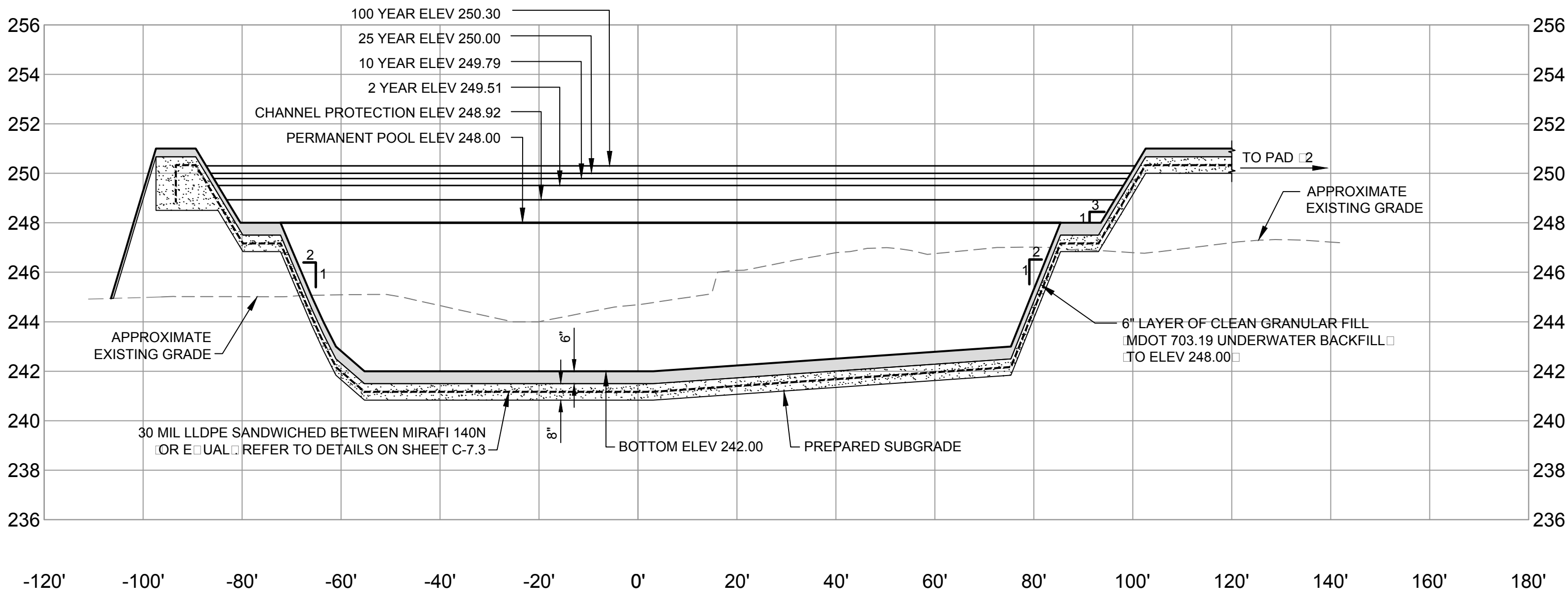
C-5.0

WET POND #1 PLAN VIEW  
SCALE: 1" = 20'





WET POND #1 SECTION A-A  
SCALE: 1" = 20' H  
1" = 4' V

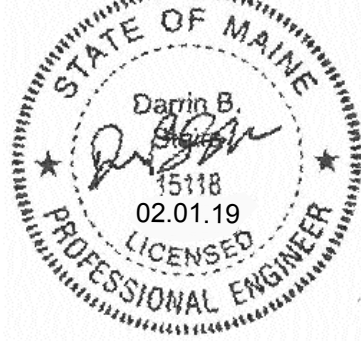


WET POND #1 SECTION B-B  
SCALE: 1" = 20' H  
1" = 4' V

Revision	By	Appr.	Date	Notes
1	AMS	DBS	18.01.19	ISSUED FOR PERMIT
2	AMS	DBS	18.02.08	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
3	AMS	DBS	18.08.15	REVISED PER CLIENT COMMENTS & RESUBMITTED TO MD&P
4	AMS	DBS	18.07.12	REVISED PERMIT PLAN & POST-CONSTRUCTION MATERIALS HANDLING PLAN
5	AMS	DBS	18.08.27	ADDED PLACING PLAN & POST-CONSTRUCTION MATERIALS HANDLING PLAN
6	AMS	DBS	18.09.21	REVISED AND RESUBMITTED TO MAINE DEP
7	AMS	DBS	18.12.13	REVISED AND RESUBMITTED TO MAINE DEP
8	AMS	DBS	18.02.01	SUBMITTED TO TOWN OF POLAND FOR PERMIT APPROVAL

File Name: 50465_pond_sections	CDD	SRB	DBS	17.10.11
	DWN.	CHKD.	DSGN.	DATE

Permit-Seal



Client/Project  
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MB BARK, LLC  
  
MB BARK RECYCLING FACILITY  
EXPANSION  
AUBURN, MAINE / POLAND, MAINE

Title

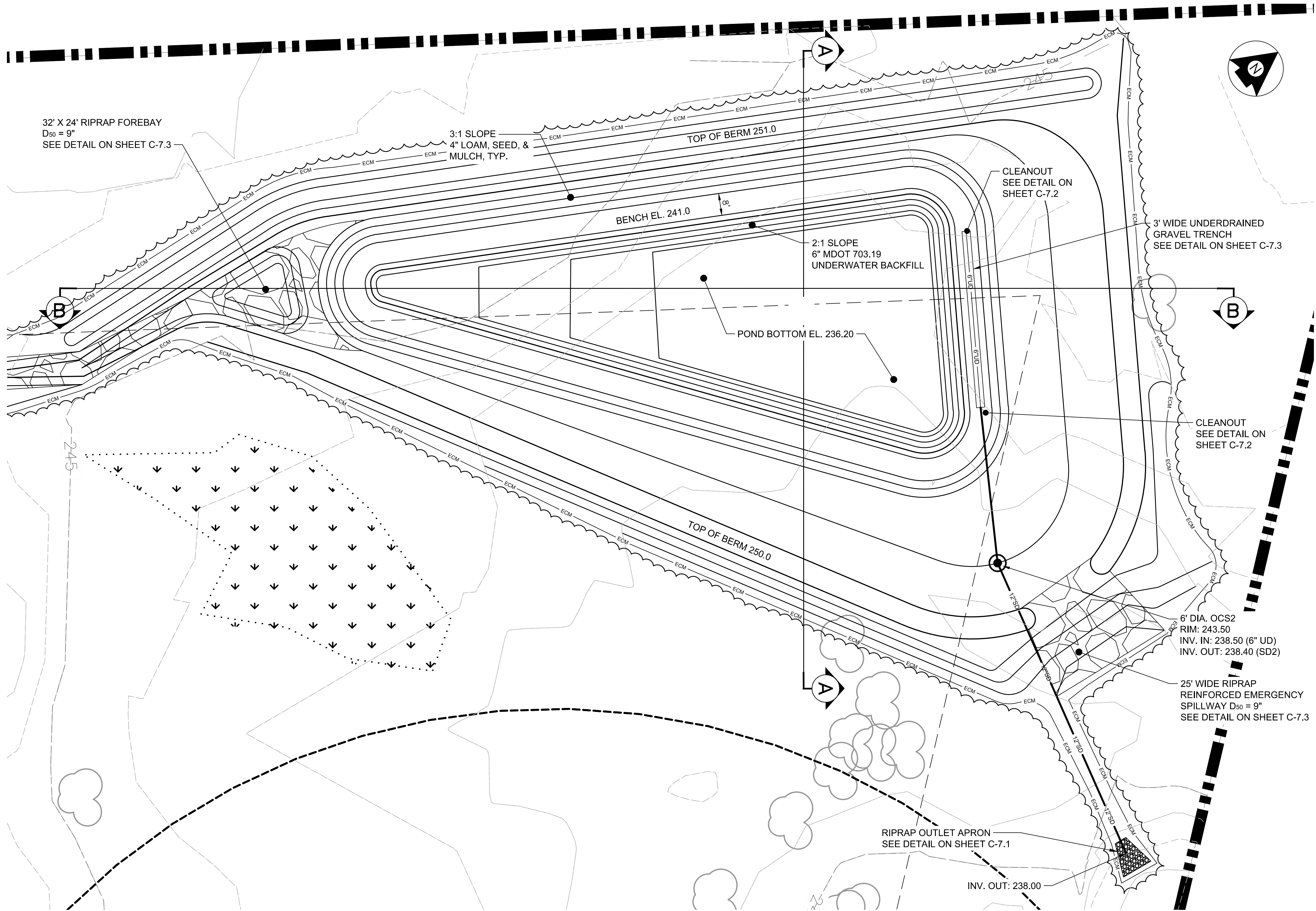
WET POND #1 SECTIONS

Project No. 195350465	Scale AS NOTED
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Sheet



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WET POND #2 PLAN VIEW  
SCALE: 1" = 20'

Wet Pond #2 Design Criteria			
Tributary Impervious Area	236,076	s	
Tributary Landscaped Area	38,984	s	
Required Permanent Pervious Volume	41,945	c	
Required Critical Protection Volume	20,972	c	
Provided Permanent Pervious Volume	46,728	c	
Provided Critical Protection Volume	21,102	c	
Length of Permanent Pervious	217	ft	
Average Width of Permanent Pervious	58	ft	
Length to Width Ratio	3.74	:1	
UD Length Required 3" / 1000 CF of CPV	63.30	ft	
UD Length Provided	64	ft	



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Westbrook, Maine 04092  
Tel. 207.591.7000

Notes

1	ISSUED FOR PERMIT	AMS	18.01.19	By	YTM/ADD
2	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	AMS	18.02.08		
3	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	AMS	18.08.15		
4	REVISED PER CLIENT COMMENTS & RESUBMITTED TO MDSEP	AMS	18.07.12		
5	REVISED PERMIT PLAN AND CONSTRUCTION MATERIALS HANDLING PLAN	AMS	18.08.27		
6	ADDED PERMIT PLAN & POST CONSTRUCTION MATERIALS HANDLING PLAN	CDD	18.09.21		
7	REVISED AND RESUBMITTED TO MAINE DEP	CDD	18.12.13		
8	REVISED AND RESUBMITTED TO MAINE DEP	CDD	18.12.13		
9	SUBMITTED TO TOWN OF POLAND FOR SITE PLAN APPROVAL	CDD	18.02.01		

File Name: 50465_pond_sections	CDD	SRB	DBS	17.10.11
	DWN.	CHKD.	DSGN.	DATE

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MB BARK RECYCLING FACILITY  
EXPANSION

AUBURN, MAINE / POLAND, MAINE

Title

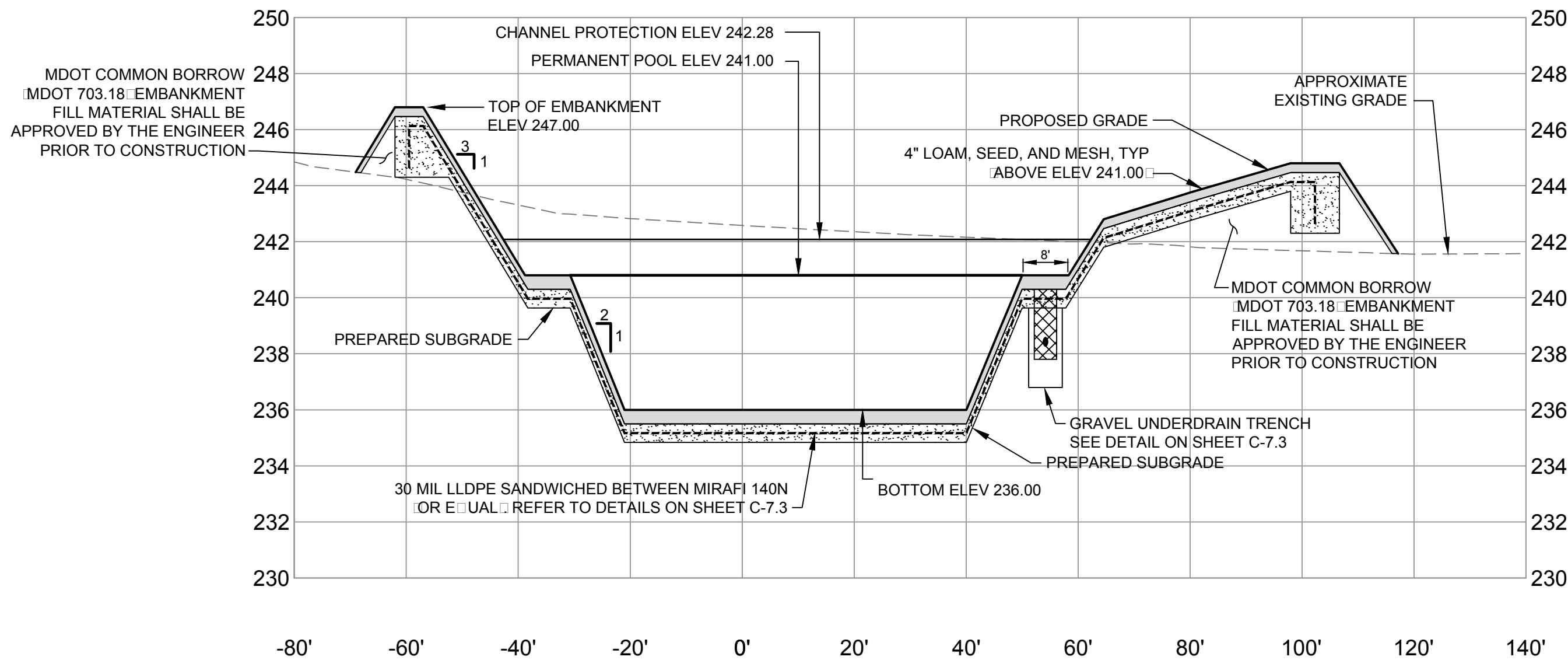
WET POND #2 PLAN VIEW

Project No.	Scale
195350465	AS NOTED

Sheet

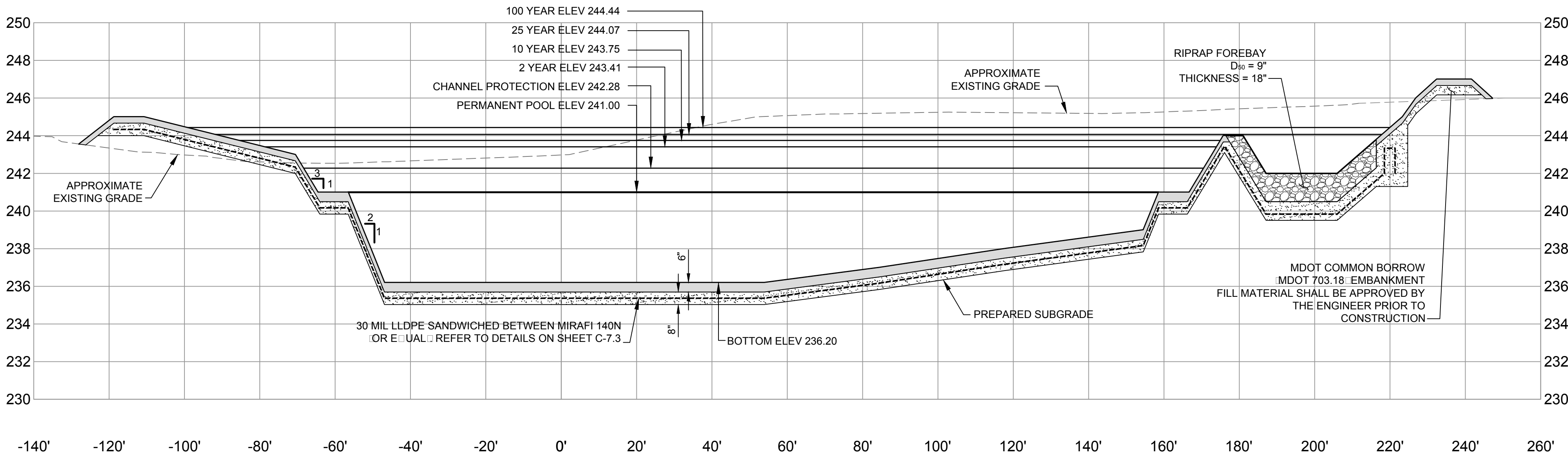
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WET POND #2 SECTION A-A

SCALE: 1" = 20' H  
1" = 4' V



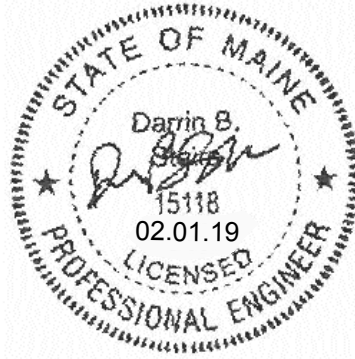
WET POND #2 SECTION B-B

SCALE: 1" = 20' H  
1" = 4' V

Revision	By	Appr.	Date	Notes
1	DBS	YJ/AM/DD	12.02.01	ISSUED FOR PERMIT
2	DBS		12.02.08	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
3	DBS		12.02.28	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
4	DBS		12.06.15	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
5	DBS		12.08.27	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
6	DBS		12.09.21	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
7	DBS		12.09.21	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
8	DBS		12.09.21	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
9	DBS		12.09.21	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT

File Name: 50465\_pond\_sections CDD DWN. SRB CHKD. DBS DSGN. 17.10.11

Permit-Seal



Client/Project

ST.GERMAIN COLLINS  
MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION

AUBURN, MAINE / POLAND, MAINE

Title

WET POND #2 SECTIONS

Project No.

195350465

Scale

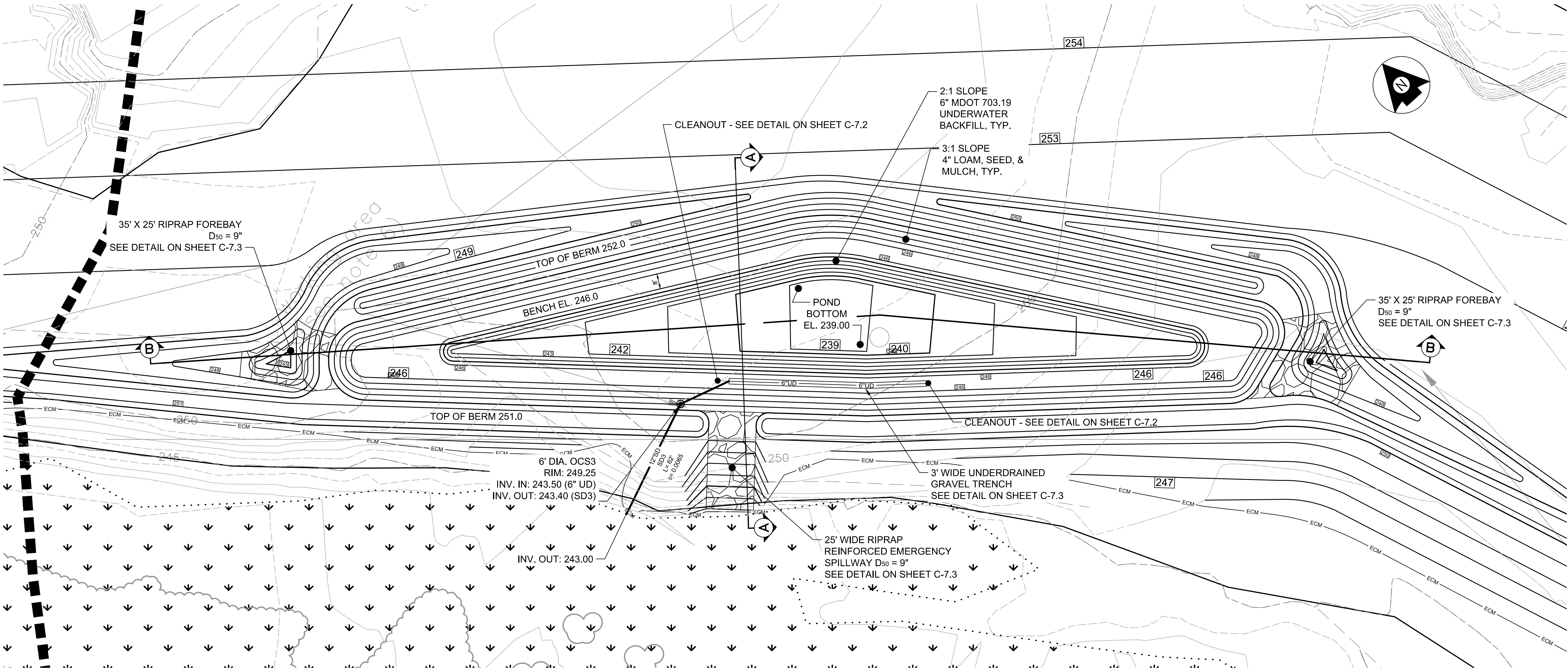
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Wet Pond #3 Design Criteria		
Tributary Impervious Area	360,000	sq ft
Tributary Landscaped Area	75,913	sq ft
Required Permanent Pervious Volume	65,061	cubic ft
Required Catchment Pervious Volume	32,530	cubic ft
Provided Permanent Pervious Volume	69,139	cubic ft
Provided Catchment Pervious Volume	32,692	cubic ft
Length of Permanent Pervious	236	feet
Average Width of Permanent Pervious	72	feet
Length to Width Ratio	3.30	:1
UD Length Required 3" / 1000 CF of CPV	98.08	feet
UD Length Provided	104	feet



WET POND #3 PLAN VIEW  
SCALE: 1" = 30'

Revision	By	Date	Description
1	AMS	18.01.19	ISSUED FOR PERMIT
2	AMS	18.02.28	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
3	AMS	18.06.15	REVISED PER CLIENT COMMENTS & RESUBMITTED TO MADEP
4	AMS	18.07.12	REVISED PLANTING PATTERN AROUND COMPOST BUILDINGS & E-STATE BLDG.
5	AMS	18.08.27	ADDED PLANTING PLAN & E-STATE CONSTRUCTION MATERIALS HANDLING PLAN
6	CDD	18.09.21	REVISED AND RESUBMITTED TO MAINE DEP
7	CDD	18.12.13	REVISED AND RESUBMITTED TO MAINE DEP
8	CDD	19.02.01	SUBMITTED TO TOWN OF POLAND FOR SITE PLAN APPROVAL

File Name: 50465_pond_sections	CDD	SRB	DBS	17.10.11
	DWN.	CHKD.	DSGN.	DATE

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EXPANSION  
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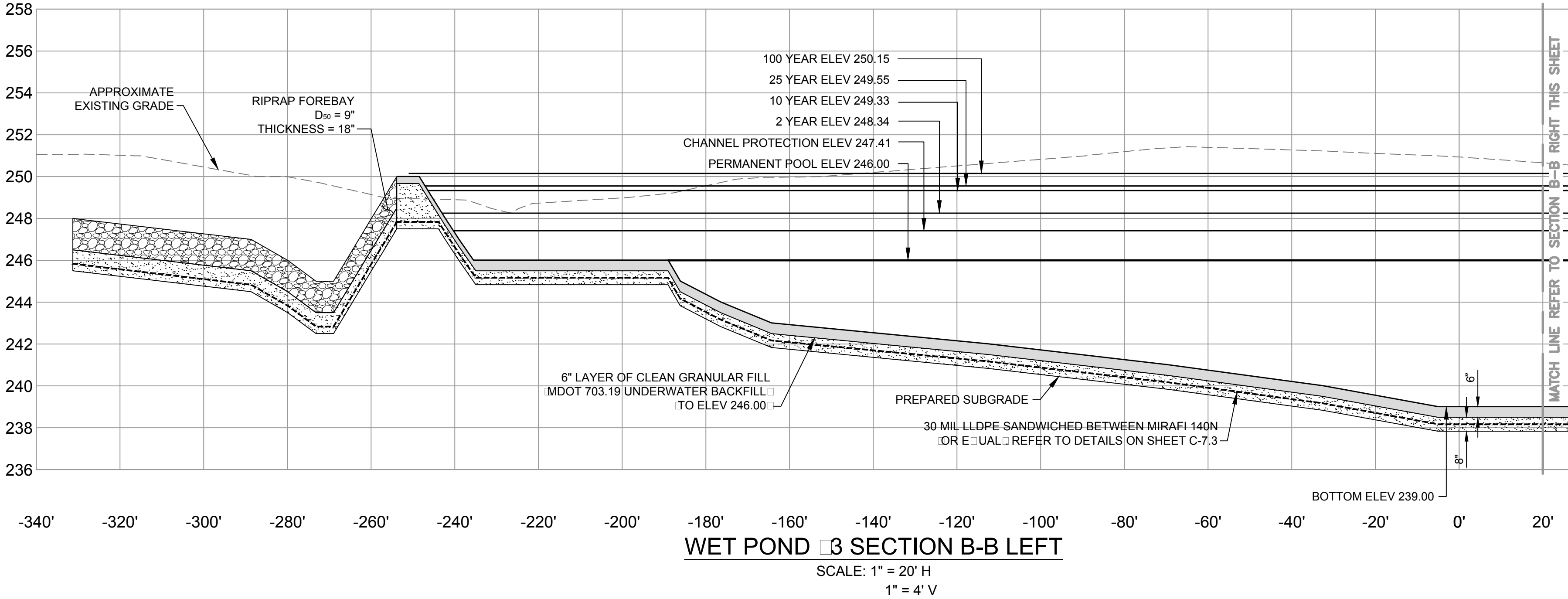
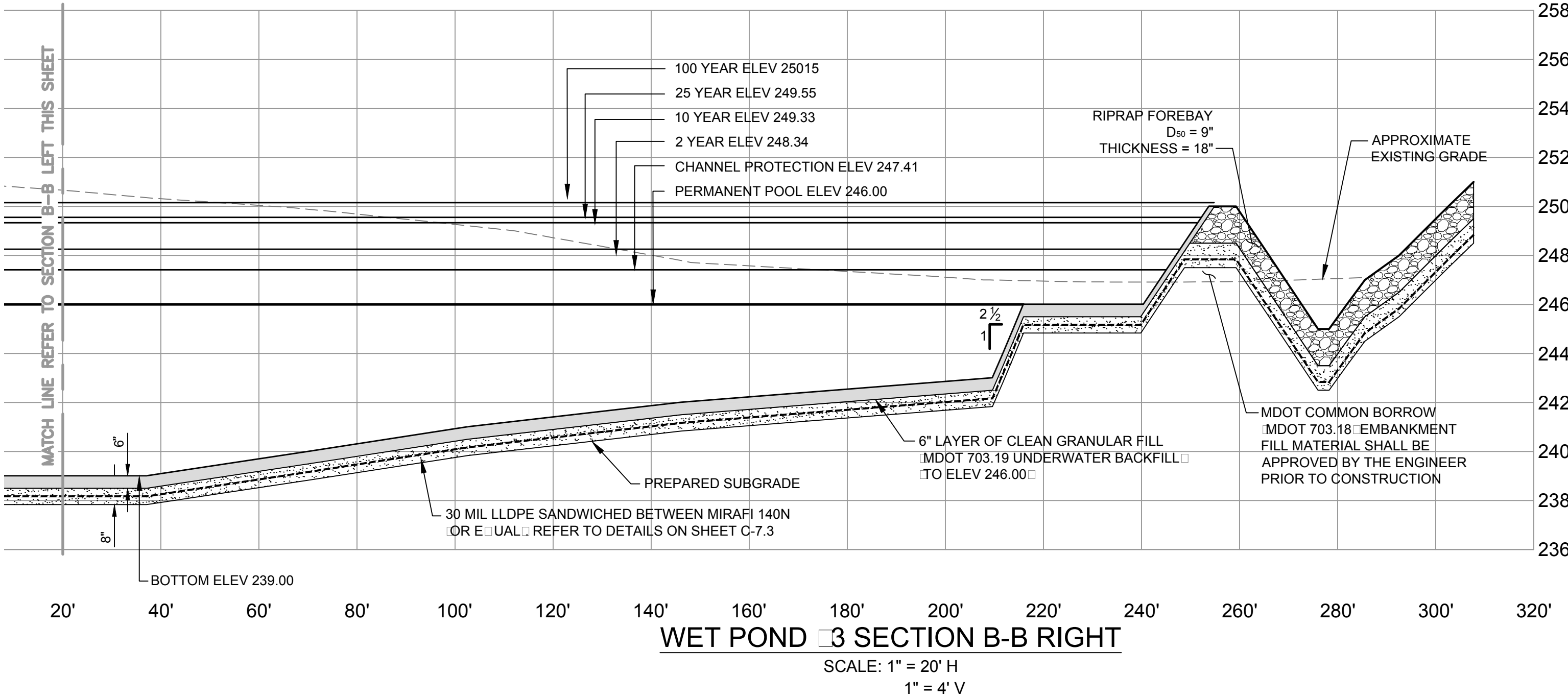
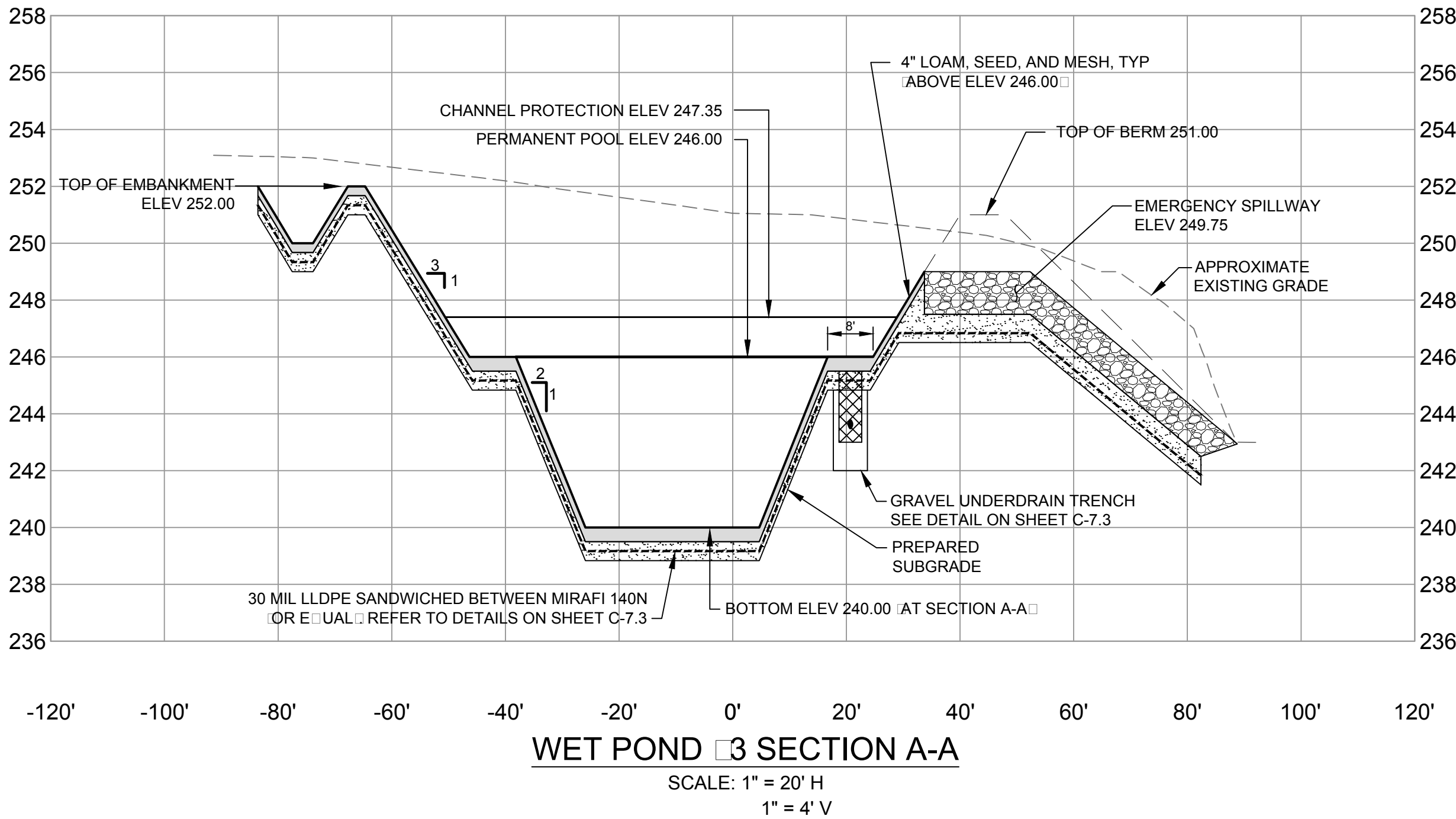
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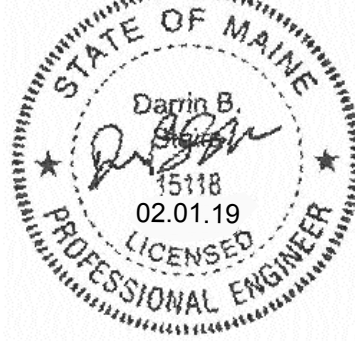




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2	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	AMS	18.02.28	
3	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	AMS	18.08.15	
4	REVISED PER CLIENT COMMENTS & RESUBMITTED TO MDOT	AMS	18.07.12	
5	REVISED PLANTING PLAN & POST-CONSTRUCTION MATERIALS HANDLING PLAN	AMS	18.08.27	
6	ADDED PLANTING PLAN & POST-CONSTRUCTION MATERIALS HANDLING PLAN	CDD	18.09.21	
7	REVISED AND RESUBMITTED TO MAINE DEP	CDD	18.12.13	
8	REVISED AND RESUBMITTED TO MAINE DEP	CDD	18.12.13	
9	SUBMITTED TO TOWN OF POLAND FOR PERMIT APPROVAL	CDD	18.02.01	

File Name:	50465_pond_sections	CDD	SRB	DBS	17.10.11
		DWN.	CHKD.	DSGN.	DATE

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WET POND #3 SECTIONS

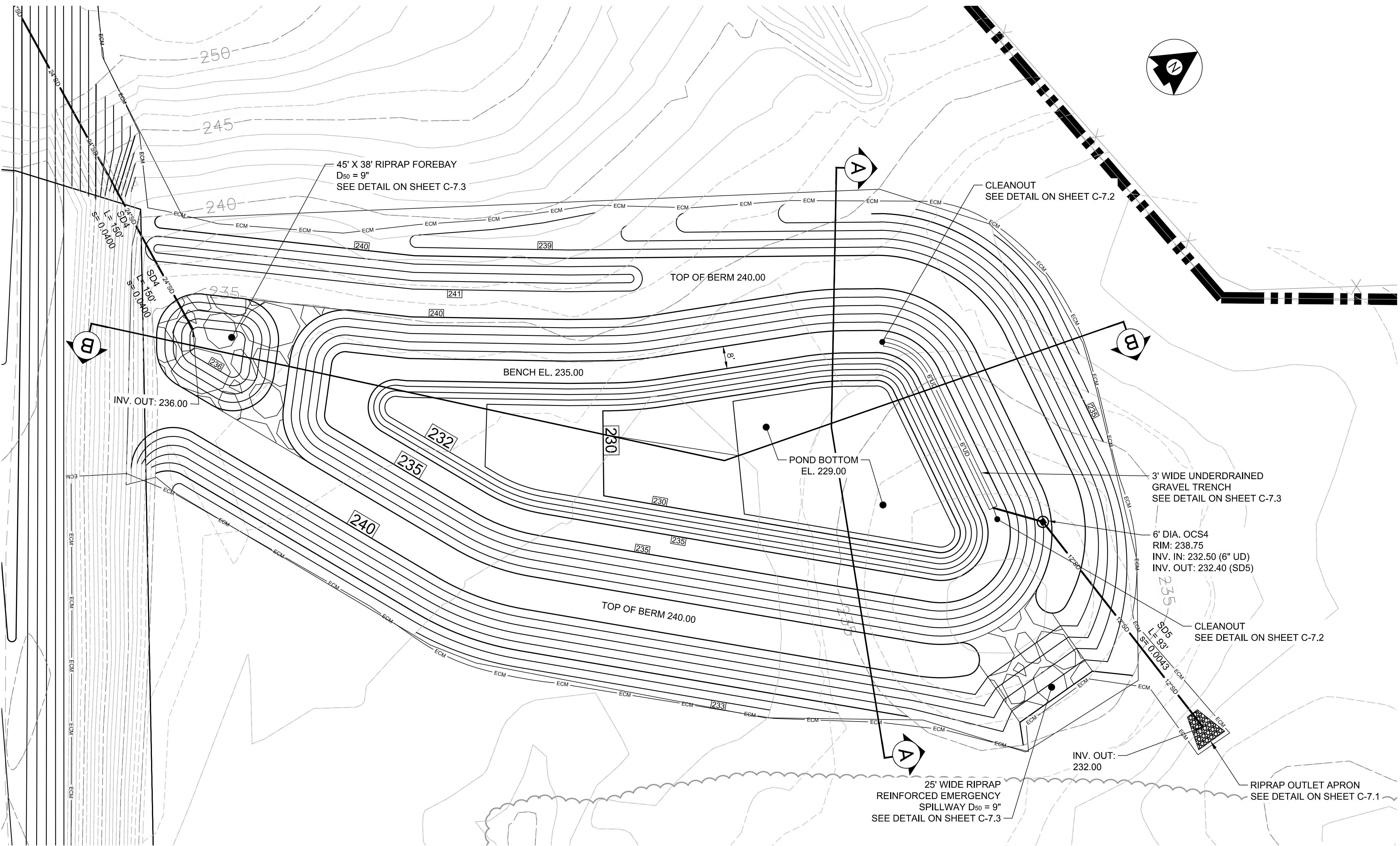
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WET POND #4 PLAN VIEW  
SCALE: 1" = 20'

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2	AMS	18.02.28	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
3	AMS	18.08.15	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
4	AMS	18.07.12	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT
5	AMS	18.08.27	ADDED PLACING PLAN & POST-CONSTRUCTION MATERIALS HANDLING PLAN
6	AMS	18.08.27	ADDED PLACING PLAN & POST-CONSTRUCTION MATERIALS HANDLING PLAN
7	AMS	18.09.21	REVISED AND RESUBMITTED TO MAINE DEP
8	AMS	18.12.13	REVISED AND RESUBMITTED TO MAINE DEP
9	AMS	18.12.01	SUBMITTED TO TOWN OF POLAND FOR REVIEW AND APPROVAL

File Name: 50465_pond_sections	CDD	SRB	DBS	17.10.11
	DWN.	CHKD.	DSGN.	DATE

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WET POND #4 PLAN VIEW

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9	SUBMITTED TO TOWN OF FOLAND FOR SITE PLAN APPROVAL	COD	D85	10/20/21
8	REVISED AND RESUBMITTED TO MAINE DEP	COD	D85	18/12/13
7	REVIEWED AND RESUBMITTED TO MAINE DEP	COD	D85	18/06/21
6	ADDED PHASING PLAN & POST-CONSTRUCTION MATERIALS HANDLING PLAN	COD	D85	18/08/27
5	REVISED TRAFFIC PATTERN AROUND COMPOUT BUILDINGS & E-WASTE BLDG.	AMS	D85	18/07/12
4	REVISED PER FW COMMENTS & RESUBMITTED TO mdep	AMS	D85	18/06/15
3	ISSUED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	AMS	D85	18/02/28
2	ISSUED FOR PERMIT	AMS	D85	18/02/08
1	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	AMS	D85	18/01/19
<b>Disposition</b>			By:	TJ/MALSD
			Approved:	

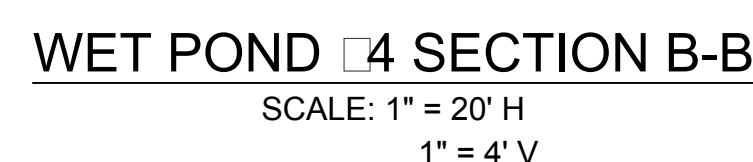
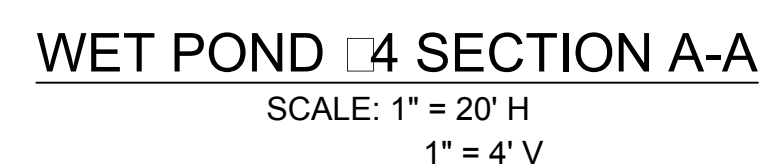
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WET POND #4 SECTIONS

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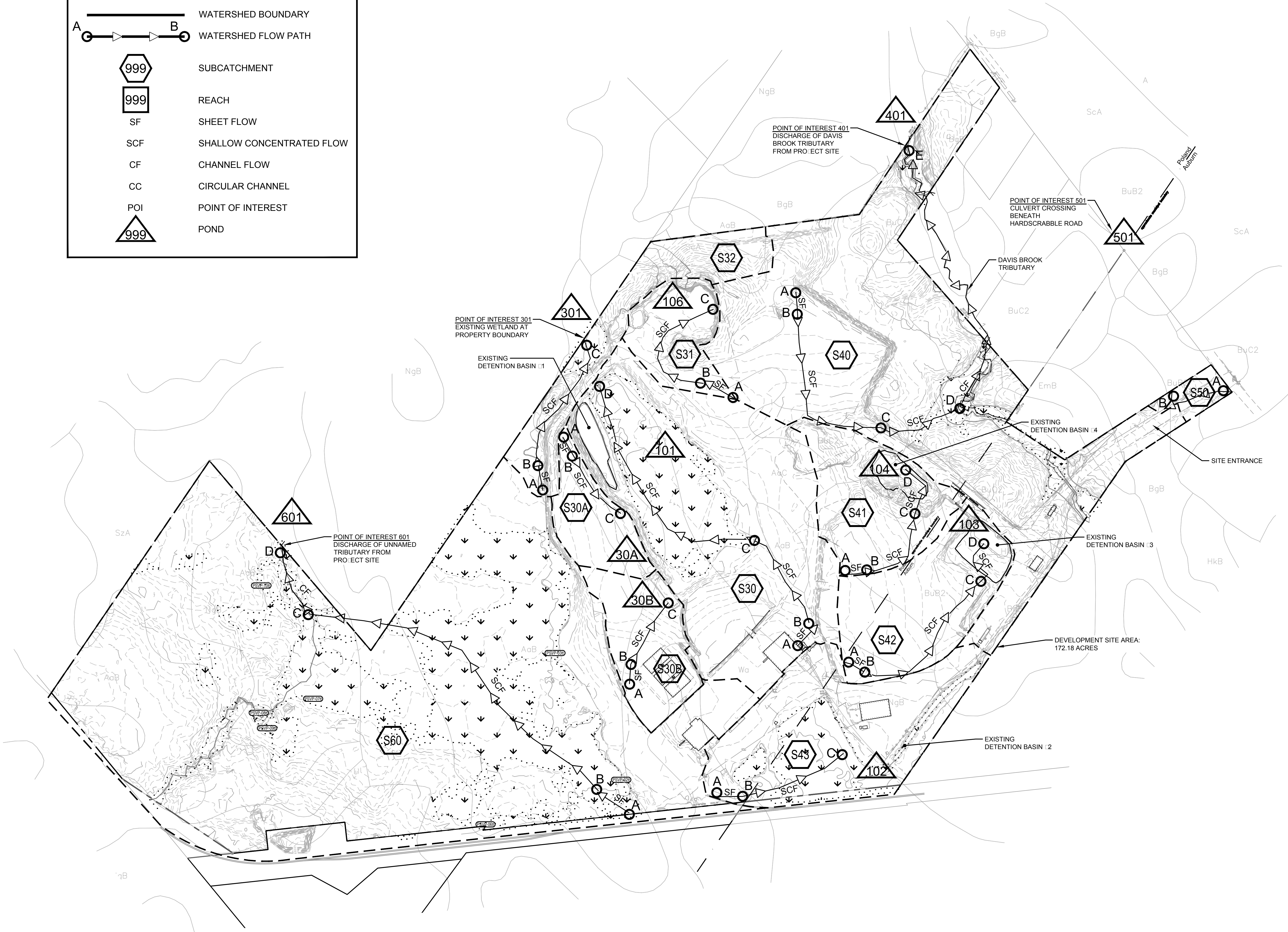
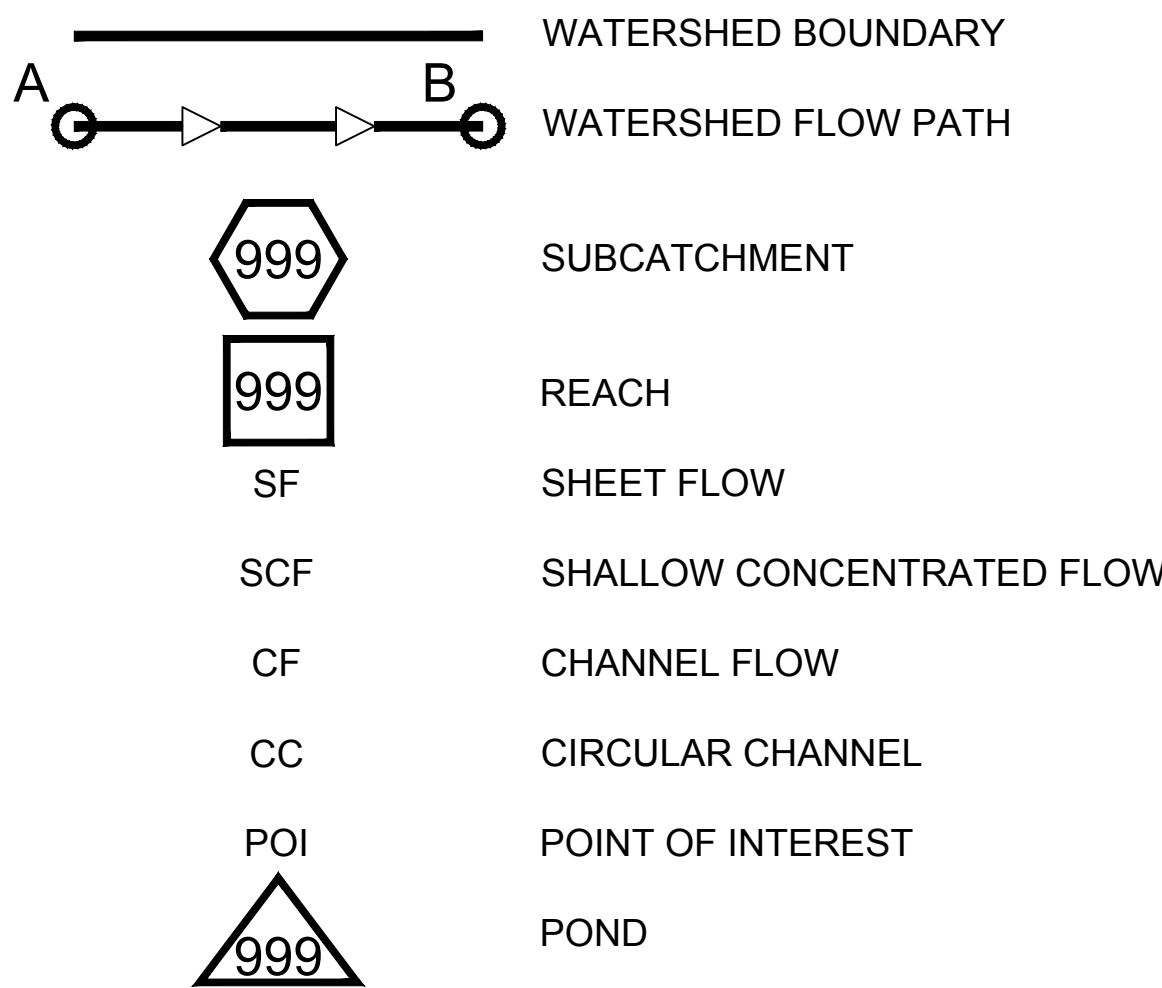
PREDEVELOPMENT  
WATERSHED PLAN

Project No. 195350465  
Scale 1" = 200'

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WATERSHED LEGEND





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Consultants

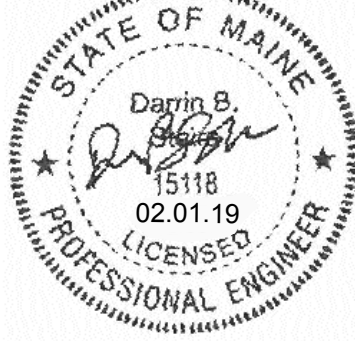
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846 Main Street  
Westbrook, Maine 04092  
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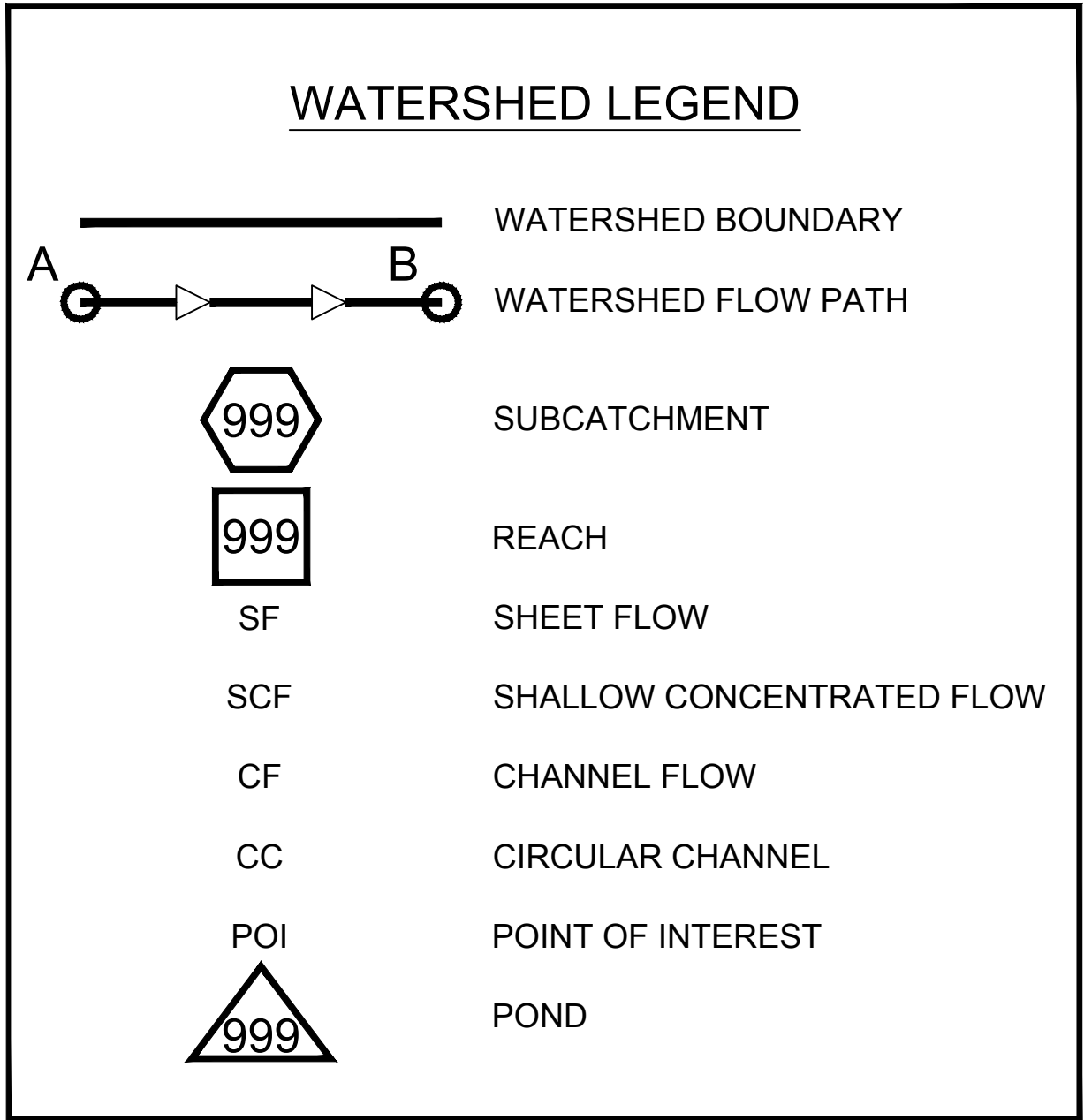
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	DWN.	CHKD.	DSGN.	DATE

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Client/Project  
ST.GERMAIN COLLINS  
MB BARK, LLC  
  
MB BARK RECYCLING FACILITY  
EXPANSION  
AUBURN, MAINE / POLAND, MAINE

Title  
POST DEVELOPMENT  
WATERSHED PLAN  
Project No. 195350465 Scale 1" = 200'  
Sheet C-6.1





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II.4 EROSION CONTROL MEASURES AND SITE STABILIZATION

THE PROPOSED EROSION AND SEDIMENTATION CONTROL PLAN MEETS OR EXCEEDS THE SOIL CONSERVATION SERVICE ENVIRONMENTAL QUALITY HANDBOOK.

THE PRIMARY EMPHASIS OF THE EROSION/SEDIMENTATION CONTROL PLAN TO BE IMPLEMENTED FOR THE INFRASTRUCTURE CONSTRUCTION ARE AS FOLLOWS:

- DEVELOPMENT OF A CAREFUL CONSTRUCTION SEQUENCE.
- RAPID REVEGETATION OF DENUDED AREAS TO MINIMIZE THE PERIOD OF SOIL EXPOSURE.
- RAPID STABILIZATION OF DRAINAGE PATHS TO AVOID RILL AND GULLY EROSION.
- THE USE OF ON-SITE MEASURES TO CAPTURE SEDIMENT: STONE CHECK DAMS/HAY BALES/SILT FENCE, ETC.

THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL DEVICES WILL BE IMPLEMENTED AS PART OF THE SITE DEVELOPMENT. THESE DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS OR AS DESCRIBED WITHIN THIS REPORT. FOR FURTHER REFERENCE, SEE THE MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION BEST MANAGEMENT PRACTICES.

A. TEMPORARY EROSION CONTROL MEASURES

THE FOLLOWING MEASURES ARE PLANNED AS TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES DURING CONSTRUCTION:

1. A TEMPORARY CRUSHED STONE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT ANY ACCESS ROUTES OUT OF THE CONSTRUCTION ZONE.
2. SILTATION FENCE OR WOOD WASTE COMPOST BERMS SHALL BE INSTALLED DOWNGRADIENT OF ANY DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL THE SITE IS FULLY STABILIZED. THE SILT FENCE AND/OR THE WOOD WASTE COMPOST BERMS SHALL BE INSTALLED PER THE DETAILS PROVIDED IN THIS PACKAGE AND INSPECTED AT LEAST ONCE A WEEK AND BEFORE AND AFTER A STORM EVENT. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE OR BERM LINE. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM.
3. STRAW OR HAY MULCH INCLUDING HYDROSEEDING IS INTENDED TO PROVIDE COVER FOR DENUDED OR SEEDED AREAS UNTIL REVEGETATION IS ESTABLISHED AND SHOULD BE APPLIED AT A RATE A 115 LBS / 1000 S.F. MULCH PLACED BETWEEN APRIL 15TH AND OCTOBER 15TH ON SLOPES OF LESS THAN 15 PERCENT SHALL BE ANCHORED BY APPLYING WIRE MULCH PLACED ON SLOPES OF EQUAL TO OR STEEPER THAN 15 PERCENT SHALL BE COVERED BY A FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. MULCH PLACED BETWEEN OCTOBER 15TH AND APRIL 15TH ON SLOPES OF EQUAL TO OR STEEPER THAN 8 PERCENT SHALL BE COVERED WITH A FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SLOPES STEEPER THAN 3:1, WHICH ARE TO BE REVEGETATED, SHALL RECEIVE CURLEX BLANKETS BY AMERICAN EXCELSIOR OR EQUAL. MULCH APPLICATION RATES ARE PROVIDED IN ATTACHMENT A OF THIS SECTION. MULCH SHALL NOT BE PLACED OVER SNOW.
4. TEMPORARY STOCKPILES OF STUMPS, GRUBBINGS, OR COMMON EXCAVATION WILL BE PROTECTED AS FOLLOWS:
  - a. TEMPORARY STOCKPILES SHALL NOT BE LOCATED WITHIN 50 FEET OF ANY WETLANDS, WHICH WILL NOT BE DISTURBED AND ANY SLOPES WHICH EXCEED 15%.
  - b. STOCKPILES SHALL BE STABILIZED WITHIN 7 DAYS BY EITHER TEMPORARILY SEEDING THE STOCKPILE BY A HYDROSEED METHOD CONTAINING AN EMULSIFIED MULCH TACKIFIER OR BY COVERING THE STOCKPILE WITH MULCH.
  - c. STOCKPILES SHALL BE SURROUNDED BY SILT FENCE OR OTHER SEDIMENT BARRIER AT THE TIME OF FORMATION.
5. FOR WORK WHICH IS CONDUCTED BETWEEN OCTOBER 15 AND APRIL 15 OF ANY CALENDAR YEAR, ALL DENUDED AREAS WILL BE COVERED WITH HAY MULCH, APPLIED AT TWICE THE NORMAL APPLICATION RATE AND ANCHORED WITH FABRIC NETTING. THE TIME PERIOD FOR APPLYING MULCH AS NOTED IN PARAGRAPH II.4.A.3. SHALL BE LIMITED TO 7 DAYS FOR ALL AREAS.
6. DURING GRUBBING OPERATIONS, STONE CHECK DAMS SHALL BE INSTALLED AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS.
7. SILT FENCING WITH A MINIMUM STAKE SPACING OF 6 FEET SHOULD BE USED, UNLESS THE FENCE IS SUPPORTED BY WIRE FENCE REINFORCEMENT OF MINIMUM 14 GAUGE AND WITH A MAXIMUM MESH SPACING OF 6 INCHES, IN WHICH CASE STAKES MAY BE SPACED A MAXIMUM OF 10 FEET APART. THE BOTTOM OF THE FENCE SHALL BE ANCHORED.
8. WOOD WASTE COMPOST/BARK BERMS MAY BE USED IN LIEU OF SILTATION FENCING. BERMS SHALL BE REMOVED AND SPREAD IN A LAYER NOT TO EXCEED 3" THICK ONCE UPGRADIENT AREAS ARE COMPLETED AND A 90% CATCH OF VEGETATION IS ATTAINED.
9. TEMPORARY CATCH BASIN INLET BARRIERS SHALL BE INSTALLED THROUGHOUT THE COURSE OF CONSTRUCTION. ACCEPTABLE BARRIERS INCLUDE SILKSACKS, STONE SEDIMENT BARRIERS OR OTHER EQUIVALENT DEVICES.

B. PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES HAVE BEEN DESIGNED AS PART OF THE EROSION/SEDIMENTATION CONTROL PLAN:

1. ALL STORM DRAIN PIPE OUTLETS SHALL HAVE RIPRAP APRONS AT THEIR OUTLET TO PROTECT THE OUTLET AND RECEIVING CHANNEL OF THE CULVERTS FROM SCOUR AND DETERIORATION. INSTALLATION DETAILS ARE INCLUDED WITHIN THE PLAN SET WITH THIS PACKAGE. THE APRONS SHALL BE INSTALLED AND STABILIZED TO THE EXTENT PRACTICABLE PRIOR TO DIRECTING RUNOFF TO THE TRIUTARY PIPE OR CULVERT.
2. ALL AREAS DISTURBED DURING CONSTRUCTION, BUT NOT SUBJECT TO OTHER RESTORATION (PAVING, RIPRAP, ETC.) WILL BE LOAMED, LIMED, FERTILIZED, MULCHED, AND SEEDED. FABRIC NETTING, ANCHORED WITH STAPLES, SHALL BE PLACED OVER THE MULCH IN AREAS AS NOTED IN PARAGRAPH II.4.A.3. ALL AREAS WITHIN 50 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 7-DAY WINDOW. NATIVE TOPSOIL SHALL BE STOCKPILED AND REUSED FOR FINAL RESTORATION WHEN IT IS OF SUFFICIENT QUALITY.

C. IMPLEMENTATION SCHEDULE

THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE REQUIRED FOR THE SITE DEVELOPMENT TO INSURE THE EFFECTIVENESS OF THE EROSION AND SEDIMENTATION CONTROL MEASURES ARE OPTIMIZED:

NOTE: FOR ALL GRADING ACTIVITIES, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO OVEREXPOSE THE SITE BY LIMITING THE DISTURBED AREA.

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE SITE ENTRY/EXIST LOCATIONS.
2. CLEAR AREA NECESSARY FOR THE PARKING AREA/BUILDING CONSTRUCTION.
3. INSTALL PERIMETER SILTATION FENCE AND/OR WOOD WASTE BERMS PRIOR TO GRUBBING RESPECTIVE AREAS.
4. GRUB WORK AREA FOR PARKING LOTS AND BUILDINGS.
5. DURING GRUBBING OPERATIONS, INSTALL STONE CHECK DAMS AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS.
6. COMMENCE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR THE PARKING LOTS AND WALKWAYS.
7. COMMENCE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR THE BUILDING FOUNDATION.
8. COMMENCE INSTALLATION OF DRAINAGE APPURTENANCES, INCLUDING CATCH BASINS, MANHOLES, ETC.
9. COMMENCE INSTALLATION OF UNDERGROUND UTILITIES.
10. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.
11. COMPLETE REMAINING EARTHWORK OPERATIONS.
12. COMMENCE BUILDING FOUNDATIONS.
13. INSTALL SUBBASE AND BASE COURSE GRAVELS WITHIN PARKING LOTS AND WALKWAYS.
14. COMPLETE INSTALLATION OF DRAINAGE APPURTENANCES AND UTILITY APPURTENANCES.
15. COMPLETE UNDERGROUND TANK INSTALLATION AND CONCRETE DISPENSER ISLAND.
16. INSTALL BASE COURSE PAVING FOR THE PARKING LOTS.
17. CONTINUE BUILDING CONSTRUCTION.
18. INSTALL SURFACE COURSE PAVING FOR THE PARKING, AND WALKWAY AREAS.
19. LOAM, LIME, FERTILIZER, SEED AND MULCH DISTURBED AREAS.
20. REMOVE ACCUMULATED SEDIMENT FROM AHEAD OF ANY SEDIMENT BARRIERS AS NECESSARY.
21. ONCE THE SITE IS STABILIZED AND A 90% CATCH OF VEGETATION HAS BEEN OBTAINED, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
22. TOUCH UP LOAM AND SEED.
23. COMPLETE PAVEMENT MARKINGS AND SIGNAGE

PRIOR TO CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE FOR THE COMPLETION OF THE WORK, WHICH WILL SATISFY THE FOLLOWING CRITERIA:

1. THE ABOVE CONSTRUCTION SEQUENCE SHOULD GENERALLY BE COMPLETED IN THE SPECIFIED ORDER. HOWEVER, SEVERAL SEPARATE ITEMS MAY BE CONSTRUCTED SIMULTANEOUSLY. WORK MUST ALSO BE SCHEDULED OR PHASED TO LIMIT THE EXTENT OF THE EXPOSED AREAS AS SPECIFIED BELOW. THE INTENT OF THIS SEQUENCE IS TO PROVIDE FOR EROSION CONTROL AND TO HAVE STRUCTURAL MEASURES SUCH AS SILT FENCE AND CONSTRUCTION ENTRANCES IN PLACE BEFORE LARGE AREAS OF LAND ARE DENUDED.
2. THE WORK SHALL BE CONDUCTED IN SECTIONS WHICH WILL:
  - a. LIMIT THE AMOUNT OF EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE PROCEEDING 30 DAYS.
  - b. REVEGETATE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING OR BEFORE A STORM EVENT.
  - c. INCORPORATE PLANNED INLETS AND DRAINAGE SYSTEM AS EARLY AS POSSIBLE INTO THE CONSTRUCTION PHASE.

A. EROSION, SEDIMENTATION AND STABILIZATION CONTROL PLAN

THE EROSION, SEDIMENTATION AND STABILIZATION CONTROL DETAILS ARE INCLUDED IN THE PLAN SET.

B. WINTER STABILIZATION PLAN

THE WINTER CONSTRUCTION PERIOD IS FROM NOVEMBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15 THEN THE SITE NEEDS TO BE PROTECTED WITH OVER-WINTER STABILIZATION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A PARKING LOT.

WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE PROCEEDING 15 DAYS AND THAT CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.

ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL THE SUBBASE GRAVEL IS INSTALLED IN PARKING AREAS OR THE AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 LBS / 1,000 S.F. 3 TONS/ACRE, AND SHALL BE PROPERLY ANCHORED.

THE CONTRACTOR SHALL INSTALL ANY ADDED MEASURES, WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS.

CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

1. SOIL STOCKPILES

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR AT 150 LBS / 1,000 S.F. 3 TONS PER ACRE, OR WITH A FOUR-INCH LAYER OF WOODWASTE EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKPILING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE SHALL NOT BE PLACED EVEN COVERED WITH HAY OR STRAW WITHIN 50 FEET FROM ANY NATURAL RESOURCES.

2. NATURAL RESOURCE PROTECTION

ANY AREAS WITHIN 50 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 75% MATURE VEGETATION CATCH, SHALL BE MULCHED BY DECEMBER 1 AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH EROSION CONTROL MATS. DURING WINTER CONSTRUCTION, A DOUBLE LINE OF SEDIMENT BARRIERS (I.E. SILT FENCE BACKED WITH HAY BALES OR EROSION CONTROL MIX) SHALL BE PLACED BETWEEN ANY NATURAL DISTURBED AREA EXISTING PRIOR TO CONSTRUCTION AND THE DISTURBED AREA. THE AREA SHALL BE PROTECTED WITH THE SECOND LINE OF SEDIMENT BARRIER TO ENSURE FUNCTIONALITY DURING THE SPRING THAW AND RAINS.

3. SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF WOODWASTE FILTER BERMS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

4. MULCHING

AN AREA SHALL BE CONSIDERED DENUDED UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LB. PER 1,000 S. SQUARE FEET OR 3 TONS/ACRE. TWICE THE NORMAL ACCEPTED RATE OF 75-LBS./1,000 S.F. OR 1.5 TONS/ACRE; AND SHALL BE PROPERLY ANCHORED. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE-INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL BE PROPERLY STABILIZED AND WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 150 LB. PER 1,000 S. SQUARE FEET 3 TONS/ACRE; AND ADEQUATELY ANCHORED THAT GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH.

BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION CHEMICAL, TRACK OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH THEN COVER IS SUFFICIENT. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

5. MULCHING ON SLOPES AND DITCHES

SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR FOR EROSION CONTROL BLANKETS. MULCHING SHALL BE APPLIED AT A RATE OF 230 LBS / 1,000 S.F. ON ALL SLOPES GREATER THAN 8% OR GREATER. EROSION CONTROL MIX CAN BE USED TO SUBSTITUTE EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%. EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPES 8% OR GREATER. EROSION CONTROL MIX CAN BE USED TO SUBSTITUTE EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

6. SEEDING

BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREE-ING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINALLY GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. DORMANT SEEDING MAY BE SELECTED TO BE PLACED PRIOR TO THE PLACEMENT OF MULCH AND FABRIC NETTING ANCHORED WITH STAPLES. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS / 1000 S.F. ALL AREAS SEEDED DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE NATURAL CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.

7. DEWATERING

WATER FROM CONSTRUCTION TRENCH DEWATERING SHALL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 50 FEET OF A PROTECTED NATURAL RESOURCE.

8. INSPECTION AND MONITORING

MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL INSPECT AND REPAIR ANY DAMAGES AND/OR UNESTABLISHED SPOTS. ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 85% TO 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

C. STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. STANDARD FOR THE TIMELY STABILIZATION OF DITCHES AND CHANNELS -- THE APPLICANT SHALL CONSTRUCT AND STABILIZE ALL STONE-LINED DITCHES AND CHANNELS ON THE SITE BY SEPTEMBER 15. THE APPLICANT SHALL CONSTRUCT AND STABILIZE ALL GRASS-LINED DITCHES AND CHANNELS ON THE SITE BY SEPTEMBER 15. IF THE APPLICANT FAILS TO STABILIZE A DITCH OR CHANNEL TO BE GRASS-LINED BY SEPTEMBER 15, THEN THE APPLICANT WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE DITCH FOR LATE FALL AND WINTER.

- a. INSTALL A SOD LINING IN THE DITCH -- THE APPLICANT SHALL LINE THE DITCH WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING THE SOD WITH LUTE OR PLASTIC MESH TO PREVENT THE SOD STRIPS FROM SLOUGHING DURING FLOW CONDITIONS.
- b. INSTALL A STONE LINING IN THE DITCH -- THE APPLICANT SHALL LINE THE DITCH WITH STONE RIPRAP BY NOVEMBER 15. THE APPLICANT SHALL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE APPLICANT SHALL REGRADE THE DITCH PRIOR TO PLACING THE STONE LINING SO TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.

2. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES -- THE APPLICANT SHALL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 15. THE APPLICANT SHALL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15. THE DEPARTMENT SHALL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% 15H:1V TO BE A SLOPE. IF THE APPLICANT FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15, THEN THE APPLICANT SHALL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

- a. STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS -- BY OCTOBER 1 THE APPLICANT SHALL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1,000 S. SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE APPLICANT SHALL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SLOPE BY NOVEMBER 1, THEN THE APPLICANT SHALL COVER THE SLOPE WITH A LAYER OF WOODWASTE COMPOST AS DESCRIBED IN ITEM III OF THIS STANDARD OR WITH STONE RIPRAP AS DESCRIBED IN ITEM IV OF THIS STANDARD.
- b. STABILIZE THE SLOPE WITH SOD -- THE APPLICANT SHALL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE APPLICANT SHALL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% 3H:1V.
- c. STABILIZE THE SLOPE WITH WOODWASTE COMPOST -- THE APPLICANT SHALL PLACE A SIX-INCH LAYER OF WOODWASTE COMPOST ON THE SLOPE BY NOVEMBER 15. PRIOR TO PLACING THE WOODWASTE COMPOST, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE APPLICANT SHALL NOT USE WOODWASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% 2H:1V, OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
- d. STABILIZE THE SLOPE WITH STONE RIPRAP -- THE APPLICANT SHALL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE APPLICANT SHALL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

3. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS -- BY SEPTEMBER 15 THE APPLICANT SHALL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15%. IF THE APPLICANT FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE APPLICANT SHALL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.

- a. STABILIZE THE SOIL WITH TEMPORARY VEGETATION -- BY OCTOBER 1 THE APPLICANT SHALL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 S. SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 S. SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE APPLICANT SHALL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 15, THEN THE APPLICANT SHALL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM III OF THIS STANDARD.
- b. STABILIZE THE SOIL WITH SOD -- THE APPLICANT SHALL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
- c. STABILIZE THE SOIL WITH MULCH -- BY NOVEMBER 15 THE APPLICANT SHALL MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 S. SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. PRIOR TO APPLYING THE MULCH, THE APPLICANT SHALL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED AREA. IMMEDIATELY AFTER APPLYING THE MULCH, THE APPLICANT WILL ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

G. MAINTENANCE OF FACILITIES

THE STORMWATER FACILITIES WILL BE MAINTAINED BY THE APPLICANT, OR THEIR ASSIGNED HEIRS. THE CONTRACT DOCUMENTS WILL REQUIRE THE APPLICANT OR DESIGNATE A PERSON WHO HAS KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, TO BE RESPONSIBLE FOR MAINTENANCE OF THE SEDIMENTATION CONTROL FEATURES DURING CONSTRUCTION AS REQUIRED BY THE EROSION CONTROL REPORT. DOCUMENTATION OF ANY INSPECTIONS, MAINTENANCE, AND ANY CORRECTIVE ACTIONS TAKEN SHALL BE SUMMARIZED IN A LOG REPORT. THE LOG SHALL COMPLY WITH CHAPTER 500 APPENDIX B.1.C AND APPENDIX B.2.D, OF THE STATE OF MAINE DEP. STORMWATER MANAGEMENT RULES.

LONG-TERM OPERATION/MAINTENANCE RECOMMENDED FOR THE STORMWATER FACILITY IS PRESENTED BELOW.

THE RESPONSIBLE PARTY MAY CONTRACT WITH SUCH PROFESSIONALS, AS MAY BE NECESSARY IN ORDER TO COMPLY WITH THIS PROVISION AND MAY RELY ON THE ADVICE OF SUCH PROFESSIONALS IN CARRYING OUT ITS DUTY HEREUNDER, PROVIDED, THAT THE FOLLOWING OPERATION AND MAINTENANCE PROCEDURES ARE HEREBY ESTABLISHED AS A MINIMUM FOR COMPLIANCE WITH THIS SECTION.

- PARKING LOTS - CLEAR ACCUMULATIONS OF WINTER SAND AT LEAST TWICE A YEAR, PREFERABLY IN THE SPRING. EXCESS SHOULDER MATERIAL SHALL BE REMOVED MANUALLY OR BY FRONT-END LOADER. INSPECT PARKING LOT SIDE SLOPES ON AN ANNUAL BASIS FOR SLOUGHING OR UNDESIRABLE GROWTH.
  - CATCH BASINS - REMOVE SEDIMENT FROM CATCH BASINS WHEN SEDIMENT HAS ACCUMULATED TO WITHIN 6 INCHES OF THE OUTLET INVERT BUT NO LESS THAN ANNUALLY.
  - STORMWATER BASIN - INSPECT AND MAINTAIN ON A SEMI-ANNUAL BASIS INCLUDING, BUT NOT LIMITED TO, VEGETATION REMOVAL, EMBANKMENT INSPECTION, PIPES AND CONTROL STRUCTURES.
- H. IN ACCORDANCE WITH APPENDIX C OF THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION CHAPTER 500 STORMWATER MANAGEMENT REGULATIONS PERTAINING TO PROJECT HOUSEKEEPING, THE FOLLOWING SHALL APPLY:

1. SPILL PREVENTION: CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.

NOTE: ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT. FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT : <http://www.maine.gov/dep/spills/emergspillsresp/>

2. GROUNDWATER PROTECTION: DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.

3. FUGITIVE SEDIMENT AND DUST: ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE, SCE, SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEEP IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

NOTE: DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE NATURAL RESOURCES PROTECTION ACT.

4. DEBRIS AND OTHER MATERIALS: MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

NOTE: TO PREVENT THESE MATERIALS FROM BECOMING A SOURCE OF POLLUTANTS, CONSTRUCTION AND POST-CONSTRUCTION ACTIVITIES RELATED TO A PROJECT MAY BE REQUIRED TO COMPLY WITH APPLICABLE PROVISION OF RULES RELATED TO SOLID, UNIVERSAL, AND HAZARDOUS WASTE, INCLUDING, BUT NOT LIMITED TO, THE MAINE SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT RULES. MAINE HAZARDOUS WASTE MANAGEMENT RULES: MAINE OIL CONVEYANCE AND STORAGE RULES; AND MAINE PESTICIDE REQUIREMENTS.

5. EXCAVATION DE-WATERING: EXCAVATION DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.

NOTE: DEWATERING CONTROLS ARE DISCUSSED IN THE "MAINE EROSION AND SEDIMENT CONTROL BMPs, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION".



Stantec  
482 Payne Road Scarborough Court  
Scarborough, Maine 04074-8929  
Tel. 207.883.3355  
[www.stantec.com](http://www.stantec.com)

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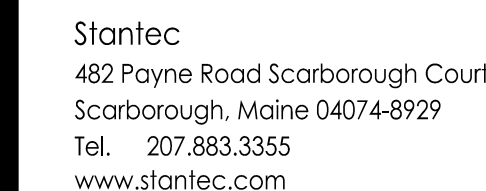
Consultants

**St. Germain Collins**  
846 Main Street  
Westbrook, Maine 04092  
Tel. 207.591.7000

Notes

1	10.02.01	DES	CDD	BY	YJAM/DD
2	10.02.03	DES	CDD		
3	10.02.21	DES	CDD		
4	10.02.27	DES	CDD		
5	10.07.12	DES	CDD		
6	10.08.15	ANS	CDD		
7	10.02.28	ANS	CDD		
8	10.02.08	ANS	CDD		
9	10.01.19	ANS	CDD		
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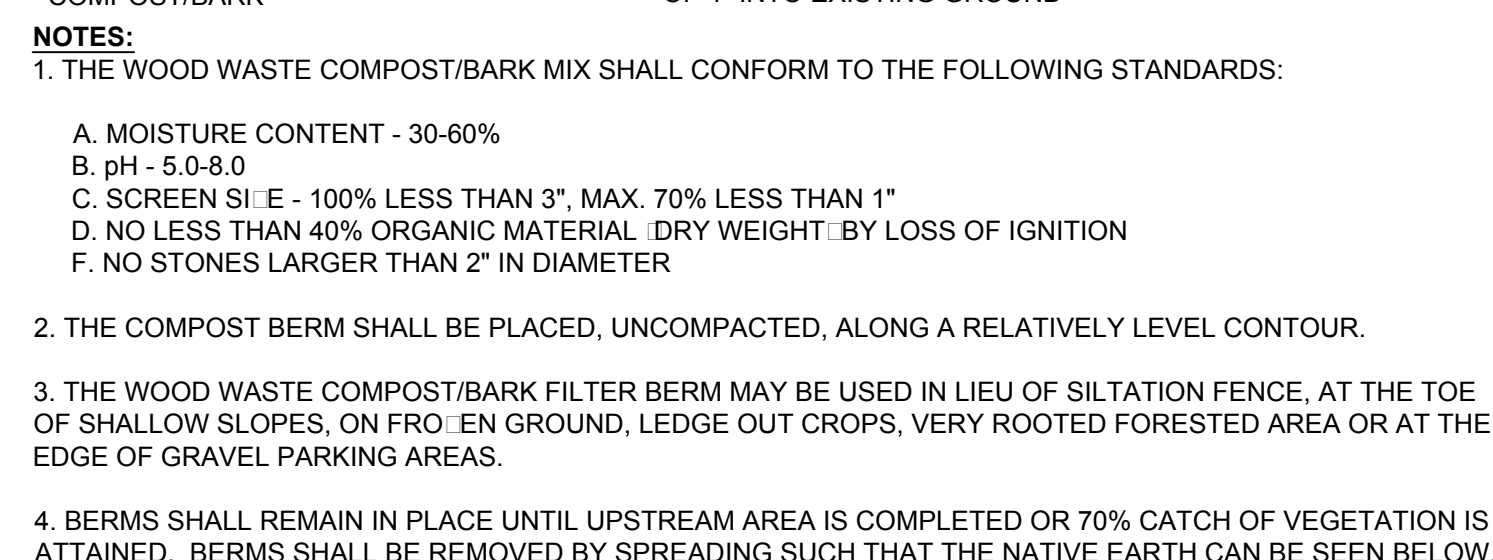


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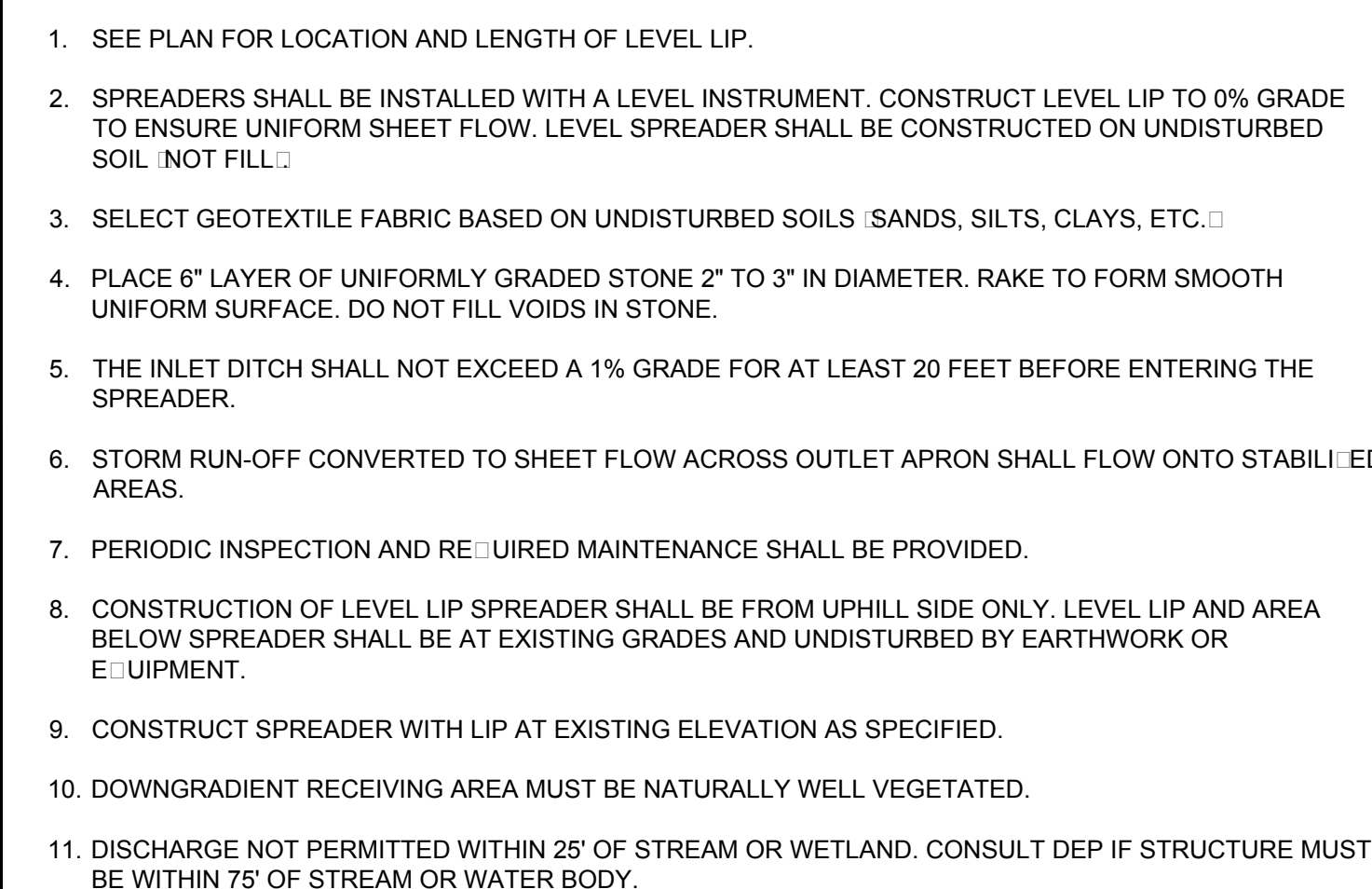
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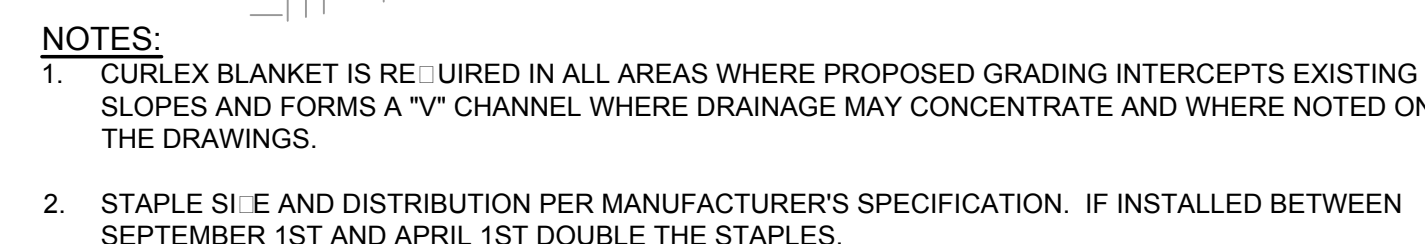
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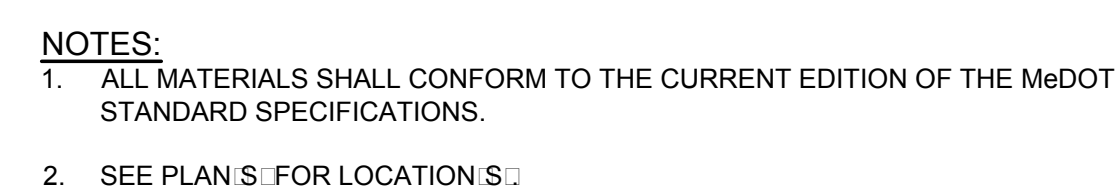
① WOOD WASTE COMPOST / BARK FILTER BERM  
N.T.S.



**LEVEL LIP SPREADER DETAIL**



**(B) CURLEX BLANKET DETAIL**  
N.T.S.



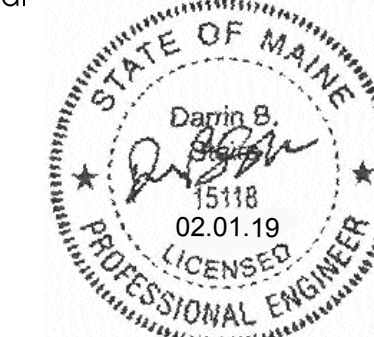
**(E) RIPRAP SWALE DETAIL**  
N.T.S.



9	SUBMITTED TO TOWN OF FOUNTAIN FOR SITE PLAN APPROVAL	CDD	D85	10/20/21
8	REMOVED AND RESUBMITTED TO MAINE DEP	CDD	D85	18/12/13
7	REMOVED AND RESUBMITTED TO MAINE DEP	CDD	D85	18/09/21
6	ADDED PHASING PLAN & POST-CONSTRUCTION MATERIALS HANDLING PLAN	CDD	D85	18/08/21
5	REVISED TRAFFIC PATTERN AROUND COMPOST BUILDINGS & E-WASTE BLDG.	AMS	D85	18/07/12
4	REVISED PERM COMMENTS & RESUBMITTED TO ANDP&P	AMS	D85	18/06/15
3	REVISED PERM CLIENT COMMENTS & RESUBMITTED TO CLIENT	AMS	D85	18/02/28
2	ISSUED FOR PERMIT	AMS	D85	18/03/08
1	ISSUED FOR CLIENT REVIEW - DRAFT PERMIT SET	AMS	D85	18/01/19

File Name: 50465\_details CDD SRB DBS 17.10.1

Permit-Seal



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Client/Project

ST.GERMAIN COLLINS  
MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION

AUBURN, MAINE / POLAND, MAINE

Title

Project No. \_\_\_\_\_

195350465

Shoot

Scale

NTS

C-7 1







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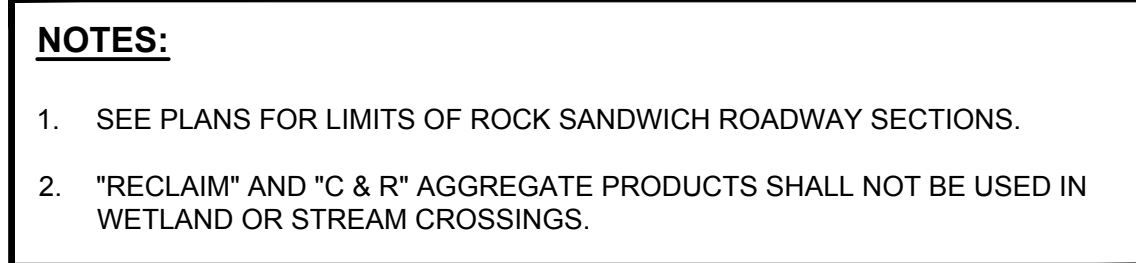


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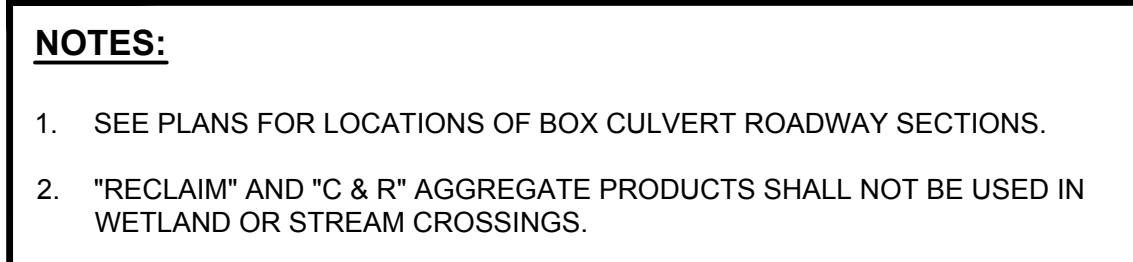
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Westbrook, Maine 04092  
Tel. 207.591.7000

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Notes



(A) ACCESS DRIVE WITH PERMEABLE ROAD BASE OR 'ROCK SANDWICH' SECTION  
N.T.S.



(B) ACCESS DRIVE WITH BOX CULVERT SECTION  
N.T.S.

9	REMOVED TO TOWN OF FOLAND FOR SITE PLAN APPROVAL	DD	DBS	9/22/01
8	REVISED AND RESUBMITTED TO MAINE DEP	DD	DD	18.12.13
7	REVISED AND RESUBMITTED TO MAINE DEP	DD	DBS	18.09.21
6	ADDED PHASING PLAN & POST-CONSTRUCTION MATERIALS HANDLING PLAN	DD	DBS	18.09.21
5	REVISED TRAFFIC PATTERN AROUND COMPOST BUILDINGS & E-WASTE BLDG.	AMS	DBS	18.07.12
4	REVISED PER RW COMMENTS & RESUBMITTED TO WADep	AMS	DBS	18.06.15
3	REVISED PER CLIENT COMMENTS & RESUBMITTED TO CLIENT	AMS	DBS	18.02.28
2	ISSUED FOR PERMIT	AMS	DBS	18.02.08
1	ISSUED FOR CLIENT REVIEW / DRAFT PERMIT SET	AMS	DBS	18.01.19
Revision	By	Approved	YY.MM.DD	

File Name: 50465_details	CDD	SRB	DBS	17.10.11
	DWN	CHKD	DSGN	DATE

ST.GERMAIN COLLINS  
MB BARK, LLC

MB BARK RECYCLING FACILITY  
EXPANSION  
AUBURN, MAINE / POLAND, MAINE

## SITE DETAILS

Project No.  
195350465

Scale

N.T.S.

Sheet



9

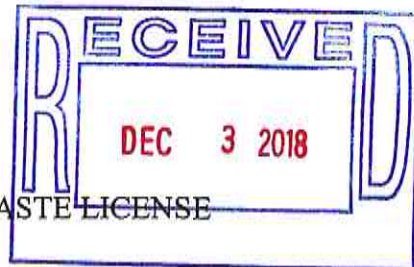


STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

OFFICE  
COPY

DEPARTMENT ORDER

IN THE MATTER OF



MB BARK	)	SOLID WASTE LICENSE
POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
# S-021741-WK-I-A and # S-021741-W4-J-N	)	NEW BENEFICIAL USE
(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

Pursuant to the provisions of the *Maine Hazardous Waste, Septage, and Solid Waste Management Act*, 38 M.R.S. §§ 1301-1319-Y, the Department's *Solid Waste Management Regulations, General Provisions*, 06-096 C.M.R. ch. 400 (last amended April 6, 2015), *Transfer Stations and Storage Sites for Solid Waste*, 06-096 C.M.R. ch. 402 (last amended April 12, 2015), *Water Quality Monitoring, Leachate Monitoring, and Waste Characterization*, 06-096 C.M.R. ch. 405 (last amended April 12, 2015), *Processing Facilities*, 06-096 C.M.R. ch. 409 (last amended July 27, 2014), *Beneficial Use of Solid Wastes*, 06-096 C.M.R. ch. 418 (last amended July 8, 2018), and the Department's *Stormwater Management Rules*, 06-096 C.M.R. ch. 500 (last revised August 12, 2015), the Department of Environmental Protection ("Department") has considered the application of MB BARK ("MB Bark") with its supportive data and other related materials on file and FINDS THE FOLLOWING FACTS:

1. APPLICATION SUMMARY

- A. Application: MB Bark has submitted an application for amendment of its processing facility license, Department license # S-021741-WK-A-N, issued January 30, 1998. The application includes a request for after-the-fact approval of changes made at the facility prior to submission of the application. MB Bark has also submitted an application for one-time beneficial use of secondary material as construction fill.
- B. History: Department license # S-021741-WK-A-N was issued to Morse Brothers, Inc. on January 30, 1998, and approved construction and operation of a processing facility for the manufacture of bark mulch. The license was appealed and upheld with additional conditions related to noise on November 21, 1998. On February 28, 2005, Morse Brothers, Inc. received a license revision to allow storage of short paper fiber from Cascades-Auburn Fiber. The licenses were transferred from Morse Brothers, Inc. to MB Bark on February 17, 2006 (Department license # S-021741-WX-C-T), following the Chapter 11 bankruptcy of Morse Brothers, Inc. On July 27, 2006, MB Bark received approval of a minor revision application (Department license # S-021741-WK-D-M); this license approved regrading the site to improve drainage, paving much of the waste

MB BARK	2	SOLID WASTE LICENSE
POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
# S-021741-WK-I-A and # S-021741-W4-J-N	)	NEW BENEFICIAL USE
(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

handling area and perimeter road, and acceptance and storage of biomass fuel materials. MB Bark received approval of another license minor revision (Department license # S-021741-WK-E-M, dated September 27, 2007), permitting acceptance and storage of inert material and old corrugated containers ("OCC"). MB Bark received a permit-by-rule (Department license # S-021741-WL-F-P, issued November 20, 2007) for the use of emulsified asphalt encapsulated oil contaminated soil as construction fill. On October 27, 2011, MB Bark received another license minor revision (Department license # S-021741-WK-G-M); this revision approved acceptance and processing of creosote treated wood for making boiler fuel. MB Bark received a license (Department license # S-021741-CG-H-N, dated March 19, 2013) for a compost facility for Type 1A and 1B residuals.

- C. Summary of Proposal: MB Bark now requests approval to amend the processing facility license to expand the facility, and accept and process asphalt shingles. MB Bark also requests after-the-fact approval of: acceptance and storage of panel glass from processors of cathode ray tubes ("CRT glass"); grading changes; expansion of the facility; changes to the extent of pavement at the site; and acceptance and processing of wood pallets. MB Bark also requests approval of one-time beneficial use of secondary materials as construction fill.

## 2. PROJECT DESCRIPTION

The site is currently arranged inside a perimeter access road. A wetland lies inside the perimeter road on the northwestern side of the site. The remainder of the area inside the perimeter road is developed for buildings, material handling and storage, and includes 6 stormwater management ponds, 3 of which are intended to provide stormwater treatment in addition to detention. One stormwater detention pond and 2 ponds intended to provide stormwater treatment are located outside the perimeter road. The site also includes a gatehouse, office building, truck scales, a 10,000-gallon diesel above ground storage tank, and parking areas. MB Bark currently accepts wood wastes and pallets, creosote treated wood, CRT glass, inert materials, and Types 1A and 1B organic materials. It is also licensed to accept short paper fiber from Cascades-Auburn Fiber, and OCC. MB Bark has accepted and stored utility poles for a contractor needing a local storage area in the past, but has stated it will no longer accept this material. Wood wastes and bark are processed into mulch and erosion control mix, and sold. Creosote treated wood is processed into fuel chips and sold to a facility licensed to use it as a substitute fuel. CRT glass is sent to the CPRC processing facility in Scarborough ("CPRC") for processing and use. Short paper fiber from Cascades-Auburn Fiber has been stored on site for up to



MB BARK	3	SOLID WASTE LICENSE
POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
# S-021741-WK-I-A and # S-021741-W4-J-N	)	NEW BENEFICIAL USE
(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

one year before sending off site for utilization; although Cascades-Auburn Fiber is no longer in business, MB Bark wants to maintain the ability to accept this waste. Types 1A and 1B materials are composted, and the compost is sold. Inert materials (soil, sand, rock, brick, concrete, porcelain, sand from winter sand cleanup, and non-CRT glass) have been processed on site into loam and base aggregates, and sold; MB Bark recently revised its application to say it no longer intends to crush inert materials on site, but will send them to CPRC for processing. Loam, sand, and compost are used to manufacture topsoil, which is sold. MB Bark has stated that it no longer intends to accept OCC or utility poles. MB Bark proposes to accept and store manufactured shingle tear-offs ("asphalt shingles"), grind them on site, and sell the product to hot mix plants or send it to CPRC for use in products.

MB Bark proposes to increase the size of the originally licensed facility (hereafter referred to as the "existing site") and to develop two new storage pads, pads 2 and 3, on a different part of the property (hereafter referred to as the "new area"). An access road will be constructed to the new area from the existing site. Since the facility was first licensed, the existing site's waste handling area has been extended outward. MB Bark requests after-the-fact approval for expansion that has already occurred, and approval for additional expansion.

As originally licensed, the facility's waste handling area encompassed 50.3 acres, of which approximately 38.5 acres is usable for waste handling activity; after completion of phases 1, 2, and 3, it will be 74.8 acres, of which 66.6 acres will be at the existing site and 8.2 acres at the new area. The new access road will add about 1.4 acres of developed area. Approximately 20 acres of the existing site will be regraded. Stormwater management features have been proposed to handle additional runoff. Department license # S-021741-WK-D-M approved paving a large material storage and handling area on the existing site, as well as the perimeter road; these areas have not been paved, and MB Bark proposes to leave them unpaved.

A portion of one on site building is leased to another company and used for truck maintenance, and another is leased to an electronics de-manufacturer. MB Bark also proposes to construct a rail spur in the future, after completing the construction proposed in this amendment application. Design information for the rail spur has not yet been provided.

MB Bark estimates 269,480 cy of fill (compacted volume) will be needed for the proposed expansion and regrading; approximately 2/3 of this volume will be used to regrade the existing site. Some of the fill volume (approximately 22,862 cy) will be

MB BARK	4	SOLID WASTE LICENSE
POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
# S-021741-WK-I-A and # S-021741-W4-J-N	)	NEW BENEFICIAL USE
(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

supplied from cut material on site. MB Bark estimates 283,611 cy of new material will be needed (before compaction), and proposes to use secondary materials consisting of 36,417 cy of reclaim manufactured by CPRC, 26,833 cy of modified reclaim manufactured by CPRC, and 220,361 cy of C&R manufactured by CPRC. Reclaim is a mixture of emulsified asphalt encapsulated contaminated soils mixed with other solid wastes. Modified reclaim is made with soils that meet the 06-096 C.M.R. ch. 418, § 1 definition of petroleum contaminated soil, encapsulated with emulsified asphalt. C&R is made of inert materials, and may be mixed with ground asphalt shingles and with ground CRT glass; if the asphalt shingles and/or CRT glass are added, the C&R is not an inert material. CPRC holds licenses allowing it to manufacture these products, although as of September 1, 2018, it ceased manufacturing reclaim. Some reclaim previously manufactured remains stockpiled at the CPRC site. Reclaim and modified reclaim are hereafter referred to as “reclaim”.

MB Bark has divided the development into 3 phases of construction. Phase 1 will include all work at the existing site, referred to as pad 1 and the runway area, with associated stormwater management features. Phase 2 will include the new access road and pad 3, with its associated stormwater management features. Phase 3 will include pad 2 and its stormwater management features. Phase 1 is expected to be completed in the first year of construction. Phases 2 and 3 are expected to be completed in the second year of construction. The application states construction will not be continuous, but in total will take 4000 hours from 4 employees over the two-year period.

### 3. VARIANCE REQUEST

MB Bark requests a variance to the provisions of 06-096 C.M.R. ch. 409, § 2(A)(3), which prohibits locating the waste handling area at a processing facility within 100 feet of a protected natural resource. The proposed waste handling area is within 100 feet of wetland areas in several locations. Wetland mapping revealed that the western side of the existing site is also within 100 feet of wetlands. The proposed access road to the new area will result in some filled wetlands, due to the need to cross wetlands in 3 locations and cross a stream and a wetland in 1 location; in addition, wetlands will be filled in 2 locations for pads 2 and 3. MB Bark has received a permit under the Natural Resources Protection Act (Department license numbers # L-19467-TG-C-N and # L-19467-D-N, dated June 19, 2018), and has received approval from the U.S. Army Corps of Engineers for the proposed wetland and stream alterations. The Department finds that MB Bark has presented clear and convincing evidence that its proposal will be compliant with State law and the purpose and intent of 06-096 C.M.R. ch. 409, § 2(A)(3).



MB BARK	5	SOLID WASTE LICENSE
POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
# S-021741-WK-I-A and # S-021741-W4-J-N	)	NEW BENEFICIAL USE
(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

#### 4. BENEFICIAL USE

Reclaim and C&R will be used to provide the majority (approximately 90%) of the fill needed for the project. Analysis of reclaim and C&R by MB Bark's geotechnical engineering consultant showed that the material will perform as a substitute for virgin construction fill material. CPRC's licenses do not permit it to accept hazardous waste. MB Bark has proposed to meet erosion and sedimentation control best management practices. General licensing criteria are addressed in subsequent Findings of Fact in this license. Reclaim and C&R made with asphalt shingles may potentially exceed some of the screening standards in 06-096 C.M.R. ch. 418, appendix A. CRS, CPRC's predecessor in Scarborough, performed evaluations of the risk posed by reclaim and C&R, and proposed risk management measures to limit risk; the risk assessment information was included in MB Bark's beneficial use application by reference. The risk management measures proposed include limiting the percentage of shingles in C&R; annual analysis of shingles for benzo[a]pyrene and the total metals arsenic, barium, cadmium, chromium, mercury, lead, selenium, and silver; limiting use of reclaim to nonresidential settings; and covering reclaim and C&R containing CRT glass with a concrete or asphalt paved surface or 6 inches of compacted soil. MB Bark's application shows that the enlarged existing waste handling area and the new waste handling areas will be covered with a 6-inch layer of compacted gravel. Department staff ("staff") comments that the 6-inch compacted gravel layer should not contain secondary materials. In addition, the 2017 cut and fill plan states that a portion of the fill volume will be soil and gravel cover for the waste storage and handling areas. These changes were not accounted for in MB Bark's estimate of the volume of waste derived product to be used. Staff comments that this approval is to construct the facility to the proposed grades in MB Bark's proposed 2-year timeframe, and that if there is insufficient secondary material to complete the work in the specified time frame, appropriate virgin material will need to be used, unless otherwise licensed by the Department. In addition, if MB Bark has access to or takes delivery of more secondary material than is needed, or the volume estimates are too high, the additional unneeded material must be removed when construction is complete.

MB Bark has stated that it will file a deed notice and restriction as described in 06-096 C.M.R. ch. 418, § 10(B) and (C). Staff comments that a draft of the notice and restriction should be submitted to the Department for review and approval prior to the start of construction, which includes: grubbing; blasting; excavation; delivering C&R or reclaim to the site; placement of fill; regrading; or moving fill, stockpiled C&R, or reclaim. The notice and restriction should be filed at the Androscoggin County Registry of Deeds

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POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
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(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

within 60 days of Department approval, and a copy of the filed information, including book and page number, should be provided to the Department as soon as it is available.

MB Bark's proposal included use of C&R and reclaim as fill wherever fill was needed for the project. Plan sheet C-3.2 in MB Bark's application shows an area for storage of C&R after completion of construction. Staff comments that the application materials do not address storage or distribution of C&R. Staff comments that MB Bark will need a beneficial use license to distribute C&R, but this has not been addressed in this application. Staff comments that any C&R or reclaim remaining on site after completion of phases 1, 2 and 3 should be removed within 30 days of completion of construction and returned to CPRC or disposed in a landfill, unless otherwise licensed by the Department. No additional C&R or reclaim may be stored on site until MB Bark has a beneficial use license to distribute it.

An application for beneficial use of solid waste must demonstrate that the proposed beneficial use is not disposal or a means of discard. MB Bark provided a submittal on October 5, 2018 that detailed its need for additional storage, handling, and processing areas. Briefly, MB Bark expects demand for its bark mulch, creosote treated wood chip, and loam products to increase over the next 3-5 years, and states it will need more space to accommodate more material. In addition, MB Bark expects future demand for recycled aggregate to increase, and has included storage area for C&R on pad 1. Pads 2 and 3 will be needed for the proposed new activity of shingle storage and processing. Pad 3 will include areas for: storage of incoming shingles for 3 days while awaiting asbestos analytical results; storage of post-test shingles; storage of ½' minus ground shingles; storage of inert material; and allowance for access and processing equipment. Pad 2 includes area for: a feed stockpile of ½" ground shingles; a pile of ¼' minus ground shingles destined for hot mix plants; an enclosed container for storage of asbestos-containing material in case any is detected; and space for a loadout ramp, access, and processing equipment.

Since the quantity of secondary material used as fill is determined by both area and depth, MB Bark's design consultant, Stantec Consulting Services, Inc. ("Stantec"), provided a discussion of how it arrived at the proposed grades. Factors considered included: roadway grades and widths appropriate for operation of heavy equipment and trucks; keeping stormwater conveyances at the surface to minimize maintenance needs; keeping stormwater treatment facilities to a manageable size; providing for sufficient elevation change to allow stormwater to flow to the ponds and to outfall from the ponds; appropriate slope of the working surface of pads 1, 2, and 3; avoidance of wetlands and vernal pool buffer areas; and desire to connect smaller working areas.

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POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
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(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

MB Bark's justification of the size of the area needed included existing and proposed specific acreage needs for various materials. MB Bark also provided a post-development plan showing the location of the various material handling and processing areas. Staff comments that there are discrepancies between the sizes of the areas on plan sheet C-3.2 (titled "Post-Construction Materials Handling Plan", last revised September 21, 2018) and the proposed sizes contained in MB Bark's October 5, 2018 submittal explaining the need for more handling and processing area at the site. Staff comment that sheet C-3.2 will need to be revised to match the area sizes described in MB Bark's October 5, 2018 letter.

The Department finds that use of reclaim, modified reclaim, and C&R as construction fill for this project, as described in the application, is a beneficial use, provided: the 6-inch compacted gravel layer covering all construction fill does not contain secondary materials; a draft of the deed notice and restriction is submitted to the Department for review and approval, and the finalized document is filed at the Androscoggin County Registry of Deeds within 60 days after Department approval, and a copy of the filed information, including book & page number, is provided to the Department as soon as it is available; any C&R or reclaim remaining on site after completion of phases 1, 2 and 3 is removed within 30 days of completion of construction and returned to CPRC or disposed in a landfill, unless otherwise licensed by the Department; no additional C&R is stored on site until MB Bark has a beneficial use license to distribute it; and application drawing sheet C-3.2 is revised and resubmitted to show material storage, handling, and processing areas with sizes that match the area sizes MB Bark states it needs in the October 5, 2018 letter.

#### 5. TITLE, RIGHT, OR INTEREST

The property is owned by MB Investment Properties, LLC and leased to MB Bark, LLC. A copy of the lease was provided. The Department finds that MB Bark has provided adequate evidence of title, right, or interest in the property.

#### 6. FINANCIAL CAPACITY

MB Bark estimates the cost of the project to be \$403,000, including the wetland compensation fee, blasting, tree clearing, materials, construction labor and construction oversight. Design expenses have already been paid. Material costs are low because MB Bark will not need to buy fill. MB Bark is a subsidiary of CPRC, who will supply the reclaim, modified reclaim, and C&R without charging MB Bark. Costs will be paid out

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COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
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(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

of operational cash flow and, if necessary, through working capital that MB Bark has access to through the Bank of America. Staff comments that the cost estimate does not include environmental monitoring, additional construction oversight required in this approval, additional permitting costs to date, cost of a noise assessment, or a contingency factor. However, the amount of working capital MB Bark has access to is well in excess of the cost estimate provided, so staff recommends approval regardless. The Department finds that MB Bark has provided evidence of availability of sufficient funds to complete the proposed amendment and operate the facility in a manner consistent with state environmental standards.

## 7. TECHNICAL ABILITY

MB Bark has worked with 3 consultants: St.Germain Collins, Stantec, and Summit Geoengineering Services, Inc. ("Summit"). St.Germain Collins provided permitting and project management services; the 2 individuals involved have over 30 years combined permitting and oversight experience with solid waste facilities. Stantec provided design and engineering services, wetland mapping, surveyed the site for rare plants, and provided permitting services under the Natural Resources Protection Act and with the U.S. Army Corps of Engineers. The 2 professional engineers leading Stantec's team have over 40 years of combined experience with civil and environmental engineering projects including Department solid waste facility permitting. Summit provided geotechnical support. Summit's professional engineer has 30 years of experience with geotechnical, construction materials, civil, and structural engineering, and site permitting.

Construction will be performed by MB Bark and CPRC personnel using company-owned equipment. The employees are experienced in use of heavy equipment, and have performed grading and stormwater treatment structure construction at the MB Bark site since 2007, including construction of the MB Bark compost facility in 2013. MB Bark's operations are overseen by its General Manager, who has been with MB Bark since the change in ownership in 2006. Summit and a professional engineer from St.Germain Collins will provide construction oversight and post-construction certification. MB Bark states that construction will occur sporadically, as its employees have time to do it, rather than continuously, and proposes construction oversight consisting of weekly inspections by a professional engineer during times of active construction. Staff comments that the previous regrading effort at the site resulted in overfilling and unlicensed expansion, and recommends frequent inspections by a professional engineer during all times that construction is occurring. Staff also comments that no design information was provided for the rail spur that MB Bark intends to construct in the future, and that design



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information should be provided to the Department for review and approval prior to construction of the rail spur.

The Department finds that MB Bark has submitted adequate evidence of technical ability to design, construct, operate, and maintain the facility in accordance with state environmental requirements and its permits provided:

- a professional engineer conducts weekly inspections during all times that construction is occurring;
- weekly reports are submitted electronically to the Department each Tuesday for the preceding week:
  - when construction occurred, the report must include personnel working on the project, a description of work completed, the type and quantity of material moved or placed, and engineering inspection reports; and
  - when no construction occurred, the report may be an email documenting there was no construction activity, from anyone with knowledge of the construction activities;
- clearing limits and earthwork limits are marked in the field by a surveyor or professional engineer prior to undertaking any clearing or earthwork and the markings are maintained until the Department concurs the construction was completed as licensed;
- areas requiring construction, as specified in the application materials, may not be used until a professional engineer has certified construction is complete and was done as approved by the Department and the Department has accepted this certification; and
- rail spur design information must be provided to the Department for review and approval prior to construction of the rail spur.

#### 8. DISCLOSURE

MB Bark submitted a complete civil and criminal disclosure statement. The Department finds no reason to withhold this license based on civil or criminal record.

#### 9. TRAFFIC MOVEMENT

The original license for the facility stated that up to 160 truck trips and 100 passenger vehicle trips were expected per day. MB Bark provided 2017 traffic count information for the MB Bark facility, which showed an average of 19 truck trips and 13 other vehicle trips per day, and a maximum of 69 truck trips and 13 other vehicle trips per day. An



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SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
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increase in traffic is expected due to the new waste stream proposed to be accepted (shingles); MB Bark provided traffic count data from the CPRC facility in Scarborough, where shingles as well as other wastes are currently accepted. All of the CPRC shingle traffic is expected to go to MB Bark once it begins accepting shingles. Average trips per day at CPRC for all wastes was 36; the highest day was 99. The average number of trips per day in and out of MB Bark is expected to be 68, and the maximum less than or equal to 181. This is less than the 260-maximum expected in the original facility license. Haul route information was provided; roads with weight limits or congested locations are not proposed to be used. No high accident locations were identified at nearby intersections. The facility is open 5 days per week except during busy times of the year, when it is open 7 days per week. Interior roads are 2-way, gravel-surfaced, and 24 feet wide. Traffic circulation patterns were identified on facility drawings. The Department finds that MB Bark has made adequate provisions for safe and effective traffic movement into, out of, and within the proposed facility.

#### 10. FITTING HARMONIOUSLY INTO THE ENVIRONMENT

MB Bark proposes expansion of the existing site and proposes new development in a currently wooded part of the site, to the west of the existing site. Stantec mapped wetlands and surveyed the property for rare, threatened, or endangered species. A deer wintering area was identified to the north and northwest of the new area. A perennial stream and 3 wetlands are located to the northeast of the existing site. An intermittent stream and 8 wetlands are located to the west of the existing site, 1 wetland is northwest of the existing site, 3 wetlands are south of the existing site, and 1 wetland exists in the interior of the existing site. Several vernal pools, none of which were significant vernal pools, were mapped to the west and south of the existing site. Of the 15 identified wetlands, 7 are wetlands of special significance. One threatened plant species, Swamp White Oak, was found to the northeast of the existing site. New and expanded waste handling areas will be at least 100 feet from property lines. Approximate clearing limits are shown on the project plans. Areas outside the clearing limits are proposed to be left undisturbed. Finding of Fact #3, above, describes MB Bark's request for a variance to the requirement for a 100-foot setback to protected natural resources. Staff comments that the western and southwestern edge of the existing site, where the railroad spur is proposed to be constructed, is already within 100 feet of wetlands. Grading for the railroad spur has not yet been proposed, but the revised waste handling area boundary is at the edge of fill on this side. Staff recommends that no additional expansion occur in this area.

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COUNTY, MAINE	)	PROCESSING FACILITY
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BENEFICIAL USE OF SOLID WASTE	)	
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The Maine Natural Areas Program (“MNAP”) recommended no expansion or disturbance occur within or adjacent to the forested riparian areas where Swamp White Oak was found, and that a 75-foot no disturbance buffer be maintained between Swamp White Oaks and the erosion control mix berm at the edge of the proposed earthwork area.

The Maine Department of Inland Fisheries and Wildlife (“MDIFW”) commented that only a small portion of the proposed development would intersect with the deer wintering area and that therefore it would not be significant to the deer population, and that minimal impacts to wildlife are expected as long as vernal pools are avoided as described in the application. MDIFW recommends 100-foot riparian buffers be maintained between intermittent and perennial streams and project disturbances in order to protect habitat for wild brook trout. Part of pad 3 would have encroached into this buffer, so MB Bark revised its design to include the buffer, and submitted revised drawings (sheets C-4.4 and C-4.5, revised September 21, 2018).

The proposed new access road to pads 2 and 3 will cross wetlands, as described in Finding of Fact #3, above. The road at these locations has been designed to maintain hydraulic connectivity of both sides of crossed wetlands.

The Department finds that the proposed new and expanded areas will fit harmoniously into the natural environment provided that: no additional expansion at the west and southwest edge of the developed site; no disturbance (including mowing) occurs within 75 feet of Swamp White Oaks; and a 100-foot riparian buffer is maintained between intermittent and perennial streams and project disturbances.

#### 11. EXISTING USES, SCENIC CHARACTER

The expanded facility will extend no closer to the nearest airport, the Auburn Regional Airport. An historical site was identified when the processing facility was first licensed; archaeological work at that site has concluded. The Maine Historic Preservation Commission (“MHPC”) required a Phase I prehistoric archaeological survey be performed in the western part of the property, where the new area is proposed. The survey was completed, and no archaeological sites were found. MHPC found that no historic or archaeological properties would be affected. MB Bark’s application states that the facility will not unreasonably interfere with views from established public viewing areas because forested buffers will be retained around the new area (pads 2 and 3). Adjacent properties are zoned rural residential or farm/forest. The existing site has been a processing facility for approximately 20 years. MB Bark states that it has implemented various practices to reduce the impact on residential neighbors, including planting

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COUNTY, MAINE	)	PROCESSING FACILITY
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BENEFICIAL USE OF SOLID WASTE	)	
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vegetation and limiting equipment noise. Noise readings were taken from a shingle grinder in operation at CPRC to assess potential noise levels at MB Bark. A noise level of 75 dBA was recorded at a distance of 250 feet from the grinder; MB Bark proposed to locate the shingle grinder at least 300 feet from the property line to ensure noise would not exceed 75 dBA at the property line.

Staff comments that 06-096 C.M.R. ch. 400, § 4(F)(2)(a)(ii) limits noise levels to 60 dBA for daytime hours and 50 dBA for nighttime hours at any protected location in an area for which the zoning is not predominantly commercial or industrial. A “protected location” is defined in 06-096 C.M.R. ch. 400, § 1(Ii) as any location within a parcel of property that contains a residential subdivision or a residence. The noise limit at a protected location effectively applies up to the property line. A residential subdivision is located on the adjacent parcel across the property line that would be 300 feet from the shingle grinder; since the noise readings provided by MB Bark showed a noise level of 65 dBA at 500 feet from the shingle grinder, the limit of 60 dBA at a protected location would be exceeded. Staff comments that the noise survey performed when the processing facility was first licensed only included bark processing equipment. Since then, other noise sources have been present at the site, including the grinder that processes rail ties and pallets. Staff comments that noise from all sources must be evaluated and an estimate of maximum daytime and nighttime noise levels at all nearby protected locations must be provided. Staff comments that, at this time, MB Bark has not shown its operations will meet the noise standard in 06-096 C.M.R. ch. 400, § 4(F)(2)(a)(ii). Staff recommends an evaluation of all non-exempt noise sources at the facility (existing and proposed) be performed by a qualified consultant, and an estimate of the maximum daytime and nighttime noise levels at all nearby protected locations be submitted to the Department for review and approval prior to beginning any work associated with this application. Staff also recommends follow-up noise level monitoring after construction, during operation of all non-exempt equipment, to verify that actual noise levels meet the regulatory standard. Staff comments that, if actual noise levels exceed the standard, the activity producing the noise will need to cease until MB Bark demonstrates it can meet the standard.

The Department finds that MB Bark’s proposed expansion and new development will not present a bird hazard to aircraft, have an unreasonable adverse effect on the preservation of historical sites, or unreasonably interfere with views from established public viewing areas. The Department finds that MB Bark has not demonstrated its noise levels will meet the standards in 06-096 C.M.R. ch. 400, § 4(F)(2)(a)(ii). The Department further finds that an evaluation of all non-exempt noise sources at the facility (existing and proposed) must be performed by a qualified consultant, and an estimate of the maximum

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COUNTY, MAINE	)	PROCESSING FACILITY
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BENEFICIAL USE OF SOLID WASTE	)	
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daytime and nighttime noise levels at all nearby protected locations must be submitted to the Department for review and approval prior to beginning any work associated with this application, and follow-up noise monitoring must be performed by a qualified consultant after construction, during operation of all non-exempt equipment, to verify that actual noise levels meet the standards in 06-096 C.M.R. ch. 400, § 4(F)(2)(a)(ii). In the event noise levels exceed the standards in 06-096 C.M.R. ch. 400, § 4(F)(2)(a)(ii), MB Bark must cease use of the equipment causing the exceedance until it demonstrates it can meet the standards.

## 12. AIR QUALITY

MB Bark states that no air emissions licenses are required for the facility, and there will be no new sources of odors. Dust may be produced by processing equipment, from material stockpiles, or due to travel on facility roadways and storage areas. MB Bark proposes to use a water truck as necessary on roadways and storage areas. Processing equipment typically includes spray bars to control dust during processing. Dust from material stockpiles will be controlled by wetting. The facility operations manual includes dust control measures. The Department finds that the processing facility will not unreasonably adversely affect air quality.

## 13. SOIL SUITABILITY

MB Bark hired Summit to assess the suitability of site soils and proposed fill materials for the project. Summit excavated 6 test pits; 5 were in the area proposed for expansion of the existing site ("pad 1") and 1 was excavated into an area already filled with reclaim. Summit concluded that both the native soils and proposed fill materials would be suitable for use in constructing pad 1 and that the native soils would support the pad construction, pending determination of material conditioning, handling, placement, and compaction procedures. As proposed, pad 1 would have a fill slope 25 feet high at the thickest point. Summit next performed a global stability analysis and concluded that the embankment would have an acceptable factor of safety, assuming its pad construction recommendations were followed. Summit expects its evaluations and recommendations for pad 1 will be applicable to pads 2 and 3, but states that subsurface investigations in the pads 2 and 3 area will need to be done to confirm this. Additional information on the subgrade conditions in the proposed roadway area will also be needed to determine subgrade preparation needed and type and thickness of materials needed.

Staff reviewed the geotechnical reports and commented in a memo dated August 21, 2018 that additional information is needed. Staff recommends that no material



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BENEFICIAL USE OF SOLID WASTE	)	
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movement or placement for phase 1 construction occur until all Department concerns regarding soil suitability and site stability have been resolved. In addition, staff recommends that subsurface investigations be performed in the area of the proposed road and pads 2 and 3, and that a geotechnical report be submitted to determine what material conditioning, handling, placement, and compaction procedures will be needed, and to determine road subgrade preparation needed and type and thickness of materials needed for road construction. The report must be submitted for review and approval, and no earthwork or material movement or placement may be done for the phase 2 or 3 construction (road, or pads 2 or 3) until the Department has approved commencement of construction.

The Department finds that MB Bark has not yet demonstrated the expansion or the new development will be constructed on suitable soils. The Department finds that no material movement or placement for phase 1 construction may occur until all Department concerns, as detailed in the staff memorandum dated August 21, 2018, regarding soil suitability and site stability have been resolved. The Department also finds that subsurface investigations must be performed in the area of the proposed road and pads 2 and 3, and that a geotechnical report must be prepared describing what material conditioning, handling, placement, and compaction procedures will be needed, and to determine road subgrade preparation needed and type and thickness of materials needed for road construction. The report must be submitted for review and approval, and no earthwork or material movement or placement may be done for the phase 2 or 3 construction (road or pads 2 or 3) until the Department has approved commencement of construction.

#### 14. STORMWATER, FLOODING, AND EROSION AND SEDIMENTATION CONTROL

Stantec prepared a stormwater management report for the project. Peak stormwater discharge was evaluated for the 2, 10, and 25 year, 24-hour storm events. Stormwater management features were incorporated into the design to direct and detain flow as needed. Four wet ponds are proposed to provide water quality treatment. Staff reviewed the report and comment that stormwater quality and quantity will be improved following completion, and that if constructed as proposed, no downstream flooding will result.

The project is not located in a 100-year floodplain.

The application states that temporary and permanent erosion control measures are proposed as described in the Maine DEP Erosion and Sediment Control BMP manual. Erosion and sedimentation control notes are included on drawings prepared by Stantec



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BENEFICIAL USE OF SOLID WASTE	)	
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(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

for the project. MB Bark will be responsible for maintenance of permanent stormwater conveyance and treatment systems. The application states that inspection, maintenance, and housekeeping will comply with Appendix B of 06-096 C.M.R. ch. 500. Staff comments that the applicant must comply with the provisions in the most recent versions of the BMPs, which are the *Maine Erosion and Sediment Control Practices Field Guide for Contractors*, March 2015, and the *Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers*, October 2016.

The Department finds that the processing facility will not unreasonably cause or increase flooding onsite or on adjacent properties nor create an unreasonable flood hazard to a structure, and that MB Bark has made adequate provisions for erosion and sedimentation control, provided it implements, inspects, and maintains temporary and permanent erosion control measures as described, and provided MB Bark, its agents, and its consultants comply with the provisions in the most recent versions of the BMPs.

#### 15. SURFACE WATER QUALITY AND GROUND WATER QUALITY

The processing facility is not in the direct watershed of a waterbody most at risk from new development. The facility has a Multi-Sector General Permit, and collects surface water samples from 4 outfalls under the industrial stormwater program. These sampling requirements have been included in the facility operations manual. Staff comments that wastes have been stored outside and uncovered on soil base pads at this site for years, and waste materials have been used as fill, and staff have recommended a pore water monitoring program be implemented to characterize water quality. MB Bark has agreed to do this, and has included monitoring provisions in its operations manual. Staff comments that the procedures in 06-096 C.M.R. ch. 405, § 2(C) and (D) must be followed when evaluating water quality monitoring results. The Department finds that MB Bark has made adequate provisions for implementing a water quality monitoring program in order to determine whether or not surface water quality or ground water quality has been or will be affected, provided the procedures in 06-096 C.M.R. ch. 405, § 2(C) and (D) are followed when evaluating water quality monitoring results.

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(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

## 16. UTILITIES

No new access to utilities will be needed for the project. Waste materials that may be produced include metal removed from pallets, rail ties, or shingles; plastic or wood bypass removed during shingle processing; plastic or wood removed from compostable material; and unusable residue from cleanup of material storage and handling areas. Metal and bypass are proposed to be sent to recycling facilities or to Riverside Recycling in Portland. Unusable residue from material storage and handling area cleanup will be taken directly to a landfill. MB Bark has provided a statement from Waste Management-Crossroads Landfill that it is willing and has the capacity to accept the expected annual quantity of waste processing residue. The Department finds that MB Bark has made adequate provisions for utilities, including solid waste disposal, provided it disposes of unusable residue from material storage and handling area cleanup at the Waste Management-Crossroads Landfill or other facility licensed to accept this waste.

## 17. OTHER PROCESSING FACILITY CRITERIA

The amendment application requests approval to process pallets and asphalt shingles, and to accept and store CRT glass. MB Bark states it will not crush inert material on site, and will send CRT glass and inert material to CPRC for processing. Only unpainted, untreated pallets with no visible contamination are accepted. Pallets are ground and combined with land clearing debris and used to make mulch and erosion control mix. These products are sold for landscaping or erosion control purposes. Fasteners are removed by magnets in the processing equipment, and are sent off site for recycling as metal.

Asphalt shingles are ground to ½" minus and screened to separate the ¼" minus fraction. Plastic and other trash are removed prior to processing and sent to the Riverside Recycling transfer station. Nails are removed by magnets in the processing equipment and sent off site for recycling as metal. The ¼" to ½" ground material will be sent to CPRC to be made into C&R. The ¼" minus fraction will either be sent to hot mix asphalt plants licensed to accept it for use as a raw material substitute or be sent to CPRC for use in C&R. Each load of incoming asphalt shingles will be tested for asbestos prior to being added to the stockpile awaiting processing. After processing, one sample per 250 tons will be tested for asbestos, and one sample per year of ground shingles will be analyzed for the total metals arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver, and for benzo[a]pyrene. In addition, MB Bark states that as required by customers, ground shingles will be analyzed by TCLP for metals, volatile organic

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POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
# S-021741-WK-I-A and # S-021741-W4-J-N	)	NEW BENEFICIAL USE
(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

compounds and semi-volatile organic compounds. CPRC's shingle beneficial use license contains limits on the levels of total metals and benzo[a]pyrene in C&R. At least one hot mix plant requires analysis for the TCLP parameters. MB Bark has included the material sampling requirements in its operations manual.

CRT glass is produced by electronics demanufacturing facilities. MB Bark will only accept CRT glass from electronics demanufacturing facilities that have a Department-approved sampling and analytical work plan for the CRT glass, and MB Bark will only accept a batch after it has been tested and found to be acceptable. This information has also been included in the operations manual. CRT glass will not be processed, and all of it will be sent off site to CPRC, who uses it to make C&R.

Material storage and processing areas will be cleaned annually, the surfaces inspected and repaired as needed, and elevations checked annually to ensure the proper elevations are maintained. Residues are reused to the extent possible. Reuse of rail tie processing residues may not be possible; in that event, it will be sent off site for disposal. This is discussed in Finding of Fact #16, above.

Staff comments that MB Bark has outlets for all stored materials and processed materials. Regarding residuals, staff comments that pallet and land clearing debris residuals cleaned up on the paved surface may be usable as mulch. The same residuals on gravel surfaces may be usable as erosion control material or possibly mixed into topsoil. Residuals from shingle processing cleaned up on the gravel surface may be usable in making C&R. Residuals from CRT glass storage cleaned up on the gravel surface may be usable in making C&R. Residuals from rail tie processing cleaned up on the gravel surface may be too dirty to use as fuel, and may not be used as mulch, and therefore must be taken to a landfill for disposal. Staff comments that MB Bark has made provisions for distribution or disposal of all materials stored or processed at the site and for residuals generated at the site. Staff comments that no materials may be stored on site for more than two years, which includes time before and after processing.

The Department finds that MB Bark has addressed other processing facility criteria, including material analytical requirements, material distribution plans, and management of residuals.

## 18. OPERATIONS

MB Bark has submitted a revised facility operations manual addressing existing and proposed aspects of the operation. The Department finds that MB Bark has submitted an

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BENEFICIAL USE OF SOLID WASTE	)	
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operations manual that addresses all applicable operating requirements provided a complete manual including all revisions and appendices is submitted for review and approval.

#### 19. SOLID WASTE HIERARCHY

New or expanded processing facilities that generate residues requiring disposal must demonstrate that the facility will recycle or process into fuel for combustion all waste accepted at the facility to the maximum extent practicable, but in no case at a rate less than 50%, and that the facility is consistent with the recycling provisions of the state waste management and recycling plan, in order to show that their purpose and practices are consistent with the State's solid waste management hierarchy.

MB Bark expects to store, test and process up to 37,500 tons of shingles. In recent years, MB Bark has reported it received a maximum of 45,706 tons of land clearing debris, 2,080 tons of CRT glass, 1,416 tons of lumber/pallets, 14,953 tons of creosote treated wood, and 556 tons of inert materials annually. Shingles are proposed to be ground and sent to either hot mix asphalt plants for use in asphalt pavement production or sent to CPRC for use in making C&R. Land clearing debris, bark, and pallets are ground and made into bark mulch. CRT glass will be shipped to CPRC for use in making C&R. Creosote treated wood is ground to make boiler fuel. Inert material (soil, sand, rock, brick, porcelain, and non-CRT glass) is resold as fill or topsoil, or will be sent to CPRC for processing. Residues and bypass generated during processing include metal, plastic, and wood. Metal is recycled; plastic and wood will be disposed. No residue has been reported as disposed in recent years. Residue from cleaning material storage areas will be reused if possible; rail tie cleanup debris (estimated at 10 to 15 tractor-trailer loads, per year) will likely need to be disposed. The bypass and cleanup debris together would be a small percentage of all wastes received at the facility. MB Bark's operations manual addresses annual reporting, which will include reporting of the quantity of material received, processed, and disposed, allowing verification of the recycling percentage. Staff comments that it is very likely that well over 50% of the wastes received at MB Bark will be recycled, reused, sent off site for recycling or reuse elsewhere, or processed into fuel for combustion, but that the annual reports will need to verify the percentage. The Department finds that the purposes and practices of MB Bark are consistent with the State's solid waste management hierarchy, provided MB Bark completely addresses annual reporting requirements sufficient for the Department to verify that the reuse and recycling percentage meets the requirements of 06-096 C.M.R. ch. 409, § 2(C)(1).



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COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
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(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

BASED on the above Findings of Fact, and subject to the Conditions listed below, the Department makes the following Conclusions:

1. MB Bark has presented clear and convincing evidence that its proposal will be compliant with State law and the purpose and intent of 06-096 C.M.R. ch. 409, § 2(A)(3).
2. Use of reclaim and C&R as construction fill for this project, as described in the application, is a beneficial use, provided: the 6-inch compacted gravel layer covering all construction fill does not contain secondary materials; a draft of the deed notice and restriction is submitted to the Department for review and approval prior to the start of construction, the finalized document is filed at the Androscoggin County Registry of Deeds within 60 days of Department approval, and a copy of the filed information, including book and page number, is provided to the Department as soon as it is available; any C&R or reclaim remaining on site after completion of phases 1, 2 and 3 is removed within 30 days of completion of construction and returned to CPRC or disposed in a landfill, unless otherwise licensed by the Department; no additional C&R is stored on site until MB Bark has a beneficial use license to distribute it; and application drawing sheet C-3.2 is revised to show material storage, handling, and processing areas with sizes that match the area sizes MB Bark states it needs in the October 5, 2018 letter, and is submitted to the Department for review and approval within 15 days of the effective date of this license.
3. MB Bark has provided adequate evidence of title, right, or interest in the property.
4. MB Bark has provided adequate evidence of availability of sufficient funds to complete the proposed amendment and operate the facility in a manner consistent with state environmental standards.
5. MB Bark has provided adequate evidence of technical ability to design, construct, operate, and maintain the facility in accordance with state environmental requirements and its permits provided:
  - a professional engineer conducts weekly inspections during all times that construction is occurring;
  - weekly reports are submitted electronically to the Department each Tuesday for the preceding week:
    - when construction occurred, the report shall include personnel working on the project, a description of work completed, the type and quantity of material moved or placed, and engineering inspection reports; and



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POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
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- when no construction occurred, the report may be an email documenting there was no construction activity from anyone with knowledge of the construction activities;
  - clearing limits and earthwork limits are marked in the field by a surveyor or professional engineer prior to undertaking any clearing or earthwork and the markings are maintained until the Department concurs the construction was completed as licensed;
  - areas requiring construction, as specified in the application materials, may not be used until a professional engineer has certified construction is complete and was done as approved by the Department and the Department has accepted this certification; and
  - rail spur design information shall be provided to the Department for review and approval prior to construction of the rail spur.
- 6. There is no reason to withhold this license based on civil or criminal record.
- 7. MB Bark has made adequate provisions for safe and effective traffic movement into, out of, and within the proposed facility.
- 8. The proposed new and expanded areas will fit harmoniously into the natural environment provided that: no additional expansion at the west or southwest edge of the existing site; no disturbance (including mowing) occurs within 75 feet of Swamp White Oaks; and a 100-foot riparian buffer is maintained between intermittent and perennial streams and project disturbances.
- 9. MB Bark's proposed expansion and new development will not present a bird hazard to aircraft, have an unreasonable adverse effect on the preservation of historical sites, or unreasonably interfere with views from established public viewing areas.
- 10. MB Bark has not demonstrated its noise levels will meet the standards in 06-096 C.M.R. ch. 400, § 4(F)(2)(a)(ii). An evaluation of all non-exempt noise sources at the facility (existing and proposed) must be performed by a qualified consultant, and an estimate of the maximum daytime and nighttime noise levels at all nearby protected locations must be submitted to the Department for review and approval prior to beginning any work associated with this application, and follow-up noise monitoring must be performed by a qualified consultant after construction, during operation of all non-exempt equipment, to verify that actual noise levels meet the standards in 06-096 C.M.R. ch. 400, § 4(F)(2)(a)(ii). In the event noise levels exceed the standards in 06-096 C.M.R. ch. 400, §

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POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
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BENEFICIAL USE OF SOLID WASTE	)	
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4(F)(2)(a)(ii), MB Bark must cease use of the equipment causing the exceedance until it demonstrates it can meet the standards.

11. The processing facility will not unreasonably adversely affect air quality.
12. MB Bark has not yet demonstrated the expansion or the new development will be constructed on suitable soils. No material movement or placement for phase 1 construction may occur at the site until all Department concerns, as detailed in the staff memorandum dated August 21, 2018, regarding soil suitability and site stability have been resolved. Subsurface investigations must be performed in the area of the proposed road and pads 2 and 3, and a geotechnical report must be prepared describing what material conditioning, handling, placement, and compaction procedures will be needed, and to determine road subgrade preparation needed and type and thickness of materials needed for road construction. The report must be submitted for review and approval, and no earthwork or material movement or placement may be done for the phase 2 or 3 construction (road or pads 2 or 3) until the Department has approved commencement of construction of phases 2 and 3.
13. The processing facility will not unreasonably cause or increase flooding on site or on adjacent properties nor create an unreasonable flood hazard to a structure, and MB Bark has made adequate provisions for erosion and sedimentation control, provided it implements, inspects, and maintains temporary and permanent erosion control measures as described, and provided MB Bark, its agents and its consultants comply with the provisions in the most recent versions of the BMPs.
14. The Department finds that MB Bark has made adequate provisions for implementing a water quality monitoring program in order to determine whether or not surface water quality or ground water quality has been or will be affected, provided the procedures in 06-096 C.M.R. ch. 405, § 2(C) and (D) are followed when evaluating water quality monitoring results.
15. MB Bark has made adequate provisions for utilities, including solid waste disposal, provided it disposes of unusable residue from material storage and handling area cleanup at the Waste Management-Crossroads Landfill, or other facility licensed to accept this waste.
16. MB Bark has addressed other processing facility criteria, including material analytical requirements, material distribution plans, and management of residuals.

MB BARK	22	SOLID WASTE LICENSE
POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
# S-021741-WK-I-A and # S-021741-W4-J-N	)	NEW BENEFICIAL USE
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17. MB Bark has submitted an operations manual that addresses all applicable operational requirements provided a complete manual including all revisions and appendices is submitted to the Department for review and approval.
18. The purposes and practices of MB Bark are consistent with the State's solid waste management hierarchy, provided MB Bark completely addresses annual reporting requirements sufficient for the Department to verify that the reuse and recycling percentage meets the requirements of 06-096 C.M.R. ch. 409, § 2(C)(1).
19. All other findings, conclusions, and conditions remain as approved in Department license #S-021741-WK-A-N and subsequent licenses.

THEREFORE the Department APPROVES MB Bark's request for a variance to 06-096 C.M.R. ch. 409, § 2(A)(3) of the Department's regulations and APPROVES the above noted application of MB Bark SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations.

1. The Standard Conditions of Approval, a copy attached as Appendix A.
2. MB Bark shall take all necessary actions to ensure that its activities or those of its agents do not result in unnecessary or noticeable erosion of soils on site during operation of the facility.
3. The 6-inch compacted gravel surface layer placed over all construction fill shall not contain secondary materials.
4. A draft of the deed notice and restriction shall be submitted to the Department for review and approval prior to the start of construction, shall be filed in the Androscoggin County Registry of Deeds within 60 days of Department approval, and a copy of the filed information, including book and page number, shall be provided to the Department as soon as it is available.
5. Any C&R or reclaim remaining on site after completion of phases 1, 2 and 3 shall be removed within 30 days of completion of construction and returned to CPRC or disposed in a landfill, unless otherwise licensed by the Department. No additional C&R shall be stored on site until MB Bark has a beneficial use license to distribute it.

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POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
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(APPROVAL WITH CONDITIONS)	)	LICENSE, ONE-TIME

6. Within 15 days of the effective date of this license, MB Bark shall submit to the Department for review and approval application drawing sheet C-3.2, revised to show material storage, handling, and processing areas with sizes that match the area sizes MB Bark states it needs in the October 5, 2018 letter.
7. A professional engineer shall conduct weekly inspections during all times that construction is occurring.
8. Weekly reports shall be submitted electronically to the Department each Tuesday for the preceding week. When construction occurred, the report shall include personnel working on the project, a description of work completed, the type and quantity of material moved or placed, and engineering inspection reports. When no construction occurred, the report may be an email from anyone with knowledge of the construction activities, documenting there was no construction activity.
9. Rail spur design information shall be provided to the Department for review and approval prior to construction of the rail spur.
10. Clearing limits and earthwork limits shall be marked in the field by a surveyor or professional engineer prior to undertaking any clearing or earthwork, and the markings shall be maintained until the Department concurs the construction was completed as licensed.
11. Areas where construction occurred shall not be used until a professional engineer has certified construction is complete and was done as approved by the Department, and the Department has accepted this certification.
12. No additional expansion shall occur on the west and southwest edge of the existing site.
13. No disturbance, including mowing, shall occur within 75 feet of Swamp White Oaks.
14. A 100-foot riparian buffer shall be maintained between intermittent and perennial streams and project disturbances.
15. An evaluation of all non-exempt noise sources at the facility (existing and proposed) shall be performed by a qualified consultant, and an estimate of the maximum daytime and nighttime noise levels at all nearby protected locations shall be submitted to the Department for review and approval prior to beginning any work associated with this application.

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POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
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16. Noise monitoring shall be performed by a qualified consultant after construction of each phase, and during operation of all non-exempt equipment, to verify that actual noise levels meet the standards in 06-096 C.M.R. ch. 400, § 4(F)(2)(a)(ii). If noise levels exceed the standards, MB Bark shall cease using the noise-producing equipment until it demonstrates it can meet the standard.
17. No material movement or placement for phase 1 construction shall occur at the site until all Department concerns, as detailed in the staff memorandum dated August 21, 2018, regarding soil suitability and site stability have been resolved.
18. Subsurface investigations shall be performed in the area of the proposed road and pads 2 and 3, and a geotechnical report shall be prepared describing what material conditioning, handling, placement, and compaction procedures will be needed, and to determine road subgrade preparation needed and type and thickness of materials needed for road construction. The report shall be submitted for review and approval.
19. No earthwork or material movement or placement may be done for the phase 2 or 3 construction (road or pads 2 or 3) until the Department has approved commencement of construction of phases 2 and 3.
20. MB Bark shall implement, inspect, and maintain temporary and permanent erosion control measures as described in the application materials.
21. MB Bark and its consultants shall comply with the provisions in the most recent versions of the BMPs.
22. Within 15 days of the effective date of this license, MB Bark shall submit a complete operations manual including all revisions and appendices to the Department for review and approval.
23. MB Bark and its consultant shall follow the procedures in 06-096 C.M.R. ch. 405, § 2(C) and (D) when evaluating water quality monitoring results.
24. MB Bark shall dispose of unusable residue from material storage and handling area cleanup at the Waste Management-Crossroads Landfill, or other facility licensed to accept this waste.



MB BARK	25	SOLID WASTE LICENSE
POLAND AND AUBURN, ANDROSCOGGIN	)	
COUNTY, MAINE	)	PROCESSING FACILITY
SOLID PROCESSING FACILITY AND	)	LICENSE AMENDMENT
BENEFICIAL USE OF SOLID WASTE	)	
# S-021741-WK-I-A and # S-021741-W4-J-N	)	NEW BENEFICIAL USE
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25. MB Bark shall completely address annual reporting requirements sufficient for the Department to verify that the reuse and recycling percentage meets the requirements of 06-096 C.M.R. ch. 409, § 2(C)(1).
26. The one-time beneficial use approval shall lapse 2 years from the effective date of this license. No placement of secondary materials as fill may occur after that date without additional approval.
27. The invalidity or unenforceability of any provision, or part thereof, of this license shall not affect the remainder of the provision or any other provisions. This license shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

DONE AND DATED AT AUGUSTA, MAINE, THIS 28<sup>th</sup> DAY

OF NOVEMBER, 2018.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:   
MELANIE LOYZIM, ACTING COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

Date of initial receipt of amendment application, # S-021741-WK-I-A: March 9, 2018

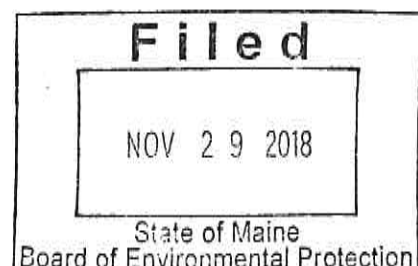
Date of acceptance of processing facility application: March 30, 2018

Date of initial receipt of beneficial use application, # S-021741-W4-J-N: September 10, 2018

Date of acceptance of beneficial use application: September 12, 2018

Date filed with Board of Environmental Protection:

xkk82900 & xkk83544



STANDARD CONDITIONS TO ALL SOLID WASTE FACILITY LICENSES

STRICT CONFORMANCE WITH THE STANDARD AND SPECIAL CONDITIONS OF THIS APPROVAL IS NECESSARY FOR THE PROJECT TO MEET THE STATUTORY CRITERIA FOR APPROVAL. VIOLATIONS OF THE CONDITIONS UNDER WHICH A LICENSE IS ISSUED SHALL CONSTITUTE A VIOLATION OF THAT LICENSE AGAINST WHICH ENFORCEMENT ACTION MAY BE TAKEN, INCLUDING REVOCATION.

1. **Approval of Variations from Plans.** The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed by the licensee. Any consequential variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation.
2. **Compliance with All Applicable Laws.** The licensee shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.
3. **Compliance with All Terms and Conditions of Approval.** The licensee shall submit all reports and information requested by the Department demonstrating that the licensee has complied or will comply with all terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.
4. **Transfer of License.** The licensee may not transfer the solid waste facility license or any portion thereof without approval of the Department.
5. **Initiation of Construction or Development Within Two Years.** If the construction or operation of the solid waste facility is not begun within two years of issuance or within 2 years after any administrative and judicial appeals have been resolved, the license lapses and the licensee must reapply to the Department for a new license unless otherwise approved by the Department.
6. **Approval Included in Contract Bids.** A copy of the approval must be included in or attached to all contract bid specifications for the solid waste facility.
7. **Approval Shown to Contractors.** Contractors must be shown the license by the licensee before commencing work on the solid waste facility.
8. **Background of key individuals.** A licensee may not knowingly hire as an officer, director or key solid waste facility employee, or knowingly acquire an equity interest or debt interest in, any person convicted of a felony or found to have violated a State or federal environmental law or rule without first obtaining the approval of the Department.
9. **Fees.** The licensee must comply with annual license and annual reporting fee requirements of the Department's rules.
10. **Recycling and Source Reduction Determination for Solid Waste Disposal Facilities.** This condition does not apply to the expansion of a commercial solid waste disposal facility that accepts only special waste for landfilling.

## Appendix A

### STANDARD CONDITIONS TO ALL SOLID WASTE FACILITY LICENSES

The solid waste disposal facility shall only accept solid waste that is subject to recycling and source reduction programs, voluntary or otherwise, at least as effective as those imposed by 38 MRSA Chapter 13.

11. **Deed Requirements for Solid Waste Disposal Facilities.** Whenever any lot of land on which an active, inactive, or closed solid waste disposal facility is located is being transferred by deed, the following must be expressly stated in the deed:
  - A. The type of facility located on the lot and the dates of its establishment and closure.
  - B. A description of the location and the composition, extent, and depth of the waste deposited.
  - C. The disposal location coordinates of asbestos wastes must be identified.



# DEP INFORMATION SHEET

## Appealing a Department Licensing Decision

Dated: November 2018

Contact: (207) 287-2452

### SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's (DEP) Commissioner: (1) an administrative process before the Board of Environmental Protection (Board); or (2) a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This information sheet, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

### I. ADMINISTRATIVE APPEALS TO THE BOARD

#### **LEGAL REFERENCES**

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S. §§ 341-D(4) & 346; the *Maine Administrative Procedure Act*, 5 M.R.S. § 11001; and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 C.M.R. ch. 2.

#### **DEADLINE TO SUBMIT AN APPEAL TO THE BOARD**

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed more than 30 calendar days after the date on which the Commissioner's decision was filed with the Board will be dismissed unless notice of the Commissioner's license decision was required to be given to the person filing an appeal (appellant) and the notice was not given as required.

#### **HOW TO SUBMIT AN APPEAL TO THE BOARD**

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017. An appeal may be submitted by fax or e-mail if it contains a scanned original signature. It is recommended that a faxed or e-mailed appeal be followed by the submittal of mailed original paper documents. The complete appeal, including any attachments, must be received at DEP's offices in Augusta on or before 5:00 PM on the due date; materials received after 5:00 pm are not considered received until the following day. The risk of material not being received in a timely manner is on the sender, regardless of the method used. The appellant must also send a copy of the appeal documents to the Commissioner of the DEP; the applicant (if the appellant is not the applicant in the license proceeding at issue); and if a hearing was held on the application, any intervenor in that hearing process. All of the information listed in the next section of this information sheet must be submitted at the time the appeal is filed.



### INFORMATION APPEAL PAPERWORK MUST CONTAIN

Appeal materials must contain the following information at the time the appeal is submitted:

1. *Aggrieved Status.* The appeal must explain how the appellant has standing to maintain an appeal. This requires an explanation of how the appellant may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions, or conditions objected to or believed to be in error.* The appeal must identify the specific findings of fact, conclusions regarding compliance with the law, license conditions, or other aspects of the written license decision or of the license review process that the appellant objects to or believes to be in error.
3. *The basis of the objections or challenge.* For the objections identified in Item #2, the appeal must state why the appellant believes that the license decision is incorrect and should be modified or reversed. If possible, the appeal should cite specific evidence in the record or specific licensing requirements that the appellant believes were not properly considered or fully addressed.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested.* The Board will limit its consideration to those matters specifically raised in the written notice of appeal.
6. *Request for hearing.* If the appellant wishes the Board to hold a public hearing on the appeal, a request for public hearing must be filed as part of the notice of appeal, and must include an offer of proof in accordance with Chapter 2. The Board will hear the arguments in favor of and in opposition to a hearing on the appeal and the presentations on the merits of an appeal at a regularly scheduled meeting. If the Board decides to hold a public hearing on an appeal, that hearing will then be scheduled for a later date.
7. *New or additional evidence to be offered.* If an appellant wants to provide evidence not previously provided to DEP staff during the DEP's review of the application, the request and the proposed evidence must be submitted with the appeal. The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered in an appeal only under very limited circumstances. The proposed evidence must be relevant and material, and (a) the person seeking to add information to the record must show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process; or (b) the evidence itself must be newly discovered and therefore unable to have been presented earlier in the process. Specific requirements for supplemental evidence are found in Chapter 2 § 24.

### OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, and is made easily accessible by the DEP. Upon request, the DEP will make application materials available during normal working hours, provide space to review the file, and provide an opportunity for photocopying materials. There is a charge for copies or copying services.
2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer general questions regarding the appeal process.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed, the license normally remains in effect pending the processing of the appeal. Unless a stay of the decision is requested and granted, a license holder may proceed with a project pending the outcome of an appeal, but the license holder runs the risk of the decision being reversed or modified as a result of the appeal.



### **WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD**

The Board will formally acknowledge receipt of an appeal, and will provide the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials accepted by the Board Chair as supplementary evidence, any materials submitted in response to the appeal, and relevant excerpts from the DEP's application review file will be sent to Board members with a recommended decision from DEP staff. The appellant, the license holder if different from the appellant, and any interested persons are notified in advance of the date set for Board consideration of an appeal or request for public hearing. The appellant and the license holder will have an opportunity to address the Board at the Board meeting. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, the license holder, and interested persons of its decision.

### **II. JUDICIAL APPEALS**

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court (see 38 M.R.S. § 346(1); 06-096 C.M.R. ch. 2; 5 M.R.S. § 11001; and M.R. Civ. P. 80C). A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

### **ADDITIONAL INFORMATION**

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board's Executive Analyst at (207) 287-2452, or for judicial appeals contact the court clerk's office in which your appeal will be filed.

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**Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.**

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STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

MB BARK, LLC	) NATURAL RESOURCES PROTECTION ACT
Poland, Androscoggin County	) FRESHWATER WETLAND ALTERATION
EXPAND SOLID WASTE FACILITY	) RIVER, STREAM, BROOK ALTERATION
L-19467-TG-C-N (approval)	) WATER QUALITY CERTIFICATION
L-19467-L6-D-N (approval)	) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S. §§ 480-A–480-JJ, Section 401 of the Federal Water Pollution Control Act (33 U.S.C. § 1341), Chapters 310, 315, and 335 of Department rules, the Department of Environmental Protection has considered the application of MB BARK, LLC, with the supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT DESCRIPTION:

A. History: In Department Order #L-19467-31-B-N, dated December 3, 1997, the Department approved 65,423 square feet of freshwater wetland alteration for the development of a bark mulch processing facility. The project included two stream crossings for an access road into the facility. Compensation for the loss of wetland areas and functions was conducted on site in the form of enhancement and creation along an unnamed stream, and in the form of preservation of an upland buffer adjacent to an emergent wetland. In 2006, the Department determined that the wetland enhancement and creation sites were successful. The project site is located on Bark Mulch Drive off Hardscrabble Road in the Town of Poland.

In Department Order #S-21741-WK-A-N, dated January 30, 1998, the Bureau of Remediation and Waste Management (BRWM) approved the construction of a solid waste facility at this location. Since that time, BRWM has approved several modifications to the permit.

B. Summary: The applicant proposes to permanently alter 26,853 square feet of forested freshwater wetlands to expand an existing bark mulch processing facility to accommodate additional types of solid waste materials. The expansion will include the construction of three new processing and handling pads, two 24-foot wide access roads and associated stormwater management structures. One of the proposed pads will be located on existing developed area; the other two proposed pads will be three acres and five acres in size, and located in a forested, undeveloped area. The proposed project will result in 26,853 square feet of permanent wetland alteration to construct the access roads and handling pads, and 3,760 square feet of temporary wetland alteration to clear trees to access and construct the proposed roads. The proposed wetland impacts include three road crossings, where the applicant proposes to install a total of six three-foot wide by

four-foot high box culverts at 40-foot intervals. The project will also include a stream crossing under one of the proposed access roads. The proposed stream crossing will consist of a 60-inch diameter, 40-foot long corrugated metal pipe culvert with riprap aprons, resulting in 60 linear feet of stream alteration. The culvert will be greater than 1.2 times bank-full width, embedded in the stream channel and backfilled with two feet of streambed material. The proposed project can be seen on a set of plans entitled, "Site Development Plans for MB Bark Recycling Facility Expansion," Sheets C-1.0 to C-7.4, prepared by Stantec Consulting Services, Inc. and dated February 8, 2018, with a latest revision date of June 6, 2018.

The applicant also submitted an application to BRWM to amend its existing Solid Waste license (#S-21741-WK-I-A) to construct the proposed expansion. BRWM accepted the application for review on March 30, 2018. BRWM will review the solid waste and stormwater management aspects of the proposed project.

C. Current Use of the Site: The site of the proposed project is located on two parcels that make up approximately 172-acres of land. The parcels contain an existing bark mulch processing facility consisting of an access drive, graveled and paved work areas, three buildings, three sheds, and associated infrastructure. The undeveloped portions of the parcel contain forested uplands, forested wetlands, and two unnamed streams. A portion of the facility is located in the Town of Auburn; the majority of the facility is located in the Town of Poland. The parcels are identified as Lots 15-2 and 17 on Map 4 of the Town of Poland's tax maps.

2. EXISTING SCENIC, AESTHETIC, RECREATIONAL OR NAVIGATIONAL USES:

The Natural Resources Protection Act (NRPA), in 38 M.R.S. §480-D(1), requires the applicant to demonstrate that the proposed project will not unreasonably interfere with existing scenic, aesthetic, recreational and navigational uses.

In accordance with Chapter 315, *Assessing and Mitigating Impacts to Scenic and Aesthetic Uses* (06-096 C.M.R. ch. 315, effective June 29, 2003), the applicant submitted a copy of the Department's Visual Evaluation Field Survey Checklist as Appendix A to the application along with a description of the property and the proposed project. The applicant also submitted several photographs of the proposed project site and surroundings.

The proposed project is not located in, on, or over a waterbody used by the general public. It is located within multiple freshwater wetlands and a stream located on the applicant's property. The wetlands and stream are not scenic resources as defined in Chapter 315 §5(H). The nearest scenic resource that is visited by the general public, in part, for the use, observation, enjoyment and appreciation of its natural and cultural visual qualities, is the Little Androscoggin River. The proposed project at its closest point is located approximately 0.4 miles from the Little Androscoggin River. Because of vegetation between the project site and the scenic resource, the proposed project site is not visible from the Little Androscoggin River.

The Department determined that based on the nature of the proposed project and its location, there are no existing recreational or navigational uses of the resource that would be unreasonably impacted.

The Department finds that the proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational or navigational uses of the Little Androscoggin River.

3. SOIL EROSION:

The NRPA, in 38 M.R.S. §480-D(2), requires the applicant to demonstrate that the proposed project will not cause unreasonable erosion of soil or sediment nor unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

The applicant submitted a construction plan and an erosion and sedimentation control plan (Attachments 7 and 8), as well as erosion control details (Sheet C-7.0 of the plans referenced in Finding 1B), which describe specific measures that will be utilized pre-, during, and post-construction, in accordance with the MDEP *Erosion and Sediment Control Best Management Practices Field Guide*. Erosion control barriers will be installed downslope of all areas prior to ground disturbance, grubbing, and site grading. Disturbed areas, side slopes, and exposed soils will be stabilized with loam, mulch, and seed as necessary during and following construction. Temporary erosion and sedimentation controls will be maintained until disturbed soils are stable. The applicant stated they will retain a civil engineer to provide construction oversight and erosion control monitoring throughout the construction process.

The Department finds that the activity will not cause unreasonable erosion of soil or sediment nor unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

4. HABITAT CONSIDERATIONS:

The NRPA, in 38 M.R.S. §480-D(3), requires the applicant to demonstrate that the proposed project will not unreasonably harm significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine or marine fisheries or other aquatic life.

The project site contains forested uplands, forested wetlands, and an intermittent, unnamed stream that flows north into Davis Brook and the Little Androscoggin River. An additional unnamed stream is located on the northeast side of the development, outside of the proposed project area. The property contains several vernal pool depressions. The applicant submitted a report entitled, "Vernal Pool Survey Results," prepared by Stantec Consulting Services, Inc. and dated May 29, 2018. The report, based

on surveys conducted in April and May of 2018, found that none of the pools met the definition of significance under the NRPA.

The Maine Department of Inland Fisheries and Wildlife (MDIFW) reviewed the proposed project and stated that there are no Essential Habitats mapped within the project area. MDIFW recommend that a 100-foot wide riparian buffer be maintained along the stream and associated wetlands. Except for the proposed stream crossing, the project has been designed to accommodate the recommended buffer. MDIFW further recommended that all in-stream work take place between July 15 and October 1, and commented that the riprap aprons at the proposed stream crossing should be installed at four to six inches below the streambed elevation, and filled in to streambed elevation with gravel similar to that of the native streambed. The applicant agreed to the in-stream work window of July 15 to October 1, and revised the culvert details on Plan Sheet C-7.1 to incorporate MDIFW's recommendations.

The Department finds that the activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine or marine fisheries or other aquatic life.

5. WATER QUALITY CONSIDERATIONS:

As discussed in Finding 3, the applicant proposes to use erosion and sedimentation control during construction to minimize impacts to water quality from siltation.

The Department does not anticipate that the proposed project will violate any state water quality law, including those governing the classification of the State's waters.

6. WETLANDS AND WATERBODIES PROTECTION RULES:

The applicant proposes to fill 26,853 square feet of forested freshwater wetlands to construct the proposed access roads and handling pads. The applicant proposes to temporarily alter 3,760 square feet of forested freshwater wetlands to clear trees to access and construct the proposed roads. The applicant proposes to alter 60 linear feet of a stream to install a culvert and riprap aprons at the proposed road crossing.

The *Wetlands and Waterbodies Protection Rules*, 06-096 C.M.R. ch. 310 (last amended January 26, 2009), interpret and elaborate on the NRPA criteria for obtaining a permit. The rules guide the Department in its determination of whether a project's impacts would be unreasonable. A proposed project would generally be found to be unreasonable if it would cause a loss in wetland area, functions and values and there is a practicable alternative to the project that would be less damaging to the environment. Each application for a NRPA permit that involves a freshwater wetland alteration or an alteration to a river, stream, or brook must provide an analysis of alternatives in order to demonstrate that a practicable alternative does not exist.



A. Avoidance. An applicant must submit an analysis of whether there is a practicable alternative to the project that would be less damaging to the environment and this analysis is considered by the Department in its assessment of the reasonableness of any impacts. The applicant submitted an alternatives analysis for the proposed project completed by Stantec Consulting Services, Inc. and dated March 5, 2018. The purpose of the proposed project is to expand the existing facility in Poland/Auburn to accommodate a portion of the operations currently located at a facility in the Town of Scarborough. The expansion at the Poland/Auburn site will allow the facility to process asphalt shingles, gypsum board, and panel glass as well as bark mulch. The Scarborough facility will continue to process these materials as well as concrete, brick, dredge spoils, and petroleum-contaminated soils, but on a gradually reduced scale. The applicant considered keeping both facilities the same size, but determined that the Scarborough facility would be unable to support an anticipated increase in demands. The applicant considered expanding only the Scarborough facility, but determined that the facility is constrained by the parcel size and by adjacent development. The applicant considered consolidating the Scarborough operations within the footprint of the existing Poland/Auburn facility, but determined that the existing footprint is too small to accommodate the variety of products processed by the two operations. The applicant considered moving the Scarborough operation to an entirely new location, but was unable to locate a parcel that was financially and logistically feasible. The applicant considered other expansion designs of the Poland/Auburn facility and determined that all other designs would result in a greater amount of wetland impact. In light of these considerations, the applicant stated that there is no practicable alternative to the proposed project that can meet the applicant's needs and avoids impact to the wetlands and stream.

B. Minimal Alteration. In support of an application and to address the analysis of the reasonableness of any impacts of a proposed project, an applicant must demonstrate that the amount of freshwater wetland and stream to be altered will be kept to the minimum amount necessary for meeting the overall purpose of the project. The applicant minimized impacts to wetlands by maximizing the use of upland areas on the parcel, and by designing the proposed roads and handling pads to avoid the majority of wetlands and to be greater than 250 feet away from the vernal pools on the parcel. The wetland crossings are located at narrow points in the wetlands, and designed with narrowed side slopes to minimize intrusion into the wetlands. The wetland crossings are designed with box culverts and with large rock base materials to maintain hydrologic connectivity in the wetlands. The stream crossing is designed to an appropriate width as recommended by MDIFW, and will be embedded and backfilled with streambed material to maintain habitat connectivity for aquatic organisms. The applicant stated that the proposed project minimizes impacts to the freshwater wetlands and stream to the greatest extent practicable.

C. Compensation. In accordance with Chapter 310 §5(C)(6)(a), compensation is required to achieve the goal of no net loss of freshwater wetland functions and values. The applicant submitted a plan that identifies the wetland areas within the project area entitled, "Proposed Wetland Impact Map," prepared by Stantec Consulting Services, Inc. and last revised May 17, 2018. The applicant also submitted a functions and values assessment entitled, "Functions and Values Assessment Report – MB Bark Recycling Facility," prepared by Stantec Consulting Services, Inc. and dated March 2, 2018. The assessment identified seven wetlands within the vicinity of the proposed development, all of which are predominantly palustrine forested wetlands (PFO). Only three wetlands will be directly impacted by the proposed project. The assessment identified sediment/toxicant retention, nutrient removal, shoreline stabilization, and wildlife habitat as the principal wetland functions that were impacted as a result of the project.

The applicant proposes to compensate for lost functions and values of the freshwater wetlands through a contribution to the In-Lieu-Fee (ILF) Program of the Maine Natural Resource Conservation Program (MNRCP) in the amount of \$101,505.00, payable to "Treasurer, State of Maine," and directly to the attention of the ILF Program Administrator at 17 State House Station, Augusta, Maine 04333. The ILF payment must be received by the Department prior to the start of construction.

The proposed compensatory plan meets the requirements for the restoration, enhancement and preservation of freshwater wetland impacts outlined in Chapter 310. Therefore, the Department finds that the applicant has avoided and minimized waterbody and wetland impacts to the greatest extent practicable, and that the proposed project represents the least environmentally damaging alternative that meets the overall purpose of the project, provided that prior to project construction, the applicant submits the ILF payment as described above.

7. OTHER CONSIDERATIONS:

The Department finds, based on the design, proposed construction methods, and location, the proposed project will not inhibit the natural transfer of soil from the terrestrial to the marine environment, will not interfere with the natural flow of any surface or subsurface waters, and will not cause or increase flooding. The proposed project is not located in a coastal sand dune system, is not a crossing of an outstanding river segment, and does not involve dredge spoils disposal or the transport of dredge spoils by water.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S. §§ 480-A–480-JJ and Section 401 of the Federal Water Pollution Control Act:

- A. The proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational, or navigational uses.

- B. The proposed activity will not cause unreasonable erosion of soil or sediment.
- C. The proposed activity will not unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.
- D. The proposed activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine, or marine fisheries or other aquatic life provided that the applicant submits a payment to the ILF program as described in Finding 6.
- E. The proposed activity will not unreasonably interfere with the natural flow of any surface or subsurface waters.
- F. The proposed activity will not violate any state water quality law including those governing the classifications of the State's waters.
- G. The proposed activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties.
- H. The proposed activity is not on or adjacent to a sand dune.
- I. The proposed activity is not on an outstanding river segment as noted in 38 M.R.S. § 480-P.

THEREFORE, the Department APPROVES the application of MB BARK, LLC to expand an existing solid waste facility as described in Finding 1, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations:

1. Standard Conditions of Approval, a copy attached.
2. The applicant shall take all necessary measures to ensure that its activities or those of its agents do not result in measurable erosion of soil on the site during the construction of the project covered by this approval.
3. Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

4. Prior to the start of construction, the applicant shall submit a payment in the amount of \$101,505.00, payable to "Treasurer, State of Maine," to the attention of the ILF Program Administrator at 17 State House Station, Augusta, Maine 04333.

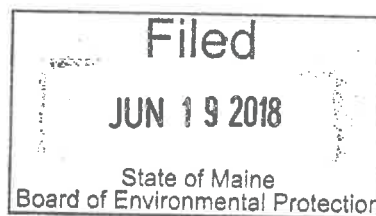
THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DONE AND DATED IN AUGUSTA, MAINE, THIS 19<sup>TH</sup> DAY OF JUNE, 2018.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: \_\_\_\_\_

For: Paul Mercer, Commissioner



PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

JM/L19467CNDN/ATS#82887,82948



## Natural Resources Protection Act (NRPA) Standard Conditions

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THE FOLLOWING STANDARD CONDITIONS SHALL APPLY TO ALL PERMITS GRANTED UNDER THE NATURAL RESOURCES PROTECTION ACT, 38 M.R.S. § 480-A ET SEQ., UNLESS OTHERWISE SPECIFICALLY STATED IN THE PERMIT.

- A. Approval of Variations From Plans. The granting of this permit is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation.
- B. Compliance With All Applicable Laws. The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.
- C. Erosion Control. The applicant shall take all necessary measures to ensure that his activities or those of his agents do not result in measurable erosion of soils on the site during the construction and operation of the project covered by this Approval.
- D. Compliance With Conditions. Should the project be found, at any time, not to be in compliance with any of the Conditions of this Approval, or should the applicant construct or operate this development in any way other the specified in the Application or Supporting Documents, as modified by the Conditions of this Approval, then the terms of this Approval shall be considered to have been violated.
- E. Time frame for approvals. If construction or operation of the activity is not begun within four years, this permit shall lapse and the applicant shall reapply to the Board for a new permit. The applicant may not begin construction or operation of the activity until a new permit is granted. Reapplications for permits may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.
- F. No Construction Equipment Below High Water. No construction equipment used in the undertaking of an approved activity is allowed below the mean high water line unless otherwise specified by this permit.
- G. Permit Included In Contract Bids. A copy of this permit must be included in or attached to all contract bid specifications for the approved activity.
- H. Permit Shown To Contractor. Work done by a contractor pursuant to this permit shall not begin before the contractor has been shown by the applicant a copy of this permit.





# DEP INFORMATION SHEET

## Appealing a Department Licensing Decision

**Dated: March 2012**

**Contact: (207) 287-2811**

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### **SUMMARY**

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's ("DEP") Commissioner: (1) in an administrative process before the Board of Environmental Protection ("Board"); or (2) in a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S.A. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S.A. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S.A. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This INFORMATION SHEET, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

### **I. ADMINISTRATIVE APPEALS TO THE BOARD**

#### **LEGAL REFERENCES**

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S.A. §§ 341-D(4) & 346, the *Maine Administrative Procedure Act*, 5 M.R.S.A. § 11001, and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 CMR 2 (April 1, 2003).

#### **HOW LONG YOU HAVE TO SUBMIT AN APPEAL TO THE BOARD**

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed after 30 calendar days of the date on which the Commissioner's decision was filed with the Board will be rejected.

#### **HOW TO SUBMIT AN APPEAL TO THE BOARD**

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, c/o Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017; faxes are acceptable for purposes of meeting the deadline when followed by the Board's receipt of mailed original documents within five (5) working days. Receipt on a particular day must be by 5:00 PM at DEP's offices in Augusta; materials received after 5:00 PM are not considered received until the following day. The person appealing a licensing decision must also send the DEP's Commissioner a copy of the appeal documents and if the person appealing is not the applicant in the license proceeding at issue the applicant must also be sent a copy of the appeal documents. All of the information listed in the next section must be submitted at the time the appeal is filed. Only the extraordinary circumstances described at the end of that section will justify evidence not in the DEP's record at the time of decision being added to the record for consideration by the Board as part of an appeal.

## **WHAT YOUR APPEAL PAPERWORK MUST CONTAIN**

Appeal materials must contain the following information at the time submitted:

1. *Aggrieved Status.* The appeal must explain how the person filing the appeal has standing to maintain an appeal. This requires an explanation of how the person filing the appeal may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions or conditions objected to or believed to be in error.* Specific references and facts regarding the appellant's issues with the decision must be provided in the notice of appeal.
3. *The basis of the objections or challenge.* If possible, specific regulations, statutes or other facts should be referenced. This may include citing omissions of relevant requirements, and errors believed to have been made in interpretations, conclusions, and relevant requirements.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested.* The Board will limit its consideration to those arguments specifically raised in the written notice of appeal.
6. *Request for hearing.* The Board will hear presentations on appeals at its regularly scheduled meetings, unless a public hearing on the appeal is requested and granted. A request for public hearing on an appeal must be filed as part of the notice of appeal.
7. *New or additional evidence to be offered.* The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered by the Board in an appeal only when the evidence is relevant and material and that the person seeking to add information to the record can show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process or that the evidence itself is newly discovered and could not have been presented earlier in the process. Specific requirements for additional evidence are found in Chapter 2.

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1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, made easily accessible by DEP. Upon request, the DEP will make the material available during normal working hours, provide space to review the file, and provide opportunity for photocopying materials. There is a charge for copies or copying services.
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Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

### **ADDITIONAL INFORMATION**

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**US Army Corps  
of Engineers®**  
New England District

# IN-LIEU-FEE (ILF) PROJECT COPY FOR DEP

Applicant:

Please attach your check to this entire packet and forward it to the DEP as stated in Special condition # 6 of your permit.

## MAINE IN-LIEU-FEE (ILF)

## PROJECT IMPACT WORKSHEET

DEP Invoice #

*Filled in by ILF Administrator in Augusta*

Project name: Morse Brothers Bark, LLC

**Permittee(s):** Moody's Collision Center

DEP/Corps permit #: L-19467-TG-C-N /NAE-2018-00135

*Attach a copy of the permit*

DEP/Corps Project Manager: Jami MacNeil / Rodney Howe

ILF Fee Amount: \$101,505.00

Check Date:

*Filled in by ILF Administrator in Augusta*

Project address: Bark Mulch Drive Auburn, Maine

*Attach a locus map*

**Biophysical region - Section:**

### Central Interior & Mid Coast

Biophysical region - Subsection:

### Central Maine Embayment Subsection

Total impact area subject to compensation: 26,853 SF (.61 acres)

Resource(s) impacted:

<b>Resource Types</b> (list all that apply)	<b>Functions &amp; Values</b> (for wetland impacts) (list all that apply, by resource type)	<b>Types of Impacts</b> (list all that apply, by resource type)	<b>SF Impacted</b> (by resource type)	<b>Linear FT of Streams Impacted (for Corps use)</b>
PFO	FF,NR,WH,STR	Filling	26,853	
<b>Total impacts:</b>			26,853	

**Resource Types:** Wetlands by NWI Type (PEM, PFO, PSS, PUB, M1, M2, E1, E2, etc), significant vernal pool depression (SVP), significant vernal pool critical terrestrial habitat (VPCTH), shorebird feeding & staging habitat (shorebird), inland waterfowl & wading bird habitat (IWWH), Tidal waterfowl & wading bird habitat (TWWH), lake or pond (L1, L2), river/stream/brook (RSB)

**Wetland Functions & Values:** Groundwater recharge/discharge (GWR); floodflow alteration (FF); fish & shellfish habitat (FSH); sediment toxicant retention (STR); nutrient removal (NR); production export (PE); sediment/shoreline stabilization (SS); recreation (R); education/scientific value (ESV); uniqueness/heritage (UH); and visual quality/aesthetics (VQ); wildlife habitat (WH)

Types of Impacts: May include: filling, dredging, vegetation conversion (e.g. forested to shrub/scrub), excavation with associated discharge, etc.





**US Army Corps  
of Engineers®**  
New England District

**WORK-START NOTIFICATION FORM**  
(Minimum Notice: Two weeks before work begins)

\*\*\*\*\*  
\* MAIL TO: U.S. Army Corps of Engineers, New England District \*  
\* Policy Analysis/Technical Support Branch \*  
\* Regulatory Division \*  
\* 696 Virginia Road \*  
\* Concord, Massachusetts 01742-2751 \*  
\*\*\*\*\*

Corps of Engineers Permit No. NAE-2018-00135 was issued to Morse Brothers Bark, LLC. The permit authorized the permittee to place fill in 26,853 SF (0.61 acres) of wetland in conjunction with the expansion of the Morse Brothers solid waste processing facility off W. Hardscrabble Road Auburn/Poland, Maine. The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

**PLEASE PRINT OR TYPE**

**Name of Person/Firm:** \_\_\_\_\_

**Business Address:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Telephone Numbers:** ( ) \_\_\_\_\_ ( ) \_\_\_\_\_

**Proposed Work Dates:** Start \_\_\_\_\_ Finish \_\_\_\_\_

**Permittee's Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Printed Name:** \_\_\_\_\_ **Title:** \_\_\_\_\_

\*\*\*\*\*  
**FOR USE BY THE CORPS OF ENGINEERS**

**PM:** Howe **Submittals Required:** \_\_\_\_\_

**Inspection Recommendation:** \_\_\_\_\_  
\_\_\_\_\_



(Minimum Notice: Permittee must sign and return notification within one month of the completion of work.)

**US Army Corps  
of Engineers®**  
New England District

**COMPLIANCE CERTIFICATION FORM**

**USACE Project Number:** NAE-2018-00135

**Name of Permittee:** Morse Brothers Bark, LLC

**Permit Issuance Date:** \_\_\_\_\_

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

\*\*\*\*\*  
\* MAIL TO: U.S. Army Corps of Engineers, New England District \*  
\* Policy Analysis/Technical Support Branch \*  
\* Regulatory Division \*  
\* 696 Virginia Road \*  
\* Concord, Massachusetts 01742-2751 \*  
\*\*\*\*\*

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

**I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.**

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date of Work Completion

( ) \_\_\_\_\_

( ) \_\_\_\_\_

**Telephone Number**

**Telephone Number**



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS  
696 VIRGINIA ROAD  
CONCORD, MASSACHUSETTS 01742-2751

**MAINE GENERAL PERMIT (GP)  
AUTHORIZATION LETTER AND SCREENING SUMMARY**

Jim Hiltner  
Morse Brothers Bark, LLC  
100 Bark Mulch Drive  
Auburn, Maine 04210

CORPS PERMIT # NAE-2018-00135  
CORPS GP ID# 18-177  
STATE ID# L-19467-TG-C-N

**DESCRIPTION OF WORK:**

place fill in 26.853 SF (0.61 acres) of wetland in conjunction with the expansion of the Morse Brothers solid waste processing facility off W. Hardscrabble Road Auburn/Poland, Maine as shown on the attached plans entitled MB Bark Recycling Facility Expansion 100 Bark Mulch Drive Auburn/Poland, Maine by Stantec Consulting Services, Inc. in 27 sheets dated 2/6/2018.  
**ADDITIONAL CONDITIONS: SEE ATTACHED SHEET**

**LAT/LONG COORDINATES :** 44.05525° N 70.30294° W **USGS QUAD:** ME- Minot

**I. CORPS DETERMINATION:**

Based on our review of the information you provided, we have determined that your project will have only minimal individual and cumulative impacts on waters and wetlands of the United States. **Your work is therefore authorized by the U.S. Army Corps of Engineers under the enclosed Federal Permit, the Maine General Permit (GP).** Accordingly, we do not plan to take any further action on this project.

You must perform the activity authorized herein in compliance with all the terms and conditions of the GP [including any attached Additional Conditions and any conditions placed on the State 401 Water Quality Certification including any required mitigation]. Please review the enclosed GP carefully, including the GP conditions beginning on page 5, to familiarize yourself with its contents. You are responsible for complying with all of the GP requirements; therefore you should be certain that whoever does the work fully understands all of the conditions. You may wish to discuss the conditions of this authorization with your contractor to ensure the contractor can accomplish the work in a manner that conforms to all requirements.

If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

Condition 38 of the GP (page 16) provides one year for completion of work that has commenced or is under contract to commence prior to the expiration of the GP on October 13, 2020. You will need to apply for reauthorization for any work within Corps jurisdiction that is not completed by October 13, 2021.

This authorization presumes the work shown on your plans noted above is in waters of the U.S. Should you desire to appeal our jurisdiction, please submit a request for an approved jurisdictional determination in writing to the undersigned.

No work may be started unless and until all other required local, State and Federal licenses and permits have been obtained. **This includes but is not limited to a Flood Hazard Development Permit issued by the town if necessary.**

**II. STATE ACTIONS:** PENDING [ ☒ ], ISSUED [ ], DENIED [ ] DATE \_\_\_\_\_

APPLICATION TYPE: PBR: \_\_\_\_\_, TIER 1: \_\_\_\_\_, TIER 2: ☒, TIER 3: \_\_\_\_\_, LURC: \_\_\_\_\_, DMR LEASE: \_\_\_\_\_, NA: \_\_\_\_\_

**III. FEDERAL ACTIONS:**

JOINT PROCESSING MEETING: 3/15/18 LEVEL OF REVIEW: CATEGORY 1: \_\_\_\_\_, CATEGORY 2: ☒

AUTHORITY (Based on a review of plans and/or State/Federal applications): SEC 10 \_\_\_\_\_, 404 ☒, 10/404 \_\_\_\_\_, 103 \_\_\_\_\_

EXCLUSIONS: The exclusionary criteria identified in the general permit do not apply to this project.

FEDERAL RESOURCE AGENCY OBJECTIONS: EPA NO, USF&WS NO, NMFS NO

If you have any questions on this matter, please contact my staff at 207-623-8367 at our Augusta, Maine Project Office. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at <http://per2.nwp.usace.army.mil/survey.html>

Rodney A. Howe  
RODNEY A. HOWE  
SENIOR PROJECT MANAGER  
MAINE PROJECT OFFICE

Frank J. Del Giudice 6-15-2018  
FRANK J. DEL GIUDICE DATE  
CHIEF, PERMITS & ENFORCEMENT BRANCH  
REGULATORY DIVISION



US Army Corps  
of Engineers  
New England District

PLEASE NOTE THE FOLLOWING ADDITIONAL CONDITIONS FOR  
DEPARTMENT OF THE ARMY  
GENERAL PERMIT  
NO. NAE-2018-00135

1. The permittee shall assure that a copy of this permit is at the work site whenever work is being performed and that all personnel performing work at the site of the work authorized by this permit are fully aware of the terms and conditions of the permit. This permit, including its drawings and any appendices and other attachments, shall be made a part of any and all contracts and sub-contracts for work which affects areas of Corps of Engineers' jurisdiction at the site of the work authorized by this permit. This shall be done by including the entire permit in the specifications for the work. If the permit is issued after construction specifications but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. The term "entire permit" includes permit amendments. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions of the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps of Engineers jurisdiction.
2. The permittee must still obtain any other Federal, State, or local permits as required by law before beginning work. This includes but is not limited to a Flood Hazard Development Permit issued by the town if necessary.
3. This authorization requires you to 1) notify us before beginning work so we may inspect the project, and 2) submit a Compliance Certification Form. You must complete and return the enclosed Work Start Notification Form(s) to this office at least two weeks before the anticipated starting date. You must complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work and any required mitigation (but not mitigation monitoring, which requires separate submittals).
4. Please note General Condition 21. Sedimentation and Erosion Control on pages 11 and 12 of the attached General Permit.
5. No tree clearing activities shall occur from June 1- July 31 of any given year to minimize the potential effect to the Northern Long eared bat.
6. Mitigation shall consist of payment of **\$101,505.00** to the Natural Resource Mitigation Fund. The Corps will provide a completed ILF Project Data Worksheet which must be mailed with a cashier's check or bank draft, made out to "Treasurer, State of Maine", **with the permit number noted on the check**. The check and worksheet should be mailed to: MEDEP, Attn: ILF PROGRAM ADMINISTRATOR, State House Station 17, Augusta, ME 04333. **This authorization (permit) is not valid until the permittee provides the Corps with a copy of the check, with the permit number noted on the check.** The ILF amount is only valid for a period of one year from the date on the authorization letter. After that time, the project would need to be reevaluated and a new amount determined.
7. The permittee and their contractors will minimize the potential for impacts to aquatic habitat by conducting all in-stream work (which includes the installation and removal of cofferdams, as well as other activities) within the specified low flows work window of July 15<sup>th</sup> to September 30<sup>th</sup>.

## Town of Poland

### Planning Board

#### DEPARTMENTAL REVIEW OF PROPOSED SITE APPLICATION

Date: 01 / 04 / 2019

To: Tom Printup

In accordance with Chapter 606, Site Review, of the Comprehensive Land Use Code for the Town of Poland, an applicant for development approval is required to ask that Municipal Departments to comment on their capacity of capital facilities to serve a proposed development. Therefore, the Planning Board, by way of the applicant, is notifying you of the following proposed project and requests your comments

Applicant: MB Bark LLC  
Address: 100 Bark Mulch Drive.  
Auburn, Maine  
Location: Map # 0004 Lot # 0015 Sublot # 0002  
Road Location: Hardscrabble Rd.  
Project overview: Additional material handling areas for processing recyclable materials.  
Scheduled Planning Board Meeting Date 02 / 12 / 2019

#### Applicants:

1. Should attach all relevant sections of their plans to prevent delays.
2. Mail this form letter along with a copy of the application so that each department head receives it at least fourteen days prior to the scheduled meeting. (See reverse for list of Department Heads)
3. Confirm with the department heads that they have delivered their response to the Planning Board Office in time for the meeting.

#### For the Department Head

I have reviewed this application and provide the following:

- ☐ The project has no impact on the Department.  
☒ The Department has adequate existing capital facilities to serve the project.  
☐ The Department does not have adequate existing capital facilities to serve the project for the reasons listed. (Please submit reasons on department letterhead)  
☐ I need more information on the application.

Signed: R.R. P. Ap  
Head of Department

Date: 2 / 4 / 19

#### RETURN THIS FORM TO:

Please return by: Date: 02 / 07 / 2019

Planning Board Office  
Town of Poland  
1231 Maine Street  
Poland, Maine 04274-7328



# Town of Poland

## Planning Board

### DEPARTMENTAL REVIEW OF PROPOSED SITE APPLICATION

Date: 01 / 04 / 2019

To: Kenneth Healey  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

In accordance with Chapter 606, Site Review, of the Comprehensive Land Use Code for the Town of Poland, an applicant for development approval is required to ask that Municipal Departments to comment on their capacity of capital facilities to serve a proposed development. Therefore, the Planning Board, by way of the applicant, is notifying you of the following proposed project and requests your comments

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Address: 100 Bark Mulch Drive.  
Auburn, Maine  
Location: Map # 0004 Lot # 0015 Sublot # 0002  
Road Location: Hardscrabble Rd.  
Project overview: Additional material handling areas for processing recyclable materials.  
\_\_\_\_\_  
Scheduled Planning Board Meeting Date 02 / 12 / 2019

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☐ The Department has adequate existing capital facilities to serve the project.  
☐ The Department does not have adequate existing capital facilities to serve the project for the reasons listed. (Please submit reasons on department letterhead)  
☐ I need more information on the application.

Signed:   
Head of Department

Date: 2, 4, 2019

#### RETURN THIS FORM TO:

Please return by: Date: 02 / 07 / 2019

Planning Board Office  
Town of Poland  
1231 Maine Street  
Poland, Maine 04274-7328

## Town of Poland

### Planning Board

#### DEPARTMENTAL REVIEW OF PROPOSED SITE APPLICATION

Date: 01 / 04 / 2019

To: Chief Deputy William Gagne

In accordance with Chapter 606, Site Review, of the Comprehensive Land Use Code for the Town of Poland, an applicant for development approval is required to ask that Municipal Departments to comment on their capacity of capital facilities to serve a proposed development. Therefore, the Planning Board, by way of the applicant, is notifying you of the following proposed project and requests your comments

Applicant: MB Bark LLC  
Address: 100 Bark Mulch Drive.  
Auburn, Maine  
Location: Map # 0004 Lot # 0015 Sublot # 0002  
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Project overview: Additional material handling areas for processing recyclable materials.  
Scheduled Planning Board Meeting Date 02 / 12 / 2019

#### Applicants:

1. Should attach all relevant sections of their plans to prevent delays.
2. Mail this form letter along with a copy of the application so that each department head receives it at least fourteen days prior to the scheduled meeting. (See reverse for list of Department Heads)
3. Confirm with the department heads that they have delivered their response to the Planning Board Office in time for the meeting.

#### For the Department Head

I have reviewed this application and provide the following:

- ☒ The project has no impact on the Department.  
☐ The Department has adequate existing capital facilities to serve the project.  
☐ The Department does not have adequate existing capital facilities to serve the project for the reasons listed. (Please submit reasons on department letterhead)  
☐ I need more information on the application.

Signed: [Signature]  
Head of Department

Date: 2 / 4 / 2019

#### RETURN THIS FORM TO:

Please return by: Date: 02 / 07 / 2019

Planning Board Office  
Town of Poland  
1231 Maine Street  
Poland, Maine 04274-7328



## Planning Board Office

1231 Maine Street,  
Poland, Maine 04274-7328

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### **Findings of Fact & Conclusion of Law**

**Date:** October 9, 2018

**Application Type:** Formal Shoreland Zoning Application

**Owners Name:** Thomas and Abbie Mannett

**Located at:** 41 Black Duck Lane

**Parcel ID:** 0036-0007-0008

**Zoning Districts:** Rural Residential 2 and Limited Residential

#### **Project Description:**

On October 9, 2018 the Mannett's submitted a Formal Shoreland Zoning Application to remove the existing camp along with three storage sheds and construct a new 1,822 square foot three bedroom, three bathroom year round home. The new home will be placed behind the 100 foot normal high water mark.

#### **303.2.G. In addition to the standards contained elsewhere in Comprehensive Land Use Code (CLUC), the Planning Board shall consider the following in the Shoreland Area as defined:**

**1. Will maintain safe and healthful conditions**

The proposed building will not interfere with the general health or safety of any neighbors. Based on this information the Planning Board (Board) finds that this criterion will be met.

**2. Will not result in water pollution, erosion, or sedimentation to surface waters**

Based on the plan submitted, the Board finds that the issues of water pollution, erosion, or sedimentation to surface waters have been properly addressed. Based on this information the Board finds that this criterion will be met.

**3. Will adequately provide for disposal of all wastewater**

The application includes a new HHE-200 for a new three bedroom Subsurface Wastewater Disposal System. Based on this information the Board finds that this criterion will be met.

**4. Will not have an adverse impact on spawning grounds, fish, aquatic life, birds, or other wildlife habitat**

The structure is located completely on land and will not have an impact on the spawning grounds, fish, aquatic life, birds, or other wildlife habitat. Based on this information the Board finds this criterion will be met.

**5. Will conserve shore cover and visual, as well as actual, points of access to inland waters**

The applicant is proposing to revegetate all disturbed areas. Based on this information above and in the record the Board finds that this criterion will be met.

**6. Will protect archaeological and historic resources as designated in the Town of Poland Comprehensive Plan**

The parcel and abutting parcels do not appear to be associated with any archaeological or historic resources as designated in the Comprehensive Plan. Therefore, the Board finds that this section is not applicable.

**7. Will avoid problems associated with floodplain development and use**

The structure associated with this application and the proposed activity does not appear to generate any problems in relation to floodplain development. Based on this information above and in the record the Board finds that this criterion will be met.

**504.3 Non-Conforming Structures**

**504.3. A. Expansions of Non-Conforming Structures**

The applicant is removing the existing non-conforming structure; therefore, the Board finds that section is not applicable.

**504.3. B. Relocation of Non-Conforming Structures**

The applicant is building a new structure behind the 100 foot normal high water mark; therefore, the Board finds that this section is not applicable.

**507.3.C. Reconstruction or Replacement of Non-Conforming Structures**

The Board must determine if the proposed structure meets the setbacks to the greatest practical extent. The Board considered the size of the lot, the slope of the land, the potential for soil erosion, the location of other similar structures on the adjacent property, the location of the existing rain gardens and underdrainage, the location of the existing septic system, and the type and amount of vegetation that may need to be removed if the structure would be relocated. The applicant has proposed to locate the new structure behind the 100 foot normal high water mark. Based on this information the Board finds that this criterion will be met.

**504.3. D. Change of Use of a Nonconforming Structure**

This application is not for a change of use of the existing non-conforming structure; therefore, the Board finds that this section is not applicable.

**504.3. E. Planning Board Special Review for a Legal Non-Conforming Single-Family Dwelling Located in a Shoreland Zoning District**

The applicant has asked for setback reductions to thirty feet on the west sideline and to 40' on the front setback; therefore, based on this information the Board finds that this criterion will be met.

### **508.27 Shoreland Zoning Standards**

#### **508.27.B. Principal and Accessory Structures**

Chapter 5 § 504.3 provides the performance standards for relocation and/or reconstruction of non-conforming structures. The applicant has proposed to move the new structure behind the 100 foot normal high water mark. Based on this information the Board finds that this criterion will be met.

#### **508.27.C. Multiple Principal Structures**

This application does not include multiple principal structures; therefore, the Board finds that this section is not applicable

#### **508.27.D. Piers, Docks, Wharves, Bridges, and Other Structures and Uses**

This application does not include any Piers, Docks, Wharves, Bridges or similar structures; therefore, the Board finds that this section is not applicable.

#### **508.27.E. Individual Private Campsites**

This application does not include any individual private campsites; therefore, the Board finds that this section is not applicable.

#### **508.27.F. Parking Areas**

There are no proposed parking areas with this application nor is the parcel located in the Resource Protection Shoreland Zoning District therefore; the Board finds that this section is not applicable

#### **508.27.G. Roads and Driveways**

The proposed driveway will be located behind the home 140 feet from the normal high water mark and is not located in a Resource Protection District. Based on this information the Board finds that this criterion will be met.

#### **508.27.H. Storm Water Runoff**

The applicant will incorporate installation of rock lined drip edges, a mitigation plan for pre and post construction erosion, and phosphorus control. Based on this information and in the record the Planning Board finds that this criterion will be met.

#### **508.27.I. Essential Services**

The applicant is not proposing to install any new electrical poles, transmission lines, satellite dishes, generators, hydrants etc.; therefore, the Board finds that this section is not applicable.

#### **508.27.J. Mineral Exploration and Excavation Permits**

The application is not for mineral exploration or any other mining or gravel pit operations; therefore, the Board finds that this section is not applicable.

#### **508.27.K. Agriculture**

The applicant is not proposing any livestock grazing areas, manure stockpiles, or any agriculture activities within the parcel; therefore, the Board finds that this section is not applicable.



**508.27.M. Clearing or Removal of Vegetation for Development Other Than Timber Harvesting or Individual Private Campsites**

The applicant has proposed to remove nine trees, only two of them are located inside the 100 foot normal high water mark. Based on this information the Board finds that this criterion will be met.

**Conclusion**

- The application checklist was approved as complete on October 9, 2018, at which time the Board voted to waive the requirement for a site walk and public hearing.
- The applicant has provided the Board with a Deed (Book 9101, Page 54) showing reasonable right, title, or interest in the property.
- The Board has concluded that they have the jurisdiction to review the application under section Chapter 5 § 504.3 (Non-Conforming Structures).

Therefore, the Town of Poland Planning Board hereby approves (4-0) with the following conditions, the application for Thomas and Abbie Mannett, to replace a structure, as described in the application dated October 9, 2018 and the approved site plan dated September 20, 2018 and the above findings of facts.

**Conditions of Approval**

- Soil Erosion Control and Stormwater Management Measures shall be in place prior to construction. The Code Enforcement Officer may require additional measures be taken.
- Soil disturbance during the period March 1st to May 1st is prohibited.
- Any disturbed soils shall be revegetated immediately upon completion of construction and any disturbed soils within 100-ft. of the high-water mark shall be revegetated per the approved plan.
- This approval will expire twelve (12) months from the date of Planning Board approval if the project or the use has not been started within this allotted time.
- Building/use permits shall be obtained prior to the start of construction/use.
- A certified person in erosion control practices by the Maine Department of Environmental Protection must be present at the site each day earthmoving activity occurs for a duration that is sufficient to ensure that proper erosion and sedimentation control practices are followed. This is required until erosion and sedimentation control measures have been installed, which will either stay in place permanently or stay in place until the area is sufficiently covered with vegetation necessary to prevent soil erosion.
- The applicant has agreed to follow the recommendations by Androscoggin County Soil and Water Conservation District regarding pre and post storm water, erosion, and phosphorus issues within the parcel.
- Plan approval is also conditioned upon compliance by the Applicant with the Plans and specifications which have been received by the Planning Board in connection with the development proposal as well as with any oral or written commitments regarding the project which were specifically made by the Applicant to the Board in the course of its deliberations.
- The applicant must apply for and obtain all applicable permits for the proposed development under the Natural Resources Protection Act, Title 38 M.R.S.A. section 480-C, the Site Location of Development Act, the Erosion and Sedimentation Control law, Title 38 M.R.S.A. section 420-C, the Stormwater Management Law, the Federal Clean Waters Act as delegated to the State of Maine, and all other applicable state and federal laws regulating the use or development of land.

- The new site plan must be recorded with the Androscoggin County Registry of Deeds within 90 days of approval.

Pursuant to Section 304.5.B of the CLUC anyone aggrieved of this decision may file a written appeal within thirty (30) days of date of this decision in accordance with Rule 80-B of the Maine Rules of Civil Procedure.

**Date Approved: October 9, 2018**  
**Poland Planning Board**

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, Chairperson

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James Porter, Vice -Chairperson

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George Greenwood, Secretary

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Mark Weinberg

---

Stephanie Floyd

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## Planning Board Office

1231 Maine Street,  
Poland, Maine 04274-7328

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### **Findings of Fact & Conclusion of Law**

**Date:** January 22, 2019

**Application Type:** Formal Shoreland Zoning Application

**Owners Name:** Leonard and Patsy Adams

**Located at:** 283 Jordan Shore Drive

**Parcel ID:** 0029-0003

**Zoning Districts:** Rural Residential 2 and Limited Residential

#### **Project Description:**

On January 22, 2019 the Adams' submitted a Formal Shoreland Zoning Application for an 8' x 15'6" addition with a new deck and steps (169.7 square feet). The addition will be placed on piers on the northeast corner of the existing camp which is also on piers. The existing finished floor elevation sits at 310.2 feet which is one foot above Base Flood Level and the floor in the addition will be the same height. The existing structures and the new addition fall within a Federally Designated Flood Hazard Zone.

#### **303.2.G. In addition to the standards contained elsewhere in Comprehensive Land Use Code (CLUC), the Planning Board shall consider the following in the Shoreland Area as defined:**

**1. Will maintain safe and healthful conditions**

The proposed building will not interfere with the general health or safety of any neighbors. Based on this information the Planning Board (Board) finds that this criterion will be met.

**2. Will not result in water pollution, erosion, or sedimentation to surface waters**

Based on the plan submitted, the Board finds that the issues of water pollution, erosion, or sedimentation to surface waters have been properly addressed. Based on this information the Board finds that this criterion will be met.

**3. Will adequately provide for disposal of all wastewater**

The application includes no changes to the existing Subsurface Wastewater Disposal system; therefore, the Board finds that this section is not applicable.

**4. Will not have an adverse impact on spawning grounds, fish, aquatic life, birds, or other wildlife habitat**

The structure is located completely on land and will not have an impact on the spawning grounds, fish, aquatic life, birds, or other wildlife habitat. Based on this information the Board finds this criterion will be met.

**5. Will conserve shore cover and visual, as well as actual, points of access to inland waters**

The applicant is proposing to revegetate all disturbed areas. Based on this information above and in the record the Board finds that this criterion will be met.

**6. Will protect archaeological and historic resources as designated in the Town of Poland Comprehensive Plan**

The parcel and abutting parcels do not appear to be associated with any archaeological or historic resources as designated in the Comprehensive Plan. Therefore, the Board finds that this section is not applicable.

**7. Will avoid problems associated with floodplain development and use**

The structure associated with this application has a finished floor level that is one foot above the base flood elevation and the Code Enforcement Officer will require a Flood Hazard Permit. Based on the information above and in the record the Board finds that this criterion will be met.

**504.3 Non-Conforming Structures**

**504.3. A. Expansions of Non-Conforming Structures**

The applicant is proposing a 100.4 square foot expansion which does not exceed their allowed 378.6 square feet minus the 84.4 square foot shed. Based on this information the Board finds that this criterion will be met.

**504.3. B. Relocation of Non-Conforming Structures**

The applicant is putting on a 100.4 square foot addition; based on this information the Board finds that this criterion will be met.

**507.3.C. Reconstruction or Replacement of Non-Conforming Structures**

The Board must determine if the proposed structure meets the setbacks to the greatest practical extent. The Board considered the size of the lot, the slope of the land, the potential for soil erosion, the location of other similar structures on the adjacent property, the location of the existing rain gardens and underdrainage, the location of the existing septic system, and the type and amount of vegetation that may need to be removed if the structure would be relocated. The applicant has not proposed to reconstruct or replace the structure only construct a 100.4 square foot addition. Based on this information the Board finds that this criterion will be met.

**504.3. D. Change of Use of a Nonconforming Structure**

This application is not for a change of use of the existing non-conforming structure; therefore, the Board finds that this section is not applicable.

**504.3. E. Planning Board Special Review for a Legal Non-Conforming Single-Family Dwelling Located in a Shoreland Zoning District**

The application does not include the need for setback reductions; therefore, the Board finds that this section is not applicable.

### **508.27 Shoreland Zoning Standards**

#### **508.27.B. Principal and Accessory Structures**

Chapter 5 §504.3 provides the performance standards for relocation and/or reconstruction of non-conforming structures. The applicant has proposed an addition only; therefore, the Board finds that this section is not applicable.

#### **508.27.C. Multiple Principal Structures**

This application does not include multiple principal structures; therefore, the Board finds that this section is not applicable.

#### **508.27.D. Piers, Docks, Wharves, Bridges, and Other Structures and Uses**

This application does not include any Piers, Docks, Wharves, Bridges or similar structures; therefore, the Board finds that this section is not applicable.

#### **508.27.E. Individual Private Campsites**

This application does not include any individual private campsites; therefore, the Board finds that this section is not applicable.

#### **508.27.F. Parking Areas**

There are no proposed parking areas with this application nor is the parcel located in the Resource Protection Shoreland Zoning District therefore; the Board finds that this section is not applicable.

#### **508.27.G. Roads and Driveways**

There are no proposed driveway changes with this application nor is the parcel located in the Resource Protection Shoreland Zoning District therefore; the Board finds that this section is not applicable.

#### **508.27.H. Storm Water Runoff**

The applicant will incorporate installation of rock lined drip edges, a mitigation plan for pre and post construction erosion, and phosphorus control. Based on this information and in the record the Planning Board finds that this criterion will be met.

#### **508.27.I. Essential Services**

The applicant is not proposing to install any new electrical poles, transmission lines, satellite dishes, generators, hydrants etc.; therefore, the Board finds that this section is not applicable.

#### **508.27.J. Mineral Exploration and Excavation Permits**

The application is not for mineral exploration or any other mining or gravel pit operations; therefore, the Board finds that this section is not applicable.

#### **508.27.K. Agriculture**

The applicant is not proposing any livestock grazing areas, manure stockpiles, or any agriculture activities within the parcel; therefore, the Board finds that this section is not applicable.



**508.27.M. Clearing or Removal of Vegetation for Development Other Than Timber Harvesting or Individual Private Campsites**

There is no proposed vegetation removal with this application: therefore, the Board finds that this section is not applicable.

**Conclusion**

- The application checklist was approved as complete on January 22, 2019 at which time the Board voted to waive the requirement for a site walk and public hearing.
- The applicant has provided the Board with a Deed (Book 5449, Page 3) showing reasonable right, title, or interest in the property.
- The Board has concluded that they have the jurisdiction to review the application under section Chapter 5 §504.3 (Non-Conforming Structures).

Therefore, the Town of Poland Planning Board hereby approves (4-0) with the following conditions, the application for Leonard and Patsy Adams, to construct an addition, as described in the application dated January 22, 2019 and the approved site plan dated January 22, 2019 and the above findings of facts.

**Conditions of Approval**

- Soil Erosion Control and Stormwater Management Measures shall be in place prior to construction. The Code Enforcement Officer may require additional measures be taken.
- Soil disturbance during the period March 1st to May 1st is prohibited.
- Any disturbed soils shall be revegetated immediately upon completion of construction and any disturbed soils within 100-ft. of the high-water mark shall be revegetated per the approved plan.
- This approval will expire twelve (12) months from the date of Planning Board approval if the project or the use has not been started within this allotted time.
- Building/use permits shall be obtained prior to the start of construction/use.
- A certified person in erosion control practices by the Maine Department of Environmental Protection must be present at the site each day earthmoving activity occurs for a duration that is sufficient to ensure that proper erosion and sedimentation control practices are followed. This is required until erosion and sedimentation control measures have been installed, which will either stay in place permanently or stay in place until the area is sufficiently covered with vegetation necessary to prevent soil erosion.
- The applicant has agreed to follow the recommendations by Androscoggin County Soil and Water Conservation District regarding pre and post storm water, erosion, and phosphorus issues within the parcel.
- Plan approval is also conditioned upon compliance by the Applicant with the Plans and specifications which have been received by the Planning Board in connection with the development proposal as well as with any oral or written commitments regarding the project which were specifically made by the Applicant to the Board in the course of its deliberations.
- The applicant must apply for and obtain all applicable permits for the proposed development under the Natural Resources Protection Act, Title 38 M.R.S.A. section 480-C, the Site Location of Development Act, the Erosion and Sedimentation Control law, Title 38 M.R.S.A. section 420-C, the Stormwater Management Law, the Federal Clean Waters Act as delegated to the State of Maine, and all other applicable state and federal laws regulating the use or development of land.

- The new site plan must be recorded with the Androscoggin County Registry of Deeds within 90 days of approval.
- The new shed must be permitted before any new building permits are approved.

Pursuant to Section 304.5.B of the CLUC anyone aggrieved of this decision may file a written appeal within thirty (30) days of date of this decision in accordance with Rule 80-B of the Maine Rules of Civil Procedure.

**Date Approved: January 22, 2019**  
**Poland Planning Board**

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, Chairperson

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James Porter, Vice -Chairperson

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George Greenwood, Secretary

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Mark Weinberg

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Stephanie Floyd



## Planning Board Office

1231 Maine Street,  
Poland, Maine 04274-7328

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### **Findings of Fact & Conclusion of Law**

**Application Type:** Sketch Plan Review

**Owners Name:** Dawn Miller

**Located at:** 1199 Maine St.

**Parcel ID:** 0012-0044

**Zoning District:** Downtown Village, Aquifer Protection-1 Overlay

#### **509.8 SUBMISSIONS**

The Planning Board (Board) voted on November 13, 2018 that the application included all the mandatory submissions requirements for the site plan application except for sections; 509.8.A.3.h, 509.8.A.5.o.(1-5), 509.8.A.5.p.(1-5) and 509.8.A.5.q, that the Board has decided to waive, the Board finds that granting the waivers will not minimize public health, safety or welfare, or nullify the intent of the CLUC, or the Comprehensive Plan. Based on this information and in the record the Planning Board finds that this criterion will be met.

#### **509.9 SITE PLAN REVIEW STANDARDS**

##### **A. Preservation of Landscape:**

The applicant is not proposing any exterior changes to the parcel except the new stockade fence between the buildings. Based on this information above and in the record the Planning Board finds that this criterion will be met.

##### **B. Relation of Proposed Buildings to Environment:**

The existing building has wood siding, is of neutral colors, and has a pitched asphalt roof, all of which are consistent with the surrounding properties. Based on this information above and in the record the Planning Board finds that this criterion will be met.

##### **C. Compatibility with Residential Areas:**

The property has been commercial for several years and the change in use will not alter the existing character of the lot. There is ample parking located on the lot for the proposed use and the proposal will not create any unsightly views, noise, odor, or lighting pollution. Based on this information above and in the record the Planning Board finds that this criterion will be met.

**D. Vehicular Access:**

This parcel does not appear to contain more than five hundred (500') feet of street frontage on a single street and does not consist of more than ten (10) acres; therefore, a conceptual access master plan is not required. Furthermore, the applicant is not proposing any changes to the existing Maine Department of Transportation (MDOT) approved curb cuts. Based on this information and in the record the Planning Board finds that this criterion will be met.

**E. Access to Route:**

The Maine Department of Transportation (MDOT) has approved the existing location of the driveway entrance. Based on this information and in the record the Planning Board finds that this criterion will be met.

**F. Surface Water:**

The applicant has requested a waiver from this section due to the fact that there is no proposed development. The Board waives this section since there is no proposed development or soil disturbance and there are no known drainage issues at this time. The Board finds that granting the waivers will not minimize public health, safety or welfare, or nullify the intent of the CLUC, or the Comprehensive Plan. Based on this information and in the record the Planning Board finds that this criterion will be met.

**G. Conservation, Erosion, and Sediment Control:**

This application does not include any proposed development or soil disturbances; therefore, the Board finds that this section is not applicable.

**H. Phosphorus Export:**

The parcel is located in the Range Pond watershed, a great pond watershed. No changes to the site are proposed; therefore, the Board finds that this section is not applicable.

**I. Site Conditions:**

This application does not include any proposed development or soil disturbances; therefore, the Board finds that this section is not applicable.

**J. Signs:**

The applicant has proposed to use the existing sign on the property. The only change will be the graphics. Based on this information and in the record the Planning Board finds that this criterion will be met.

**K. Special Features:**

The applicant is not proposing to install any new mechanical equipment. Based on this information and in the record the Planning Board finds that this criterion will be met.

**L. Exterior Lighting:**

The applicant is not proposing to install any new exterior lighting. Based on this information and in the record the Planning Board finds that this criterion will be met.

**M. Emergency Vehicle Access:**

The property already has emergency access to three sides of the building, the Fire/Rescue Chief has stated that he is all set with the access at this time. Based on this information and in the record the Planning Board finds that this criterion will be met.

**N. Municipal Services:**

All Town departments have not disclosed any concerns with the application as it stands. Based on this information and in the record the Planning Board finds that this criterion will be met.

**O. Water Supply:**

The building has a drilled well which is located on the property, the existing well meets the minimum plumbing requirements for the proposed dog grooming and pet boarding. Based on this information and in the record the Planning Board finds that this criterion will be met.

**P. Ground Water:**

The parcel is located in an aquifer overlay district however, the application does not include any activities that are prohibited within the overlay district therefore, the existing and proposed development shall not result in undue effect of the quality or quantity of ground water. Based on this information and in the record the Planning Board finds that this criterion will be met.

**Q. Air Emissions:**

The proposed dog grooming and pet boarding will not create any dust, ash, smoke, or other particulate matter and will meet or exceed the standards set by the MDEP. Based on this information and in the record the Planning Board finds that this criterion will be met.

**R. Odor Control:**

The proposed dog grooming and pet boarding will not produce and offensive or harmful odors. Based on this information and in the record the Planning Board finds that this criterion will be met.

**S. Noise:**

The applicant has stated that the proposed dog grooming and pet boarding will meet the Town and MDEP'S minimum noise standards. Based on this information and in the record the Planning Board finds that this criterion will be met.

**T. Sewage Disposal**

The existing Subsurface wastewater system was approved for the two previous business's that were on the site. Based on this information and in the record the Planning Board finds that this criterion will be met.

**U. Waste Disposal**

The applicant is proposing no visible on-site waste disposal. Based on this information and in the record the Planning Board finds that this criterion will be met.

**V. Buffer Areas**

There are no existing buffer areas on the lot except at the rear. However, the proposed dog grooming and pet boarding will have little effect on the buffer. Based on this information above and in the record the Planning Board finds that this criterion will be met.



#### **W. Adequate Financial and Technical Capacity**

The applicant has stated that she will be running the dog grooming and pet boarding and that cost of work to complete the change of use will be minimal. Based on this information and in the record the Planning Board finds that this criterion will be met.

#### **X. Conformance with the Comprehensive Plan**

The proposed dog grooming and pet boarding which would be defined as a “business primary function” is a permitted use in the Downtown Village zoning district and will be in conformance with the Comprehensive Plan. Based on this information and in the record the Planning Board finds that this criterion will be met.

#### **Conclusion**

- The Board reviewed the Site Plan application on November 13, 2018 at which time the Board deemed the application as completed and decided to not hold a public hearing or site walk for the application.
- The applicant has provided the Board with a Deed (Book 9972, Page 73, 74) showing reasonable right, title, or interest in the property.
- The Board has concluded that they have the jurisdiction to review the application under Ch. 5 §509.2.A.3, (New uses of existing structures or land or existing uses that require Site Plan Review,

Therefore, the Town of Poland Planning Board hereby approves with the following conditions the application for Dawn Miller, “K9’s and Kitty’s 2” for the change of use from a gym/office space to a dog grooming and pet boarding business as described in the application letter dated November 01, 2018 and the above findings of facts.

#### **Conditions of Approval:**

- Plan approval is also conditioned upon compliance by the Applicant with the Plans and specifications which have been received by the Planning Board in connection with the development proposal as well as with any oral or written commitments regarding the project which were specifically made by the Applicant to the Board in the course of its deliberations.
- This approval will expire twelve (12) months from the date of Planning Board approval if the project or the use has not been started within this allotted time.
- Building/use permits shall be obtained prior to the start of construction/use.
- The applicant must apply for and obtain all applicable permits for the proposed development under the Natural Resources Protection Act, Title 38 M.R.S.A. section 480-C, the Site Location of Development Act, the Erosion and Sedimentation Control law, Title 38 M.R.S.A. section 420-C, the Stormwater Management Law, the Federal Clean Waters Act as delegated to the State of Maine, and all other applicable state and federal laws regulating the use or development of land.

Pursuant to Section 304.5.B of the CLUC anyone aggrieved of this decision may file a written appeal within Thirty (30) Days of date of this decision in accordance with Rule 80-B of the Maine Rules of Civil Procedure.

**Date Approved: November 13, 2018**  
**Poland Planning Board**

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, Chairperson

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James Porter, Vice Chairperson

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George Greenwood, Secretary

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Mark Weinberg, Member

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Stephanie Floyd, Member



## Planning Board Office

1231 Maine Street,  
Poland, Maine 04274-7328

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### **Findings of Fact & Conclusion of Law**

**Date:** January 29, 2019

**Application Type:** Formal Shoreland Zoning Application

**Owners Name:** Arthur and Rebecca Weissman

**Located at:** 37 Mountain View Drive

**Parcel ID:** 0049-0035

**Zoning Districts:** Rural Residential 2 and Limited Residential

#### **Project Description:**

On September 25, 2018 the Weissman's submitted an application to remove a set of spiral stairs on the back (water side) of the garage. The applicant has requested approval to replace the spiral stairs with a seventy two (72) square foot balcony with no stairs. The historical property card shows there was an eighty (80) square foot balcony prior to the spiral stairs being installed.

#### **303.2.G. In addition to the standards contained elsewhere in Comprehensive Land Use Code (CLUC), the Planning Board shall consider the following in the Shoreland Area as defined:**

**1. Will maintain safe and healthful conditions**

The proposed building will not interfere with the general health or safety of any neighbors. Based on this information the Planning Board (Board) finds that this criterion will be met.

**2. Will not result in water pollution, erosion, or sedimentation to surface waters**

Based on the plan submitted, the Board finds that the issues of water pollution, erosion, or sedimentation to surface waters have been properly addressed. Based on this information the Board finds that this criterion will be met.

**3. Will adequately provide for disposal of all wastewater**

The application includes no changes to the existing Subsurface Wastewater Disposal system; therefore, the Board finds that this section is not applicable.

**4. Will not have an adverse impact on spawning grounds, fish, aquatic life, birds, or other wildlife habitat**

The structure is located completely on land and will not have an impact on the spawning grounds, fish, aquatic life, birds, or other wildlife habitat. Based on this information the Board finds this criterion will be met.

**5. Will conserve shore cover and visual, as well as actual, points of access to inland waters**

The applicant is proposing to revegetate all disturbed areas. Based on this information above and in the record the Board finds that this criterion will be met.

**6. Will protect archaeological and historic resources as designated in the Town of Poland Comprehensive Plan**

The parcel and abutting parcels do not appear to be associated with any archaeological or historic resources as designated in the Comprehensive Plan. Therefore, the Board finds that this section is not applicable.

**7. Will avoid problems associated with floodplain development and use**

The structure associated with this application has a finished floor level is more than one foot above base flood elevation. Based on this information above and in the record the Board finds that this criterion will be met.

**504.3 Non-Conforming Structures**

**504.3. A. Expansions of Non-Conforming Structures**

The applicant is proposing a seventy two (72) square foot balcony that does not exceed the historical square footage of eighty (80) square feet. Based on this information the Board finds that this criterion will be met.

**504.3. B. Relocation of Non-Conforming Structures**

The applicant is only proposing to construct a seventy two (72) square foot balcony. Based on this information the Board finds that this criterion will be met.

**507.3.C. Reconstruction or Replacement of Non-Conforming Structures**

The Board must determine if the proposed structure meets the setbacks to the greatest practical extent. The Board considered the size of the lot, the slope of the land, the potential for soil erosion, the location of other similar structures on the adjacent property, the location of the existing rain gardens and underdrainage, the location of the existing septic system, and the type and amount of vegetation that may need to be removed if the structure would be relocated. The applicant has not proposed to reconstruct or replace the structure only construct a seventy two (72) square foot Balcony. Based on this information the Board finds that this criterion will be met.

**504.3. D. Change of Use of a Nonconforming Structure**

This application is not for a change of use of the existing non-conforming structure; therefore, the Board finds that this section is not applicable.

**504.3. E. Planning Board Special Review for a Legal Non-Conforming Single-Family Dwelling Located in a Shoreland Zoning District**

The application does not include the need for setback reductions; therefore, the Board finds that this section is not applicable.

**508.27 Shoreland Zoning Standards**

**508.27.B. Principal and Accessory Structures**

Chapter 5 §504.3 provides the performance standards for relocation and/or reconstruction of non-conforming structures. The applicant has proposed an addition only therefore, the Board finds that this section is not applicable.

**508.27.C. Multiple Principal Structures**

This application does not include multiple principal structures; therefore, the Board finds that this section is not applicable.

**508.27.D. Piers, Docks, Wharves, Bridges, and Other Structures and Uses**

This application does not include any Piers, Docks, Wharves, Bridges, or similar structures; therefore, the Board finds that this section is not applicable.

**508.27.E. Individual Private Campsites**

This application does not include any individual private campsites; therefore, the Board finds that this section is not applicable.

**508.27.F. Parking Areas**

There are no proposed parking areas with this application nor is the parcel located in the Resource Protection Shoreland Zoning District. The Board finds that this section is not applicable.

**508.27.G. Roads and Driveways**

There are no proposed driveway changes with this application nor is the parcel located in the Resource Protection Shoreland Zoning District therefore; the Board finds that this section is not applicable.

**508.27.H. Storm Water Runoff**

The applicant will incorporate installation of rock lined drip edges, a mitigation plan for pre and post construction erosion, and phosphorus control. Based on this information and in the record the Planning Board finds that this criterion will be met.

**508.27.I. Essential Services**

The applicant is not proposing to install any new electrical poles, transmission lines, satellite dishes, generators, hydrants etc.; therefore, the Board finds that this section is not applicable.

**508.27.J. Mineral Exploration and Excavation Permits**

The application is not for mineral exploration or any other mining or gravel pit operations; therefore, the Board finds that this section is not applicable.



### **508.27.K. Agriculture**

The applicant is not proposing any livestock grazing areas, manure stockpiles, or any agriculture activities within the parcel; therefore, the Board finds that this section is not applicable.

### **508.27.M. Clearing or Removal of Vegetation for Development Other Than Timber Harvesting or Individual Private Campsites**

There is no proposed vegetation removal with this application: therefore, the Board finds that this section is not applicable.

### **Conclusion**

- The application checklist was approved as complete on September 25, 2018, at which time the Board voted to waive the requirement for a site walk and public hearing.
- The applicant has provided the Board with a Deed (Book 9498, Page 178) showing reasonable right, title, or interest in the property.
- The Board has concluded that they have the jurisdiction to review the application under section Chapter 5 § 504.3 (Non-Conforming Structures).

Therefore, the Town of Poland Planning Board hereby approves (4-0) with the following conditions, the application for Arthur and Rebecca Weissman, to construct a seventy two (72) square foot balcony, as described in the application dated September 25, 2019 and the approved site plan dated September 25, 2019 and the above findings of facts.

### **Conditions of Approval**

- Soil Erosion Control and Stormwater Management Measures shall be in place prior to construction. The Code Enforcement Officer may require additional measures be taken.
- Soil disturbance during the period March 1st to May 1st is prohibited.
- Any disturbed soils shall be re-vegetated immediately upon completion of construction and any disturbed soils within 100-ft. of the high-water mark shall be revegetated per the approved plan.
- This approval will expire twelve (12) months from the date of Planning Board approval if the project or the use has not been started within this allotted time.
- Building/use permits shall be obtained prior to the start of construction/use.
- A certified person in erosion control practices by the Maine Department of Environmental Protection must be present at the site each day earthmoving activity occurs for a duration that is sufficient to ensure that proper erosion and sedimentation control practices are followed. This is required until erosion and sedimentation control measures have been installed, which will either stay in place permanently or stay in place until the area is sufficiently covered with vegetation necessary to prevent soil erosion.
- The applicant has agreed to follow the recommendations by Androscoggin County Soil and Water Conservation District regarding pre and post storm water, erosion, and phosphorus issues within the parcel.
- Plan approval is also conditioned upon compliance by the Applicant with the Plans and specifications which have been received by the Planning Board in connection with the development proposal as well as with any oral or written commitments regarding the project which were specifically made by the Applicant to the Board in the course of its deliberations.

- The applicant must apply for and obtain all applicable permits for the proposed development under the Natural Resources Protection Act, Title 38 M.R.S.A. section 480-C, the Site Location of Development Act, the Erosion and Sedimentation Control law, Title 38 M.R.S.A. section 420-C, the Stormwater Management Law, the Federal Clean Waters Act as delegated to the State of Maine, and all other applicable state and federal laws regulating the use or development of land.
- The new site plan must be recorded with the Androscoggin County Registry of Deeds within 90 days of approval.
- The applicant must provide the correct shoreland zoning application.

Pursuant to Section 304.5.B of the CLUC anyone aggrieved of this decision may file a written appeal within thirty (30) days of date of this decision in accordance with Rule 80-B of the Maine Rules of Civil Procedure.

**Date Approved: September 25, 2018**  
**Poland Planning Board**

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, Chairperson

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James Porter, Vice -Chairperson

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George Greenwood, Secretary

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Mark Weinberg

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Stephanie Floyd



## Planning Board Office

1231 Maine Street,  
Poland, Maine 04274-7328

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### **Findings of Fact & Conclusion of Law**

**Application Type:** Minor Subdivision Application for Meguire Hill Overlook Subdivision  
**Owners Name:** Meguire Hill Holdings LLC 1532 Thames St. Baltimore, Maryland 21231  
**Located at:** 260 Meguire Hill Road  
**Parcel ID:** 0014-0025 and 0025-B  
**Zoning Districts:** Village 3

#### **Project Description:**

On May 8, 2018 Meguire Hill Holdings LLC and their agent JKL Land Surveying submitted an application for a Minor Subdivision. This subdivision will be served by the existing Town Road Meguire Hill Road for two added lots and retainage of the existing farm on the third lot. The subdivision will propose three residential lots total, with an open space area as shown on the Subdivision Plan, named Meguire Hill Overlook for the Meguire Hill Holdings LLC, by JKL Land surveying, dated through April 2018.

The project is located off the northerly side of Meguire Hill Road and near the intersection of Plummer's Lane. The property is located on 47 acres in the Village 3 Zoning District which typically requires 80,000 SF minimums for conventional lots. A cluster concept as provided to consider reduction in frontage requirements and area to allow for the layout as provided, but with a sizeable parcel of open space (40+ acres) the requirement for a cluster lot did not seem to warrant market demands or benefit the Town, and the conventional lot layout was selected.

The project application was reviewed to meet the performance standards in Section 612 of Poland Comprehensive Land Use Code (CLUC) and are intended to clarify and expand upon the criteria for approval found within the Subdivision Statute (Title 30-A, M.R.S.A. Section 4404) and carry out the purposes of the CLUC and the Town of Poland Comprehensive Plan. In reviewing a proposed Subdivision, the Board has reviewed the application for conformance with the following performance standards and make findings that each has been met as part of the approval of a Final Plan. Compliance with the design guidelines of Section 613 shall be considered to be evidence of meeting the appropriate performance standards.

**612.1 Pollution:** The proposed Subdivision will not discharge waste water into a water body and proposed subsurface wastewater systems have been considered for the proposed lots. Discharges of storm water shall be treated to remove contaminants to discharge into surface water bodies by use of retained tree buffers.

**612.2 Sufficient Water:** The proposed Subdivision is not within the area of a public water supply, water supply shall be from individual wells and such wells have been sited to prevent infiltration of surface water, and contamination from subsurface wastewater disposal systems and other sources of potential contamination. The design of and permit placement of wells, subsurface wastewater disposal areas, and reserve sites for subsurface wastewater disposal areas in compliance with the Maine Subsurface Wastewater Disposal Rules and the Well

Drillers and Pump Installers Rules. In lieu of providing Public Water or private source of water supply for fire protection with fire hydrants the Fire Chief has accepted the use of life safety sprinkler systems to be added to each proposed home in the Subdivision.

**612.3 Impact on Existing Water Supplies:** In meeting the standards of Section 612.2., the proposed Subdivision will not generate a demand on the source, treatment facilities or distribution system of the servicing water company or district beyond the capacity of those system components.

**612.4 Soil Erosion:** The proposed Subdivision will prevent soil erosion from entering water bodies, and adjacent properties following the procedures outlined in submitted Erosion and Sedimentation Control Plan to be implemented during the site preparation, construction, and clean-up stages. Topsoil shall be considered part of the Subdivision and shall not be removed from the site except for surplus topsoil from roads, parking areas, and building excavations.

**612.5 Traffic Conditions:** The proposed subdivision does not propose any roads and only driveways therefore, due to the proposed low daily trip volume from the lot development vehicular access to the Subdivision and within the Subdivision will be conducted in a manner as to: 1. Safeguard against hazards to traffic and pedestrians in existing streets and within the Subdivision; 2. Avoid traffic congestion on any street; and 3. Provide safe and convenient circulation on public streets and within the Subdivision. Adequate provisions for fire and emergency service could be provided from the existing public street, Meguire Hill Road.

**612.6 Sewage Disposal:** The development will provide private subsurface wastewater disposal systems and has provided evidence of site suitability for subsurface sewage disposal prepared by a State of Maine Department of Human Services licensed Site Evaluator in full compliance with the requirements of the State of Maine Subsurface Wastewater Disposal Rules. With evidence to certify in writing that each lot has one passing test pit which meet the requirements for a new system represents an area large enough to a disposal area on soils which meet the State of Maine Subsurface Wastewater Disposal Rules.

**612.7 Solid Waste:** If the additional solid waste from the proposed Subdivision does exceeds the capacity of the Municipal Solid Waste given the relative low output from the 3 single family lots.

**612.8 Impact on Natural Beauty, Aesthetics, Historic Sites, Wildlife Habitat, Rare Natural Areas or Public Access to the Shoreline:** The Plan shall, by conditions of approval on the Final Plan and deed restrictions, limit the clearing of trees to those areas designated on the Subdivision Plan. Preservation of the existing fam and tree clearing will promote the natural Beauty and vistas from the proposed property.

**612.9 Conformance with Zoning and Other Land Use Standards:** All lots meet the minimum dimensional requirements of Chapter 5, Land Zoning Standards, for the Village 3 zoning district in which they are located. The proposed Subdivision meets all applicable performance standards or design criteria from Chapter 5.

**612.10 Financial and Technical Capacity:** The applicant has adequate financial resources to construct the proposed improvements and meet the criteria of Title 30-A, M.R.S.A. Section 4404 and the standards of this Code. The applicant will qualified contractors and consultants to supervise, construct and inspect the required improvements in the proposed Subdivision.

**612.11 Impact on Water Quality or Shoreline:** The property is not located along a shore so there is no cutting or removal of vegetation along water bodies that could increase water temperature, or result in shoreline erosion or sedimentation of water bodies.

**612.12 Impact on Ground Water Quality or Quantity:** The Subdivision will not adversely affect the quality or quantity of ground water. Based on the low number of single family dwellings lots proposed no hydrogeological study for nitrate plums or adverse groundwater impacts was required.

**612.13 Floodplain Management:** No part of the proposed Subdivision is located in a Special Flood Hazard Area as identified by the Federal Emergency Management Agency.

**612.14 Identification of Freshwater Wetlands:** – No Freshwater wetlands were identified in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, (published by the United States Army Corps of Engineers and as amended) on the site project limits.

**612.15 River, Stream, or Brook:** - There are no rivers, streams, or brooks within or abutting the Subdivision shall be identified on the Plan.

**612.16 Storm Water Management:** Adequate provisions were made for the management of the quantity and quality of all storm water generated within the Subdivision, through incorporation of Best Management Practices equivalent to those described in the Stormwater Management for Maine: Best Management Practices, (published by the Maine Department of Environmental Protection, 2015 and as amended), and in conformance with the policies of the Town of Poland Comprehensive Plan. The stormwater design incorporates the use of buffers to mitigate downstream impacts to abutters and Tripp Lake.

**612.17 Phosphorus Impacts on Great Ponds:** The Subdivision is within the watershed of Tripp Lake and did provide basic computations to comply with the required phosphorus export for the development. The subdivision qualifying for and using the Simplified Review Method in accordance with the Simplified Review Method for Minor Projects (Chapter 4) in Phosphorus Control in Lake Watersheds: A Technical Guide for Evaluating New Development, (published by the Maine Department of Environmental Protection, revised September 1992 and as amended). The buffer areas were located downslope of developed areas.

**612.18 Impact on Adjoining Municipality:** – The proposed Subdivision does not cross the boundary into an adjacent Municipality, the Subdivision will not cause unreasonable traffic congestion or unsafe conditions with respect to the use of existing public roads in an adjacent Municipality in which part of the Subdivision is located.

## **613 DESIGN GUIDELINES**

**613.1 Sufficient Water A. Fire Protection:** No public roads were proposed, and no public water lines or existing fire protection services are nearby to the project. In lieu of provisions for fire protection apparatus and water supply the Fire Chief requested a condition of approval that the homes to be built be provided with a life sprinkler system to be installed during the home construction. The Board accepted the condition and no additional measures were required to meet the guideline.

**613.2 Traffic Conditions:** The Subdivision does not abut an arterial street, nor has frontage on two (2) or more streets, the access to the lots shall be provided to the lot across the frontage and to the street where there is lesser potential for traffic congestion and for hazards to traffic and pedestrians unless other factors make it not practical.

**613.3 Wildlife Habitat, Rare Natural Areas or Public Access to the Shoreline A. Preservation of Natural Beauty and Aesthetics:** The project is located in the Village 3 District as defined in Chapter 5, Land Zoning Standards, but still intends to preserve the existing 40 acre farm as part of the land retained in its natural farm



and maple syrup production. Although not a Historic Features – the proposed Subdivisions will include preservation measures and buffers to retain the character of the existing farm and maintain the vista and viewshed from the property.

**613.4 Storm Water Management Design Guidelines:** Design of Best Management Practices are substantially equivalent to those described in the Storm Water Management for Maine: Best. Due to the limited soil disturbance for access no pipe or culverts will be required.

**613.5 Impact on Water Quality or Shoreline** – The project is not in close proximity nor abuts a great pond or has shoreline frontages. Thereby the guideline does not apply.

**613.6 Lots:** The side lines of the lot are generally perpendicular to the street. The proposed parcels do not provide more than twice the required minimum lot size and are laid out in such a manner as to not provide for or preclude future division. Land retained is in an area approximately 40 acres and though placed in preservation potentially the lot could be further divided in the future. Deed restrictions and conditions of approval on the Plan shall either prohibit future divisions of the lots or specify that any future division shall constitute a revision to the Plan and shall require approval from the Board, subject to the criteria of the State Subdivision Statute, the standards of this Code and conditions placed on the original approval.

**613.7 Utilities:** There are no proposed roads for the subdivision and the lots shall be serviced from existing public utilities available along their street frontage. The Planning Board determined that the homeowner shall have the option of overhead vs underground but advised to place underground from the last pole location.

**613.8 Monuments** A. No road monuments are required and all other Subdivision boundary corners and angle points, as well as all lot boundary corners and angle points are to be marked by suitable monuments or use of natural stonewalls as required by the Maine Board of Registration of Land Surveyors.

**613.9 Cluster Developments:** The project did provide a plan for considering Cluster development however the Planning Board following the conventional size and bulk layouts with retention of the existing farm, proposed the optimum benefit for the community and the developer for marketing. The Cluster Development design was not selected.

**613.10 Reservation or Dedication and Maintenance of Open Space and Common Land, Facilities and Services:** The development retained tree buffers preservation and placed the remaining tract to remain in a 40 acre parcel to be retained as farming. Since the number of units was only two new lots being proposed the guideline does not apply, even with the concept of preserving the farm character.

**613.11 Agricultural Land Buffers:** The proposed Subdivision will abut active commercial agricultural land, a buffer of unimproved natural vegetation of a minimum of one hundred (100) feet will be provided between dwellings and the active agricultural land.

**613.12 Buffers for Non-residential Subdivisions:** The guideline does not apply.

### **Conclusion**

THEREFORE, the Town of Poland Planning Board hereby approves by a 5-0 vote held on May 22, 2018, with the following conditions, for the Minor Subdivision Plan application for Megquire Hill Holdings LLC, Megquire Hill Overlook Subdivision project consisting of construction of 3 residential lots, with 2 lots for out sale and one lot for the existing farm to remain. No private or public streets or infrastructure will be required as the lots have adequate frontage on the existing Megquire Hill Road. Proposed Minor Subdivision development is as described in the application approved and in this Findings of Fact.

### **Conditions of Approval**

- Plan approval is also conditioned upon compliance by the Applicant with the Plans and specifications which have been received by the Planning Board in connection with the development proposal as well as with any oral or written commitments regarding the project which were specifically made by the Applicant to the Board in the course of its deliberations.
- Except in the case of a Phased Development Plan, failure to complete substantial construction of the Subdivision within five (5) years of the date of approval and signing of the Plan shall render the Plan null and void. Upon determining that a Subdivision's approval has expired under this Paragraph, the Board shall have a notice placed in the Androscoggin County Registry of Deeds to that effect.
- Any Subdivision not recorded in the Registry of Deeds within ninety (90) days of the date upon which the Plan is approved and signed by the Board shall become null and void.
- Building/use permits shall be obtained prior to the start of construction/use.
- The applicant must apply for and obtain all applicable permits for the proposed development under the Natural Resources Protection Act, Title 38 M.R.S.A. section 480-C, the Site Location of Development Act, the Erosion and Sedimentation Control law, Title 38 M.R.S.A. section 420-C, the Stormwater Management Law, the Federal Clean Waters Act as delegated to the State of Maine, and all other applicable state and federal laws regulating the use or development of land.
- The subdivision will require to provide an access easement over lot two for the benefit of the existing farm access and service road to the farming/ maple syrup operation. The easement shall be conveyed by deed, and proof of the execution shall be provided to the Town prior to issuance of a building permit for the lot.
- The two lots considered for sale and new home construction shall provide and install the required sprinkler life safety systems as outlined in the Fire Chiefs memo provided at the May 22, 2018 meeting. Systems shall be approved by the Fire Chief and the Code Enforcement Officer prior to building permits and no occupancy shall be granted until proof of their final inspection and full operation has been deemed acceptable by the Town.
- Pursuant to Section 304.5.B of the CLUC anyone aggrieved of this decision may file a written appeal within Thirty (30) Days of date of this decision in accordance with Rule 80-B of the Maine Rules of Civil Procedure.

**Date Approved:** \_\_\_\_\_

**Poland Planning Board**

\_\_\_\_\_  
Dawn Dyer, Vice -Chairperson

\_\_\_\_\_  
Alex Duff

\_\_\_\_\_  
James Porter, Chairperson

\_\_\_\_\_  
George Greenwood

\_\_\_\_\_  
Mark Weinberg

\_\_\_\_\_  
Stephanie Floyd, Alternate



## Planning Board Office

1231 Maine Street,  
Poland, Maine 04274-7328

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### **Findings of Fact & Conclusion of Law**

**Application Type:** Amended Minor Subdivision Application for Washburn Minor Subdivision  
**Owners Name:** Greg Washburn  
**Located at:** 535 Woodman Hill Rd. Minot, Maine 04250  
**Parcel ID:** Tax Map 15 Lot 18B  
**Zoning Districts:** Downtown Village

#### **Project Description:**

The project is an Amended Minor Subdivision to be served by a private 60 foot wide Right of way off Route 26/Maine Street for it entails altering existing lot lines to consolidate 4 previous lots into 3 lots. The project scope is to develop the main larger lot of 8.2 acres which will incorporate one smaller existing lot into one self-storage facility for both indoor cold storage, and an outdoor storage area, with a small office building, while modifying the remaining lots to reduce to create just two lots remaining with slightly deeper layout. The site is accessed by an existing 60 foot right of way previously approved. The Washburn Property Subdivision plan was prepared by Survey Works and George Courbron, JR PLS #1126, dated through October 2018.

The project is located off the easterly side of Maine Street and near the intersection of Route 11. The property is located on 9+ acres in the Downtown Village Zoning District which typically requires 20,000 SF minimums for conventional lots. The project application was reviewed to meet the performance standards in Section 612 of Poland Comprehensive Land Use Code (CLUC) and are intended to clarify and expand upon the criteria for approval found within the Subdivision Statute (Title 30-A, M.R.S.A. Section 4404) and carry out the purposes of the CLUC and the Town of Poland Comprehensive Plan. In reviewing a proposed Subdivision, the Board has reviewed the application for conformance with the following performance standards and make findings that each has been met as part of the approval of a Final Plan. Compliance with the design guidelines of Section 613 shall be considered to be evidence of meeting the appropriate performance standards.

**612.1 Pollution:** The proposed Subdivision will not discharge waste water into a water body and proposed subsurface wastewater systems have been considered for the proposed lots. Discharges of storm water shall be treated to remove contaminants to discharge into surface water bodies while Lot 1 has been considered lots 2 and 3 have not. A note shall be added stating each lot will require Planning Board approval for future development and stormwater provisions for conveyance and treatment.

**612.2 Sufficient Water:** The proposed Subdivision is within the area of a public water supply, water supply is noted as providing Public Water and that the requirement for water supply for fire protection with fire hydrants shall be at the discretion of the Fire Department as it applies their interpretation of life safety sprinkler systems requirement within the Subdivision.

**612.3 Impact on Existing Water Supplies:** - In meeting the standards of Section 612.2., the proposed Subdivision will not generate a large demand on the source, treatment facilities or distribution system of the servicing water company or district beyond the capacity of those system components.

**612.4 Soil Erosion:** The proposed Subdivision will prevent soil erosion from entering water bodies, and adjacent properties following the procedures outlined in submitted Erosion and Sedimentation Control Plan to be implemented during the site preparation, construction, and clean-up stages. Top soil shall be considered part of the Subdivision and shall not be removed from the site except for surplus topsoil from roads, parking areas, and building excavations.

**612.5 Traffic Conditions:** The proposed subdivision does not propose any roads and only access is a shared driveway. It is anticipated the proposed development will have low daily trip volume from the lot development, but vehicular access to the Subdivision and within the Subdivision will be conducted in a manner as to: 1. Safeguard against hazards to traffic and pedestrians in existing streets and within the Subdivision; 2. Avoid traffic congestion on any street; and 3. Provide safe and convenient circulation on public streets and within the Subdivision. A statement as to the site entrance meeting MDOT permits shall be obtained for the modification as well as a statement as to the trip generation anticipated from the subdivision, regardless of how driveways are interconnected or not. Provisions and turning space for fire and emergency service shall be provided from the existing public street, Route 26 for all the lots.

**612.6 Sewage Disposal:** The development will provide private subsurface wastewater disposal systems and has provided evidence of site suitability for subsurface sewage disposal prepared by a State of Maine Department of Human Services licensed Site Evaluator in full compliance with the requirements of the State of Maine Subsurface Wastewater Disposal Rules. With evidence to certify in writing that each lot has one passing test pit which meet the requirements for a new system represents an area large enough to a disposal area on soils which meet the State of Maine Subsurface Wastewater Disposal Rules.

**612.7 Solid Waste:** The additional solid waste from the proposed Subdivision does not exceed the capacity of the Municipal Solid Waste Facilities, given the relative low output from the relatively small commercial uses proposed. A conditional statement shall be added how waste will be handled on the plan.

**612.8 Impact on Natural Beauty, Aesthetics, Historic Sites, Wildlife Habitat, Rare Natural Areas or Public Access to the Shoreline:** The Plan shall, by conditions of approval on the Final Plan and with deed restrictions, include landscape buffers reserved for lot1 to those areas designated on the Subdivision/Site Plan. Given the openness of the lots there is no aesthetics to necessarily reserve, and the applicant has noted that no habitat or wildlife species will be disturbed as the remaining wetlands on the site will not be directly impacted...

**612.9 Conformance with Zoning and Other Land Use Standards:** - All lots meet the minimum dimensional requirements of Chapter 5, Land Zoning Standards, for the Downtown Village zoning district in which they are located. The proposed Subdivision meets all applicable performance standards or design criteria from Chapter 5.

**612.10 Financial and Technical Capacity:** - The applicant has adequate financial resources to construct the proposed improvements and meet the criteria of Title 30-A, M.R.S.A. Section 4404 and the standards of this Code. The applicant will use qualified contractors and consultants to supervise, construct and inspect the required improvements in the proposed Subdivision.



**612.11 Impact on Water Quality or Shoreline:** The property is not located along a shore so there is no cutting or removal of vegetation along water bodies that could increase water temperature, or result in shoreline erosion or sedimentation of water bodies.

**612.12 Impact on Ground Water Quality or Quantity:** The Subdivision will not adversely affect the quality or quantity of ground water. Based on the low number of commercial or office employees proposed, no hydrogeological study for nitrate plums or adverse groundwater impacts should be required.

**612.13 Floodplain Management:** No part of the proposed Subdivision is located in a Special Flood Hazard Area as identified by the Federal Emergency Management Agency.

**612.14 Identification of Freshwater Wetlands:** Freshwater wetlands were identified in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, (published by the United States Army Corps of Engineers and as amended) on the site project limits. No wetlands will be directly impacted by the subdivision.

**612.15 River, Stream, or Brook:** - There are no rivers, streams, or brooks within or abutting the Subdivision shall be identified on the Plan.

**612.16 Storm Water Management:** Adequate provisions were proposed to Lot subject to Maine DEP approval for the management of the quantity and quality of all storm water generated within the developed Lot1, through incorporation of Best Management Practices equivalent to those described in the Stormwater Management for Maine: Best Management Practices, (published by the Maine Department of Environmental Protection, 2015 and as amended), and in conformance with the policies of the Town of Poland Comprehensive Plan. The stormwater design does not incorporate the proposed future uses of Lots 2 & 3 and as such the condition of approval is that the applicants shall return to the Planning Board for site development planned on those lots. The proposed lot 1 utilizes filtration underdrain measures to acquire runoff treatment and volume control.

**612.17 Phosphorus Impacts on Great Ponds:** The Subdivision is not within the watershed of a great pond and is in the watershed to Little Androscoggin River. The applicant will be acquiring a stormwater management permit from the Maine DEP and subject to those approvals.

**612.18 Impact on Adjoining Municipality:** – The proposed Subdivision does not cross the boundary into an adjacent Municipality, the Subdivision will not cause unreasonable traffic congestion or unsafe conditions with respect to the use of existing public roads in an adjacent Municipality in which part of the Subdivision is located.

## **613 DESIGN GUIDELINES**

**613.1 Sufficient Water A. Fire Protection:** No public roads were proposed and public water lines for fire protection services from nearby water mains adjacent to the project will serve the site. Given provisions for fire protection apparatus and water supply, the Fire Department may require sprinkler systems depending on the Building use or as the structure volume/size meets the fire code. The Board accepted the condition and no additional measures were required to meet the guideline.

**613.2 Traffic Conditions:** The Subdivision does abut, an arterial street, and has frontage on one public street, however, the access to the lots shall be provided through the shared private right of way, where there is lesser potential for traffic congestion and for hazards to traffic and pedestrians unless other factors make it not practical.

**613.3 Wildlife Habitat, Rare Natural Areas or Public Access to the Shoreline A. Preservation of Natural Beauty and Aesthetics:** The project is located in the Downtown Village District as defined in Chapter 5, Land Zoning Standards, and the location offers little opportunity to reserve natural areas. There are some wetland areas to rear of the property that are not to be disturbed which will offer some coincidental preservation. The area consists of low vegetation in the wetland and offers little aesthetic value, but can offer some buffering qualities.

**613.4 Storm Water Management Design Guidelines:** Design of Best Management Practices are substantially equivalent to those described in the Storm Water Management for Maine: Best Management Practices. Each lot as they are developed will be required to assess the Stormwater Management computations and engineering on a lot by lot basis.

**613.5 Impact on Water Quality or Shoreline –** The project is not in close proximity nor abuts a great pond or has shoreline frontages. Thereby the guideline does not apply.

**613.6 Lots:** The side lines of the lot are generally perpendicular to the street. The proposed parcels do provide more than the required minimum lot size and are laid out in such a manner as to not provide for or preclude future division. Deed restrictions and conditions of approval on the Plan shall either prohibit future divisions of the lots or specify that any future division shall constitute a revision to the Plan and shall require approval from the Board, subject to the criteria of the State Subdivision Statute, the standards of this Code and conditions placed on the original approval.

**613.7 Utilities:** There are no proposed public roads for the subdivision and the lots shall be serviced from existing public utilities available along the Maine Street frontage or through the shared access right of way.

**613.8 Monuments A.** No road monuments are required and all other Subdivision boundary corners and angle points, as well as all lot boundary corners and angle points are be marked by suitable monuments, as required by the Maine Board of Registration of Land Surveyors.

**613.9 Cluster Developments:** The project did provide a plan for considering Cluster development and followed the conventional size and bulk layouts with the Planning Board satisfied the optimum benefit for the community and the developer for marketing was provided. Thereby no Cluster Development design was not selected.

**613.10 Reservation or Dedication and Maintenance of Open Space and Common Land, Facilities and Services:** No open space was required or provided for the minor subdivision.

**613.11 Agricultural Land Buffers:** The proposed Subdivision does not abut any active commercial agricultural land.

**613.12 Buffers for Non-residential Subdivisions:** Each lot will be reviewed for buffers and screening as well as meeting the Downtown Village Design Guidelines during the site plan review process.

### **Conclusion**

THEREFORE, the Town of Poland Planning Board hereby approves by a 4-0 vote held on November 13, 2018, with the following conditions, for the Amended Minor Subdivision Plan application for Washburn Property Minor Subdivision project consisting of construction of 3 lots, which were created by consolidation from a former approved 4 lot subdivision. No public streets or infrastructure will be required as the lots have adequate frontage on the existing Maine Street, but will access through a common 60 foot wide Right of Way. The Proposed Minor Subdivision development is as described in the application approved and in this Findings of Fact.

### **Conditions of Approval**

- Plan approval is also conditioned upon compliance by the Applicant with the Plans and specifications which have been received by the Planning Board in connection with the development proposal as well as with any oral or written commitments regarding the project which were specifically made by the Applicant to the Board in the course of its deliberations.
- Except in the case of a Phased Development Plan, failure to complete substantial construction of the Subdivision within five (5) years of the date of approval and signing of the Plan shall render the Plan null and void. Upon determining that a Subdivision's approval has expired under this Paragraph, the Board shall have a notice placed in the Androscoggin County Registry of Deeds to that effect.
- Any Subdivision not recorded in the Registry of Deeds within ninety (90) days of the date upon which the Plan is approved and signed by the Board shall become null and void.
- Building/use permits shall be obtained prior to the start of construction/use.
- The applicant must apply for and obtain all applicable permits for the proposed development under the Natural Resources Protection Act, Title 38 M.R.S.A. section 480-C, the Site Location of Development Act, the Erosion and Sedimentation Control law, Title 38 M.R.S.A. section 420-C, the Stormwater Management Law, the Federal Clean Waters Act as delegated to the State of Maine, and all other applicable state and federal laws regulating the use or development of land.

Pursuant to Section 304.5.B of the CLUC anyone aggrieved of this decision may file a written appeal within Thirty (30) Days of date of this decision in accordance with Rule 80-B of the Maine Rules of Civil Procedure.

**Date Approved:**\_\_\_\_\_

### **Poland Planning Board**

\_\_\_\_\_  
James Porter, Vice -Chairperson

\_\_\_\_\_  
Chairperson

\_\_\_\_\_  
George Greenwood

\_\_\_\_\_  
Mark Weinberg

\_\_\_\_\_  
Stephanie Floyd, Alternate

# TOWN OF POLAND



## Road Name Application

Parcel ID #:	between Amy St + Davis Brook Dr
Closest Existing Road:	Amy + Davis Brook Dr

### Property Owner/Applicant Information

Owner Name:	Brookdale Village LLC
Mailing Address:	314 Center St Auburn, ME 01501
Phone Number:	207-333-6001
Email Address:	mark@mainesville.com

### Name request for new road:

1<sup>st</sup> Choice: JACK road

2<sup>nd</sup> Choice: JACKS Way

3<sup>rd</sup> Choice: Jack Street

I hereby acknowledge that I have read this application and pertinent sections of the ordinances, and state that the information in this document is to the best of my knowledge true and accurate.

Applicant Signature: Aunice Packard for Brookdale Village, LLC Date: 2-12-19

### CEO STATEMENT

I have checked the Town of Poland road names and find the following:

☐ None of the names suggested are in use or similar to other road names

☐ Another road is using one of the names: \_\_\_\_\_

☒ One or more of the names is similar to an existing road: Jackson Rd.

CEO Signature: [Signature]

Date: 02-20-19

### PLANNING BOARD

The Planning Board recommends the following name: \_\_\_\_\_

Chairperson Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### BOARD OF SELECTPERSONS

The Board of Selectpersons Approves the following name: \_\_\_\_\_

Chairperson Signature: \_\_\_\_\_ Date: \_\_\_\_\_