STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

BOARD ORDER

IN THE MATTER OF

STATE OF MAINE, ACTING THROUGH	)	SOLID WASTE LICENSE,
THE BUREAU OF GENERAL SERVICES	)	NATURAL RESOURCES
OLD TOWN, PENOBSCOT COUNTY, ME	)	PROTECTION ACT, AND
JUNIPER RIDGE LANDFILL EXPANSION	)	WATER QUALITY CERTIFICATION
#S-020700-WD-BI-N and #L-19015-TG-D-N	)	
(APPROVAL WITH CONDITIONS)	)	NEW LICENSE

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(APPROVAL WITH CONDITIONS)	)	NEW LICENSE

Reference to "Finding [#]" refers to the specified section in the Findings of Fact narrative portion of the license. Conclusions and Conditions are listed separately at the end of the license.

STATE OF MAINE, ACTING THROUGH	3	SOLID WASTE LICENSE,
THE BUREAU OF GENERAL SERVICES	)	NATURAL RESOURCES
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Pursuant to the provisions of the *Maine Hazardous Waste, Septage and Solid Waste Management Act*, 38 Maine Revised Statutes (M.R.S.) §§ 1301 to 1319-Y; *Solid Waste Management Hierarchy*, 38 M.R.S. §2101; the *Rule Concerning the Processing of Applications and Other Administrative Matters*, 06-096 Code of Maine Rules (C.M.R.) ch. 2 (last amended October 19, 2015); the *Solid Waste Management Rules: General Provisions*, 06-096 C.M.R. ch. 400 (last amended April 6, 2015), *Landfill Siting, Design and Operation*, 06-096 C.M.R. ch. 401 (last amended April 12, 2015), and *Water Quality Monitoring, Leachate Monitoring, and Waste Characterization*, 06-096 C.M.R. ch. 405 (last amended April 12, 2015) (collectively, the Rules); the *Natural Resources Protection Act* (NRPA), 38 M.R.S. §§ 480-A to 480-JJ; Section 401 of the *Federal Water Pollution Control Act*, 33 U.S.C. § 1341; *Wetlands and Waterbodies Protection*, 06-096 C.M.R. ch. 310 (last amended January 26, 2009); and *Assessing and Mitigating Impacts to Existing Scenic and Aesthetic Uses*, 06-096 C.M.R. ch. 315 (effective June 29, 2003), the Board of Environmental Protection (Board) has considered the application of the State of Maine acting through the Bureau of General Services, with all supportive data, agency review comments, and other related materials on file, and FINDS THE FOLLOWING FACTS:

APPLICATION OVERVIEW AND PROCEDURAL HISTORY

1. APPLICATION SUMMARY

A. Application

The State of Maine, acting through the Bureau of General Services (BGS), has applied for Maine Hazardous Waste, Septage and Solid Waste Management Act, Natural Resources Protection Act, and Water Quality Certification approval to construct a 9.35 million cubic yard expansion of the existing Juniper Ridge Landfill (JRL), located in Old Town, Maine. The northern edge of the property parcel borders, and a portion of the access road is located in, Alton, Maine. The solid waste application under the Maine Hazardous Waste, Septage, and Solid Waste Management Act and the land application under NRPA were processed as a consolidated licensing proceeding and are both addressed in this license.

BGS, as the owner of JRL, and NEWSME Landfill Operations, LLC (NEWSME), as the operator of JRL, prepared the application for the proposed expansion.

The NRPA application was originally identified as license #L-24251-TG-C-N, which was incorrect. It is now correctly identified as license #L-19015-TG-D-N.

B. History

The following history is a summary and does not include all licensing actions:

(1) On July 28, 1993, James River Paper Company, Inc. was issued a license to construct and operate a 68-acre secure landfill, known as the West Old Town Landfill, to dispose of the James River Paper Company's pulp and papermaking residuals (license #S-020700-7A-A-N). The project impacted 1.31 acres of freshwater wetland. The compensation package included preservation of 27.92 acres of land adjacent to the facility and the restoration and enhancement of 1.76 acres of wetland within the preserved parcel.

(2) On August 24, 1995, the Department approved, with conditions, a modification to the compensation package (licenses #L-19015-31-A-M and #S-20700-DW-B-M).

(3) On October 21, 2003, the Department issued conditional approval for the transfer of licenses for the West Old Town Landfill, from the Fort James Operating Company, to the State of Maine, State Planning Office (SPO) (licenses #S-020700-WR-M-T and #L-019015-TH-C-T); the transfer became effective when the sale of the landfill to the State of Maine, acting by and through SPO, occurred on February 5, 2004.

(4) On February 5, 2004, the State of Maine, acting by and through the SPO, and Casella Waste Systems, Inc. (Casella) entered into an Operating Services Agreement (OSA) for the operation of the West Old Town Landfill.

(5) On April 9, 2004, the Department approved an amendment application (license #S-020700-WD-N-A) for a vertical increase in the final elevation of the landfill and the disposal of additional waste streams.

(6) In 2006, the West Old Town Landfill became known as the Juniper Ridge Landfill.

(7) On January 31, 2012, the Department issued to the State of Maine, acting through the SPO, a Public Benefit Determination (license #S-020700-W5-AU-N) partial approval, with conditions, for additional landfill capacity of 9.35 million cubic yards, decreased from the original 21.9 million cubic yard capacity proposed.

(8) Pursuant to PL 2011, ch. 655, § GG-69, on July 1, 2012, the BGS, within the Department of Administrative and Financial Services (DAFS), became the state agency acting as the owner and licensee of JRL. The Department

of Economic and Community Development is the manager of JRL. NEWSME, a wholly-owned indirect subsidiary of Casella, operates the landfill for the State of Maine, acting through the Bureau of General Services.

(9) To date, approximately 62.6 acres of the facility's 68-acre existing licensed footprint have been developed, including Cells 1, 2, 3A, 3B, 4, 5, 6, 7, 8, and 9 (current active cell).

C. Terms and Acronyms

The following terms and acronyms can be found in this license and are listed in Table 1 for ease of reference:

Table 1: License Terms and Acronyms

applicant	Refers to both BGS and NEWSME (or a successor operator)
Board	Maine Board of Environmental Protection
BGS	Bureau of General Services
BMP	Best Management Practices
Casella	Casella Waste Systems, Inc.
CDD	Construction and Demolition Debris
C.M.R.	Code of Maine Rules
dBA	Decibels adjusted for frequency extremes
Department	Maine Department of Environmental Protection
EMP	Environmental Monitoring Plan
FEMA	Federal Emergency Management Agency
FEPR	Front End Process Residue
GCL	Geosynthetic Clay Liner
H_2S	Hydrogen Sulfide
HDPE	High-Density Polyethylene
JRL	The Juniper Ridge Landfill
LFG	Landfill Gas
MDOT	Maine Department of Transportation
M.R.S.	Maine Revised Statutes
MSW	Municipal Solid Waste
MSW Bypass	Any MSW that is destined for disposal or processing at a solid waste incinerator, but that cannot be disposed of or processed at that incinerator because of the incinerator's malfunction, insufficient capacity, inability to process or burn, down-time, or any other comparable reason as approved by the Department
NEWSME	NEWSME Landfill Operations, LLC
NRPA	Natural Resource Protection Act

OBW	Oversized Bulky Waste
OSA	Operating Service Agreement
ppb	Parts per Billion
PBD	Public Benefit Determination License
PIR	Preliminary Information Report
Rules	The Department's Solid Waste Management Rules, including 06-096 C.M.R. chs. 400, 401, and 405
SME	Sevee & Maher Engineers, Inc.
Soft Layer	A protective layer of waste above the liner and leachate collection systems
State Plan	Maine Materials Management Plan: 2014 State Waste Management and Recycling Plan Update & 2012 Waste Generation and Disposal Capacity Report, January 2014, prepared by the Maine Department of Environmental Protection
SVP	Significant Vernal Pool

D. Summary of Proposal

The application is for the construction and operation of a 9.35 million cubic yard expansion at JRL. The existing solid waste footprint is proposed to be expanded by 54 acres, to be developed in phases. An additional 20 acres is planned for ancillary infrastructure including roads, piping, sedimentation ponds, scales, and buildings. The proposed expansion would extend the life of the landfill by approximately 10 to 12 years.

The proposed expansion design consists of various engineered systems for the construction and operation of the landfill. Landfill gas generated on-site will be combusted in the facility's flare. The leachate from the expansion will be treated off-site, as is the current practice.

The requested wastes to be placed in the proposed expansion are similar to the accepted wastes currently allowed in the existing landfill. The accepted wastes will include only non-hazardous waste generated within the State and will not include MSW, except for MSW bypass as described in Finding 37 of this license.

The application for the proposed expansion includes the direct alteration of 2.04 acres of freshwater wetlands. A compensation plan was proposed for wetland impacts. Additionally, a Permit-by-Rule Notification Form (PBR#60159) was submitted for clearance for an electrical line and perimeter fence through the critical terrestrial habitat of a significant vernal pool (SVP) pursuant to *Permit By Rule Standards*, 06-096 C.M.R. ch. 305, § 19 (last amended June 8, 2012). The Department accepted the PBR on July 29, 2015.

The solid waste and NRPA applications were accepted as complete for processing on August 7, 2015 and July 31, 2015, respectively. The Department commented on various aspects of the application and received responses. These include the following: November 12, 2015 Department review letter on select portions of the application; January 22, 2016 Department review transmittal letter with two technical memoranda; March 4, 2016 BGS and NEWSME response to comments; April 4, 2016 Department follow-up comment transmittal letter with two technical memoranda; May 13, 2016 BGS and NEWSME follow-up responses; and July 1, 2016 Department letter with two memoranda.

E. Ownership and Operation of the Juniper Ridge Landfill

The State of Maine, acting through BGS, owns JRL. Casella is the operator of the landfill through NEWSME, a Casella subsidiary. The terms and conditions of NEWSME's operation of the landfill are established by the OSA between the State of Maine and Casella dated February 5, 2004, and amended on July 24, 2006 and November 2, 2006.

In accordance with the OSA, Casella is required to pay all costs associated with the development, operation, closure and post-closure care of the landfill and the proposed expansion. In addition, Casella is required by the OSA to establish and maintain financial assurances for the landfill and the expansion sufficient to meet the closure and post-closure care provisions of the applicable Rules, assume liability for the landfill and the proposed expansion under both the current and future conditions, and assure that adequate disposal capacity is provided for the wastes currently disposed in the landfill for at least a 20-year period. Resolve 2003, Chapter 93 requires contract terms and conditions to be "revenue-neutral to the State and as the office [former Executive Department, State Planning Office] determines are advisable and in the public interest."

NEWSME has prepared an application to expand JRL in accordance with the terms of the OSA. The OSA is a contract between the State of Maine, acting through BGS, and Casella. The Board and Department are not parties to the OSA. Section 4.1 of the OSA includes language that specifies that the State shall work with Casella in maintaining in the State's name the existing permit, amendments, and all permits, licenses, statutory amendments and legislation, approvals and authorizations reasonably requested by Casella and agreed to by the State for the operation of the landfill in accordance with the terms of the OSA, including without limitation the expansion permit.

Reference to the "applicant" in this license determination refers to both BGS, as the owner of JRL, and NEWSME, as the current operator, acting as an agent on behalf of BGS in accordance with the terms in the OSA.

2. PUBLIC PARTICIPATION

A. Pre-Application Requirements

(1) Preliminary Information Report

A Preliminary Information Report (PIR) is required by 06-096 C.M.R. ch. 401, § 1(E). The PIR, prepared by SME, was submitted to the Department on November 22, 2006 for a larger 106-acre expansion with 22 million cubic yards of capacity. The proposed 54-acre expansion is to be located within the boundary of the area described in the original submittal. A follow-up meeting was held on February 21, 2007 among representatives of the SPO (since abolished), the Department, NEWSME, SME, and Pierce Atwood, LLP to discuss the PIR.

(2) Determination of Environmental Feasibility

The Department issued a letter addressing the PIR on April 13, 2007 stating that the proposed expansion appeared to be environmentally feasible and that the siting criteria of 06-096 C.M.R. ch. 401, § 1(C)(2) did not prohibit the proposed expansion.

(3) Pre-Application Meetings

The Department's rule at 06-096 C.M.R. ch. 2, § 10 includes requirements for pre-application and pre-submission meetings. The applicant held four pre-application meetings in 2014 with the Department and interested persons, including the City of Old Town, the Landfill Advisory Committee, the Penobscot Nation, and the general public. The Town of Alton did not attend the pre-application meetings. The meetings took place September 9, October 16, November 20, and December 18. Additional meetings also occurred among the applicant, the Department, and the U.S. Army Corps of Engineers on October 29, 2014 and April 27, 2015. A representative of the U.S. Fish and Wildlife Service attended the October 29, 2014 meeting.

B. Public Informational Meeting

A public informational meeting was held on June 3, 2015 in the City of Old Town as required by 06-096 C.M.R. ch. 2, § 13. The applicant mailed notice of the public informational meeting to the abutters, the Old Town and Alton municipal offices, the Landfill Advisory Committee and the Penobscot Nation. The notice was published in the Bangor Daily News on May 22, 2015.

C. Notice of Intent to File

A Notice of Intent to File an application was published in the Bangor Daily News and Penobscot Times on July 9, 2015, in addition to being mailed to the abutters, the Old Town and Alton municipal offices, the Landfill Advisory Committee and the Penobscot Nation. The notice and mailing of the notice to the Landfill Advisory Committee fulfilled the public and local participation requirement of 38 M.R.S. § 1310-S(1), the citizen's advisory committee notification requirement of 38 M.R.S. § 1310-N(12), and the public notice requirements of 06-096 C.M.R. ch. 2, § 14.

D. Public Hearing Requests and Board Jurisdiction

The Department received 27 timely requests in August 2015 for a public hearing. On September 17, 2015 the Board, on the recommendation from the Department, voted to assume licensing jurisdiction over the application and convene a public hearing.

E. Public Hearing Process

(1) Intervenors

a. Petitions to Intervene

Intervenor status was requested by several entities. State law at 38 M.R.S. § 1310-S(3) provides municipal intervenor status, if requested, for the municipality in which the facility would be located. The City of Old Town requested intervenor status on June 4, 2015. The Town of Alton notified the Department on July 30, 2015 that it would not be requesting intervenor status. The Board received intervenor status requests from two abutting property owners, Jesse Pekkala and SSR, LLC, who have intervenor status under 38 M.R.S. § 1310-S(3-A). Petitions for intervenor status

were received from three interested persons: Edward Spencer, Dana Snowman, and Antonio Blasi.

b. Board Action on Petitions to Intervene by Interested Persons

The Board's First Procedural Order, issued on January 21, 2016, granted intervenor status to Mr. Spencer and Mr. Snowman. Mr. Blasi was denied intervenor status due to the finding that his petition did not demonstrate that he may be substantially and directly affected by the proceeding.

c. Withdrawal from Participation

On May 10, 2016, Mr. Pekkala withdrew as an intervenor.

d. Intervenor Designations

The following entities participated as intervenors in the licensing process:

i. City of Old Town, as a municipal intervenor;

ii. Edward Spencer, as an interested person petitioner;

iii. Dana Snowman, as an interested person petitioner; and

iv. SSR, LLC, as an abutter.

(2) Procedural Orders

Prior to the public hearing, the Board issued six Procedural Orders:

a. The First Procedural Order, issued on January 21, 2016, addressed the designation of intervenors as described in Finding 2(E)(1) of this license.

b. The Second Procedural Order, issued February 25, 2016, documented the pre-hearing conference held on February 10, 2016. The pre-hearing conference included a review of the procedural rules in preparation for, and during, the hearing; the roles and responsibilities of the applicant, intervenors, and Department staff; and the relevant licensing criteria. The Second Procedural Order

established the deadline for the intervenors to submit a list of issues they expected to address at the hearing through testimony, along with a list of expert witnesses.

c. The Third Procedural Order, issued May 27, 2016, documented the pre-hearing conference held on May 18, 2016. The pre-hearing conference included a review of the list of issues submitted by the intervenors, agreement on issues not contested by the intervenors, and discussion of the Board's site visit and schedule of pre-hearing testimony submissions. The Third Procedural Order established submission deadlines for the applicant's and intervenors' lists of witnesses, pre-filed direct testimony and exhibits, and pre-filed rebuttal testimony, as well as setting the dates for the public hearing.

d. The Fourth Procedural Order, issued July 7, 2016, addressed the requirements for submission of pre-filed testimony and scheduling decisions made in consultation with the parties following the June 23, 2016 Board meeting.

e. The Fifth Procedural Order, issued August 25, 2016, addressed the rulings of the Presiding Officer on the motions to strike pre-filed direct testimony.

f. The Sixth Procedural Order, issued September 28, 2016, documented the pre-hearing conference held on September 14, 2016. The pre-hearing conference included a review of procedures and a draft schedule for the public hearing.

(3) Site Visit

A site visit to JRL occurred on June 23, 2016 for the purpose of allowing Board members to view the physical features of the site and the nature of the surrounding areas. The applicant and intervenors were also present during the tour. Department staff conducted the tour and responded to Board members' questions.

(4) Public Hearing

The Board held a public hearing on the proposed expansion application on October 18 and 19, 2016 in Bangor, Maine pursuant to the Maine Administrative Procedure Act, 5, §§ 9051-9064; 38 M.R.S. §§ 341-D(2)

and 1310-S(2); and the *Rules Governing the Conduct of Licensing Hearings*, 06-096 C.M.R. ch. 3 (last amended February 16, 2015). At the hearing, the witnesses for the parties summarized their pre-filed direct and rebuttal testimony, and were subject to cross-examination by the other parties and questioning by Board members and staff.

The Board held an evening session on October 18 to receive testimony from members of the general public, and 33 persons testified at that session. Prior to the close of the evidentiary record, the Board received 31 written comments from the general public. The testimony and written comments by the general public included opposition to, and support for, the proposed expansion.

Following the filing of post-hearing briefs by the parties on November 23, 2016, the Board held a deliberative session on December 15, 2016 to review the evidentiary record with Department staff.

Issues addressed in pre-filed testimony, hearing testimony, and post-hearing briefs included, but were not limited to: the solid waste management hierarchy regarding CDD and OBW, site geology, design and operation of the proposed expansion, the facility's odor complaint procedure, stormwater management and extreme weather events, ground and surface water monitoring, leachate treatment and disposal, NRPA alternative analysis, impacts to Atlantic salmon, fees and payments to the City of Old Town for the use of CDD fines and soft layer waste, traffic on Bennoch Road, third party administration of the Declaration of Covenants and Restrictions, and hydrogen sulfide action levels and notification procedures.

Issues raised in testimony by the general public in opposition to the project included: impacts on the Penobscot River and natural resources, impacts on public health, leachate treatment, prohibiting additional waste disposal at the site, out-of-state waste coming into the State for disposal at a State landfill, and the solid waste hierarchy.

Issues raised in testimony by the general public in support of the project included: the facility as a well-designed, operated, and maintained landfill; the importance of the landfill to businesses and the community; and the need for a landfill option for material that cannot be reduced, reused, or recycled utilizing current technology and practices.

The hearing transcript and hearing documents are included in the record on file. Additional discussion of testimony and comments are addressed in the findings of fact of this license, as appropriate.

F. Draft License Comment Period

A draft license was made available for comment on April 14, 2017 through notification to the applicant, intervenors, and interested persons. The draft license was posted on the Department's website and the 15 working day comment period closed on May 8, 2017. A total of 48 commenters submitted written comments on the draft license. All of the comments were reviewed and given consideration in relation to the relevant review criteria of State laws and rules.

Comments were received from the applicant, intervenor Edward Spencer, intervenor Dana Snowman, intervenor City of Old Town, and the public (including three industry entities) and included, but were not limited to, the following:

(1) Applicant

Comments on the draft Board Order included:

a. Insertion of NEWSME in the header as an additional licensee;

b. Removal of sand dune references;

c. Changes to the test pad requirements; and

d. Comment to allow MSW if needed for the soft layer.

(2) Intervenor Edward Spencer

Comments on the draft Board Order included:

a. Hierarchy findings and the definition of waste generated within the state;

b. Usage of vague language;

c. Regulated and regulator control;

d. Non action on the PBD recommendation to review CDD imported and processing residue disposed;

e. OBW information;

f. A need for a more thorough evaluation of other viable site locations;

g. Impact on the Penobscot Nation;

h. Technical issues (underdrains and pumping with possible effect on wetlands, site selection process with respect to wetlands and surface water used, odor);

i. Leachate disposal;

j. Financial ability and criminal or civil record;

k. The endangered species evaluation; and

l. MSW bypass issues.

(3) Intervenor Dana Snowman

Comments on the draft Board Order included opposition to the acceptance of out-of-state waste.

(4) Intervenor City of Old Town

No additional comments on the Board Order were stated.

(5) Industry Entities

Comments on the draft Board Order included:

a. MSW bypass language;

b. Utilizing enforceable provisions to preclude MSW for disposal if it can be processed at another facility;

c. Removal of the clause allowing bypass of waste delivered under interruptible contracts with the PERC incinerator;

d. Additions of definitions and limits on the PERC incinerator's FEPR that may be disposed of at JRL;

e. Recalculation of the OBW limits to use an average tons/year over 5 years and to apply the Consumer Price Index (CPI) for 3 years; and

f. Clarification that if the required third party OBD audit is not completed in a timely manner through no fault of the processing facility, the OBW may be disposed of at the expansion.

(6) Public

Comments on the draft Board Order included:

a. Harm to the environment (air, land, and waters);

b. Environmental justice;

c. Meeting hierarchy requirements;

d. Not taking proactive action to meet the State's waste management goals, priorities, and policies; and

e. State designations of in-state waste and out-of-state waste.

Based on comments received, revisions were made to the draft license that address the relevant review criteria and issues raised within the purview of the Board's authority. The revisions include, but are not limited to, general clarification language, revisions to the liner system barrier soil test pad language, added information in Finding 38 on the association between wetlands and the proposed underdrains, additional clarification of the allowance of only MSW bypass in the proposed expansion, removal of the provision governing waste delivered under an interruptible contract, revisions to the bypass notification requirement, and the addition of a provision concerning the receipt if the third party OBW audit is not completed in a timely manner.

All comments received are part of the record and were made available to the Board and posted on the Department's website.

3. PROJECT DESCRIPTION AND SITE DESIGN

The 9.35 million cubic yard proposed expansion of the existing Juniper Ridge Landfill will be located within the 780-acre parcel in Old Town. The northern edge of the property parcel is on the Alton/Old Town border and a portion of the access road is located in Alton. Six cells, Cells 11 through 16, are proposed to be constructed in a phased manner. The construction is projected to begin in 2018 with Cell 11 and then is proposed to continue with a new cell constructed approximately every 2 years. In total, the proposed expansion footprint will be approximately 54 acres, plus an additional 20 acres of ancillary infrastructure, with the same peak elevation as the existing landfill, approximately 390 feet above mean sea level. The side slopes are designed at 3H:1V (horizontal to vertical), with the south side of the expansion to abut the northern side of the existing landfill.

The proposed expansion design includes an underdrain system and augmented secondary liner system over portions of the proposed expansion footprint, a secondary liner system, a leak detection system, a primary liner system, leachate collection and off-site treatment for liquid in contact with waste, landfill gas collection and control infrastructure, stormwater management, and a water quality monitoring network. Similar types of non-hazardous waste generated within the State, as currently placed in existing landfill cells, are proposed for the expansion, including CDD, FEPR, MSW incinerator ash, wood biomass ash, sludges, contaminated soil, OBW, MSW bypass, and other approved special wastes.

The proposed expansion will have direct impacts on 2.04 acres of freshwater wetlands. As stated in Finding 1(D) of this license, the applicant previously obtained a permit-by-rule for clearing of 0.1 acres of the critical terrestrial habitat associated with a significant vernal pool for construction of the fence and electrical line. The applicant also identified additional vernal pools subject to regulation by the U.S. Army Corps of Engineers. The applicant submitted a compensation plan consisting of a designated on-site preservation area of 266 total acres for impacts to both the wetlands regulated by the State and those regulated by the U.S. Army Corps of Engineers.

GENERAL SOLID WASTE PROVISIONS

4. HOST COMMUNITY AGREEMENTS AND MUNICIPAL INTERVENOR GRANTS

A. Host Community Agreement

State law at 38 M.R.S. § 2170-A requires that host community agreements be in place with all applicable communities prior to issuing a license to a solid waste disposal facility owned or operated by the State. Copies of the two host

community agreements with the City of Old Town and the Town of Alton were submitted with the application. The Host Community Compensation and Facility Oversight Agreement, dated December 8, 2005, was signed by the State of Maine, the City of Old Town and Casella Waste Systems, Inc. The Community Benefits Agreement, dated October 6, 2005, was signed by the State of Maine, the Town of Alton, and NEWSME Landfill Operations, LLC.

B. Municipal Intervenor Grants

The Department's rule at 06-096 C.M.R. ch. 400, § 7(B) establishes procedures for the use of funds by a municipality that has requested intervenor status, pursuant to 38 M.R.S. § 1310-S(4), for an expanded solid waste disposal facility proposed to be located in that municipality. A municipal intervenor may request financial assistance to pay for direct expenses associated with its substantive participation in the application review process.

The City of Old Town requested, and was automatically granted, intervenor status on June 4, 2015. The City of Old Town meets the eligibility requirements to receive financial grants to support participation in the licensing process. The Town of Alton notified the Department on July 30, 2015 that it would not be requesting intervenor status.

5. TITLE, RIGHT OR INTEREST

The applicant must demonstrate sufficient title, right, or interest in all of the property which is proposed for development or use pursuant to 06-096 C.M.R. ch. 400, § 4(A). The applicant has provided evidence of the State's title to the property pursuant to the Rules by submitting a copy of its warranty deed to the 780-acre parcel of land on which the proposed expansion will be located. The deed for the parcel is recorded in Book 9188, page 152 at the Penobscot County Registry of Deeds. A deeded right-of-way to the parcel from Route 16 is also recorded in the Registry. The Board therefore finds that the applicant has demonstrated sufficient title, right, or interest in the property proposed for the expansion.

6. FINANCIAL ABILITY AND FINANCIAL ASSURANCE

State law at 38 M.R.S. § 1310-N(2-F)(A) (siting standards) requires that the applicant have the financial ability to develop the project in a manner consistent with state environmental standards and the provisions of the statute. State law at 38 M.R.S. § 1310-Y requires the applicant to provide assurance of its financial ability to satisfy the estimated costs for corrective action and assurance of financial capacity to satisfy the estimated costs of closure and post closure care; however, 38 M.R.S. § 1310-Y applies to

privately owned solid waste facilities. The Department's rules at 06-096 C.M.R. ch. 400, § 4(B)(1) and § 11 require financial ability and financial assurance for the design, construction, operation, maintenance, closure and post-closure care of a proposed solid waste facility; however, as a State-owned facility the proposed expansion is not subject to the requirements of § 11 to provide financial assurance sufficient to ensure that funds are available to pay for the anticipated costs of compliance with all facility closure, post-closure maintenance, post-closure monitoring requirements, and corrective action.

Although not all of the financial requirements of the State laws and Rules apply to the State owned JRL, Casella maintains financial assurance as required by the OSA and as described below.

A. Financial Ability: Design, Construct, Operate, Maintain, Close, and Post-Closure Care

Permitting, design, construction, operation, and closure of JRL are funded by Casella, as set forth in the OSA with the State of Maine. Ongoing activities at JRL are funded by revenues generated from the operation of the landfill (i.e., tipping fees). The applicant provided a letter dated May 21, 2015 from the Bank of America, N.A. showing that Casella maintains a secured credit facility administered by that bank. The applicant represented that this letter demonstrates the ability of NEWSME and its ultimate parent company, Casella, to fund the expansion of JRL from working capital, if necessary.

Table 2 includes the opinion of expansion costs submitted by the applicant (Volume I of the application, Table 3-1, page 3-2). The application included an estimated cost of construction for the first cell of the expansion, Cell 11, of $6,240,000.

Table 2: Opinion of Expansion Costs

Activity	Estimated Cost ($)
Design and Permitting	$4,800,000
Construction	$19,800,000
Operations	$7,000,000
Closure	$12,400,000
Post-Closure Care	$8,700,000

Notes:
1. Design costs include MEDEP permit fees in 2015.
2. Construction costs are in 2015 dollars.
3. Operations costs represent estimated yearly costs.
4. Closure costs for the entire project in 2015 dollars at a per acre closure cost at $226,000 per acre.

5. Post-closure care includes costs to maintain and monitor the facility for the 30-year post-closure period in 2015 dollars based on a per-acre cost of $160,400 per acre.

The Board finds that financial ability is maintained by NEWSME as the current operator of JRL to design, operate, maintain, close, and accomplish post-closure care in a manner consistent with applicable State law and Rule requirements.

B. Financial Assurance

The applicant maintains a surety bond as financial assurance for final closure costs and post-closure care costs for the entire developed site for a 30-year period. Financial assurance is required by the OSA, Sections 13.7 and 21. A surety bond will be utilized as financial assurance for the proposed expansion, as well. The closure and post-closure care costs are updated yearly with updates of costs by an independent third party and the documentation of any changes made to the funding agreement submitted in the facility's Annual Report. The most recent updated surety bond documentation was submitted to the Department in an August 9, 2016 letter with attachments.

The Board finds that sufficient financial assurance is maintained by NEWSME as the current operator of JRL for closure and post-closure care, provided NEWSME submits the appropriate financial assurance package updates to the Department on an annual basis.

7. TECHNICAL ABILITY

The applicant must have the technical ability to develop the project in a manner consistent with State environmental standards in accordance with the 38 M.R.S. § 1310-N (2-F)(A) siting standards and must submit evidence that affirmatively demonstrates the technical ability to design, construct, operate, maintain, close, and accomplish post-closure care, as well as meeting civil or criminal record standards as stated in 06-096 C.M.R. ch. 400, § 4(C)(1).

A. Technical Experience

NEWSME has managed JRL since April 2004 and employs qualified management and staff at the facility, along with utilizing qualified consultants for design, construction, and operations. The application included position descriptions and responsibilities, along with resumes, of key personnel. NEWSME's parent company, Casella is also available to provide extensive

expertise in solid waste, recycling, and resource management. The specific consultants retained for the proposed expansion application include: SME of Cumberland, Maine as the primary consultant with expertise in geology, hydrogeology, and landfill design; Sanborn, Head & Associates, Inc. of Concord, New Hampshire for landfill gas design; Gorrill Palmer of Gray, Maine for traffic assessment; SMRT, Inc. of Portland, Maine for visual assessment; Epsilon Associates, Inc. of Maynard, Massachusetts for noise assessment; and Stantec Consulting Services, Inc. (Stantec) of Topsham, Maine for wetland and other natural resources assessments.

The Board finds that the combination of BGS staff, NEWSME operations and management personnel, and the consultants retained by the applicant have the technical ability to develop the proposed expansion in a manner consistent with the applicable State law and Rule requirements.

B. Civil or Criminal Record

Finding 23 of this license contains the information on civil and criminal disclosure.

8. PROVISIONS FOR TRAFFIC MOVEMENT

The applicant must make adequate provisions for safe and uncongested traffic movement of all types into, out of, and within the proposed solid waste facility as set forth in the 38 M.R.S. § 1310-N(2-F)(B) siting standards and in 06-096 C.M.R. ch. 400, § 4(D)(1).

The primary waste haul route to JRL utilizes the Interstate system, I-95, to the Route 16 Bennoch Road interchange (exit 199), then Route 16 West for 0.1 miles to JRL's site access road. This haul route is to remain unchanged. New internal roads required for the proposed expansion have been designed for continuous traffic flow to minimize danger to pedestrians or other vehicles. The site access and internal site roads are maintained by NEWSME, including winter plowing and summer dust control.

The applicant submitted a traffic assessment prepared by Gorrill Palmer, dated June 2015, to determine if traffic increase due to the expansion will be adequately accommodated. Based on 2014 weight scale records and turning movement volumes collected on September 30, 2014, it was determined that the 2014 peak design hour trip generation was 28 during the morning and 25 during the afternoon. The proposed expansion is expected to increase accepted waste tonnages to 700,000 tons annually from about 629,000 tons received in 2014, resulting in an estimated 31 and 28 truck round trips during the peak morning and afternoon hours, respectively. For the proposed expansion, the total daily vehicle trips generation is expected to be 203 (one way traffic, therefore,

approximately 101 total vehicles per day), of which 20 would be non-trucks and 183 would be various trucks with gross vehicle weights from 70,000 to 100,000 pounds. Gorrill Palmer noted that a disposal volume of approximately 700,000 tons was accepted in both 2010 and 2011.

For the proposed expansion, the primary 30-foot wide paved access road to the landfill will remain at its current location. Prior to a federal law change in 2011 which increased the allowable gross vehicle weight on I-95 from 80,000 to 100,000 pounds, vehicles over 80,000 pounds were required to use the state and local roadways. The weight limit change has reduced the traffic on local roadways by allowing trucks to utilize I-95. The applicant will encourage trucks to utilize the I-95 haul route when trucking waste to the proposed expansion.

In addition to addressing the existing and future traffic volumes and haul routes, the traffic assessment also looked at the future capacity of the facility, the Maine Department of Transportation (MDOT) accident inventory, sight distances, and internal access roads. The assessment concluded that the existing street system will continue to accommodate the vehicles associated with operation of the expansion.

During the course of the application review, traffic issues were raised by the City of Old Town regarding JRL related truck traffic on Bennoch Road (State Route 16). To address road conditions, BGS contacted MDOT concerning the possibility of improvements to the northern part of Bennoch Road. Preservation paving and highway rehabilitation work were added to MDOT's 2018 work plan. To encourage truck usage on I-95 rather than Bennoch Road, the facility has installed two signs that read "Trucks Please Use I-95". One sign is located just beyond the scale house, seen by drivers leaving the scales, and the other is located across from the landfill entrance, seen by drivers as they leave the facility. In addition, MDOT agreed to install two additional signs. At the hearing, the City of Old Town stated that their concerns regarding expansion truck traffic impacts have been addressed.

The Board finds that the applicant has demonstrated that the roads and intersections in the vicinity of JRL have the ability to safely and appropriately handle all of the traffic attributable to the proposed expansion into, out of, and within the facility pursuant to the applicable State law and Rule requirements. The Board further finds that the applicant will continue its policy of encouraging trucks to utilize I-95.

9. FITTING THE SOLID WASTE FACILITY HARMONIOUSLY INTO THE NATURAL ENVIRONMENT

In accordance with the 38 M.R.S. § 1310-N(2-F)(C) siting standards, the applicant must make adequate provisions for fitting the proposed solid waste facility harmoniously into

the existing natural environment. Pursuant to the requirements in 06-096 C.M.R. ch. 400, § 4(E)(1), JRL must have buffer strips of sufficient size and quality to adequately protect aquatic and wildlife habitat and the natural environment; and may not unreasonably adversely affect protected natural resources and rare, threatened and endangered plant and animal species. The buffer must be a minimum of 100 feet between the facility site and the listed locations and habitats, unless otherwise approved or required.

The applicant retained Stantec to identify and inventory the presence of wetlands; potential significant wildlife habitats, unusual natural areas; vernal pools; and rare, threatened, and endangered species on the proposed project site. A review of records and contact with the following agencies occurred: the Maine Department of Inland Fisheries and Wildlife, the Department of Agriculture, Conservation, and Forestry, the Department, and U.S. Fish and Wildlife Service. Field studies were performed to assess the potential presence of State or federally listed rare, threatened, and endangered species, along with the delineation of wetlands and waterbodies.

Stantec did not directly observe State or federally listed rare, threatened and endangered plant or wildlife species on site during the field work which took place in 2008-2009 and 2014-2015. However, two areas were identified at the facility for further review: the forested area on site which is located in the range of the northern long-eared bat and the northeast portion of the facility which is located in the National Oceanic Atmospheric Association's mapped critical habitat for Atlantic salmon.

The northern long-eared bat (Myotis septentrionalis) was listed as threatened effective May 4, 2015 with a 4d ruling by the U.S. Fish and Wildlife Service under the Endangered Species Act. Stantec conducted an acoustic bat survey during the nights of June 10 and 11, 2015 utilizing the current U.S. Fish and Wildlife Service guidelines and did not detect the presence of the northern long-eared bat.

Atlantic salmon are protected under the final 2009 ruling issued by the National Marine Fisheries Service and U.S. Fish and Wildlife Service under the Endangered Species Act. The expansion is proposed to be located approximately 800 feet from an unnamed intermittent brook, 950 feet from an unnamed tributary to Pushaw Stream and 2,350 feet from Judkins Brook. All of these streams are located in the watershed of the Penobscot River which contains Atlantic salmon. Isolated freshwater wetlands occur within the 780 acre facility parcel, including approximately two acres directly impacted by the proposed expansion; however, no delineated or mapped streams were identified within the proposed development area of the site. The Department of Marine Resources (DMR) stated that the proposed project should not cause any significant adverse impact to Atlantic salmon or other marine resources. The Maine Department of Inland Fisheries and Wildlife (MDIFW) stated that fisheries staff does not anticipate any adverse impacts on fisheries resources associated with this landfill expansion.

At the hearing, intervenor Edward Spencer's expert witness, Dr. Stephen Coghlan, questioned the applicant's conclusions regarding no expected impacts to Atlantic salmon. He testified on the life history and habitat requirements of Atlantic salmon and its sensitivity to various toxins, and argued that leachate generated by the project as well as impacts to the freshwater wetlands on-site have the potential to negatively impact its viability. He also argued that potential impacts to Atlantic sturgeon (federally-listed as threatened) and shortnose sturgeon (federally-listed as endangered) which are found in the lower Penobscot River Watershed should be considered. Dr. Coghlan testified that continued deforestation, urbanization and wetland alteration in the Penobscot River watershed have a detrimental impact on the habitat and viability of these endangered species as a result of increased runoff of nutrients and toxic chemicals. Dr. Coghlan also stated that in the event of a catastrophic breach of the liner system or a large storm event, leachate and/or stormwater runoff may contaminate adjacent waterways and ultimately the Penobscot River. Dr. Coghlan pointed out that in light of the success of the Penobscot River Restoration Trust's work on the Penobscot River that other important anadromous fish species have seen population increases recently and that the proposed expansion may put those species at risk again.

In response, Bryan Emerson, the applicant's wetland's expert, stated in his rebuttal testimony that the proposed expansion does not directly impact any river, stream or brook. The largest wetland being impacted in the middle of the proposed expansion is "an isolated forested wetland with no surface hydrological connection to a stream or floodplain wetlands, and the wetlands being impacted on the edge of the expansion are not floodplain wetlands. Therefore, no direct impacts to Atlantic salmon or their habitat are likely to occur." He further testified that Judkins Brook, which is within federally mapped Critical Habitat for Atlantic salmon, is located in a different watershed than the landfill expansion. With respect to Dr. Coghlan's concerns regarding potential impacts to Atlantic sturgeon and shortnose sturgeon in the Penobscot River, Mr. Emerson testified that Judkins Brook is located approximately 6.5 river miles upstream from the Stillwater River, and Pushaw Steam, more than 8.4 river miles. The Stillwater River then flows approximately 6 to 8 river miles before it reaches the mainstream of the Penobsot River, making it "highly unlikely" that there would be any adverse impacts to Atlantic sturgeon or shortnose sturgeon as a result of the JRL expansion.

Based on Stantec's evaluation results; the design of the landfill; the distance from the solid waste boundary to the intermittent and perennial streams; the fact that these streams do not contain habitat for Atlantic Salmon, Atlantic sturgeon, or shortnose sturgeon; and that the leachate is collected and treated at an off-site facility that has a waste discharge license from the Department, the Board finds the project will not have an unreasonable impact to Atlantic salmon, Atlantic sturgeon, or shortnose sturgeon.

The expansion will impact approximately 2.04 acres of primarily forested freshwater wetlands through direct filling and 0.1 acres of the critical terrestrial habitat of one significant vernal pool regulated under the Natural Resources Protection Act. The impacts to the significant vernal pool were authorized in a permit-by-rule that was accepted by the Department on July 29, 2015. Finding 38 of this license addresses impacts to freshwater wetlands and compliance with the Natural Resources Protection Act and associated rules.

In addition to the NRPA regulated wetlands, the applicant identified 14 vernal pools within and adjacent to the expansion area, 12 of which are regulated by the U.S. Army Corps of Engineers. Stantec prepared a Wetlands Compensation Plan to meet both NRPA and Corps requirements.

The MDIFW reviewed the proposed project and stated that, with the exception of one Significant Vernal Pool, there are no other essential or significant wildlife habitats at the project site.

The Board finds that the applicant has demonstrated that the facility will have sufficient buffers to adequately protect aquatic life and wildlife habitat and the natural environment; and that there will be no unreasonable adverse effects to protected natural resources and rare, threatened and endangered plant and animal species pursuant to 38 M.R.S. § 1310-N (2-F)(C) and 06-096 C.M.R. ch. 400, § 4(E)(1).

10. NO UNREASONABLE ADVERSE EFFECT ON EXISTING USES AND SCENIC CHARACTER

The solid waste facility may not unreasonably adversely affect exiting uses and scenic character as set forth in the 38 M.R.S. § 1310-N(2-F)(C) siting standards and in 06-096 C.M.R. ch. 400, § 4(F)(1), including consideration of bird hazard to aircraft, historical sites, established public viewing areas, excessive noise at the property boundary or at any protected location, or existing uses of neighboring property.

A. Bird Hazard to Aircraft

The proposed expansion is located over 13,000 feet from Dewitt Field Old Town Municipal Airport, the closest airfield. The Rules require a description of all airport runways within 10,000 feet of the facility.

Based on the distance to the airport, the Board finds that the expansion is not expected to present a bird hazard to aircraft.

B. Historical Site Preservation

In a letter dated January 15, 2015, from the Deputy State Historic Preservation Officer of the Maine Historic Preservation Commission, it was concluded that there would be no historic properties affected by the proposed expansion.

The Board finds that the proposed expansion will not unreasonably adversely affect historic properties.

C. Visual Assessment

A visual assessment dated July 2015 was prepared for the applicant by SMRT Inc. to evaluate whether the proposed expansion will unreasonably interfere with views from established public viewing areas. Public viewing area is defined in 06-096 C.M.R. ch. 400, § 1(Ll) as "an area designated for the public to view scenic areas, historical sites, unusual natural features or public monuments. These areas include but are not limited to scenic highways; public easements; scenic turnouts; public monuments; and national, state or municipal parks." The Rules require descriptions of protected locations and established public viewing areas within 2,000 feet of the proposed expansion.

The visual assessment included defining the existing site characteristics around the facility, quantification of the site viewshed, identification of public viewing areas, development of maps for line of site and viewsheds, and preparation of final landfill topography illustrations. Computer-generated modeling, weather balloons at strategic locations and elevations, field visits, and photography were used. To determine public viewing areas within 2,000 feet of the proposed expansion, stakeholders contacted by correspondence included Maine Bureau of Parks and Lands, MDOT, City of Old Town, the towns of Alton, Glenburn, Greenbush, Hudson, and Milford, and the Penobscot Nation. No public viewing areas were identified within 2,000 feet of the proposed expansion, but the study area was expanded to a 6-mile distance based on a question raised in a pre-submittal meeting regarding possible views from the western shore of Pushaw Lake and vicinity. The stakeholder process identified the following potential scenic resources within 6 miles of the proposed expansion: Pushaw Lake, Pushaw Stream, Penobscot River, Stillwater River, Hirundo Wildlife Refuge, Sunkhaze Meadows National Wildlife Refuge, Mud Pond (also known as Perch Pond) and the Perch Pond Recreational Trail, the Costigan Historical Cemetery, and the Penobscot River corridor at the public boat launch. Views were also considered from the following roadways: Route 16, I-95 Southbound, and Route 43.

The assessment performed using U.S. Forest Service standards and guidelines in 06-096 C.M.R. ch. 315 concluded that Pushaw Lake and the Penobscot and Stillwater Rivers had no significant scenic features reported or identified within the study area. The scenic resources within the study area were determined not to have views to the landfill or are considered background by the U.S. Forest Service as being 4 miles to the horizon. The area roadways were not defined as public viewing areas, scenic resources, or scenic byways. The views from Route 16 were considered intermittent, the distant view from I-95 includes broken line of sight by roadside vegetation, and Route 43 has a screening of plantings.

Views of the landfill will change during construction and operation. The operating landfill will generally be seen as grayish in color with equipment in sight. Prior to final closure, the landfill is proposed to be covered by a temporary black geomembrane, and at closure it will be fully planted with a vegetative layer and will resemble nearby hillsides with similar height, scale, and form.

The Board finds that the design of the proposed expansion takes into account the surroundings and when completed, capped, and vegetated, the expansion will not have an unreasonable adverse effect on the scenic character of the surrounding area as required pursuant to 38 M.R.S. § 1310-N(2-F)(C) siting standards and in 06-096 C.M.R. ch. 400, § 4(F)(1).

D. Noise

A Sound Level Assessment Report, dated July 2015, was prepared for the applicant by Epsilon Associates, Inc. to evaluate sound levels from the proposed expansion. The Rules include noise standards, as noise is considered unwanted sound and sound levels can be measured in decibels (dBA = decibels adjusted to reflect the ear's response to different frequency of sound). Table 3 includes the sound level limit standards of 06-096 C.M.R. ch. 400, § 4(F)(2).

Table 3: Sound Level Limit Standards

Sound Level Limit	**Applicable Hours** Daytime: 7:00 am to 7:00 pm Nighttime: 7:00 pm to 7:00 am	**Location**
75 dBA	Daytime and Nighttime	Facility property boundary
60 dBA	Daytime	Protected location zoned or usage not predominantly commercial or industrial (i.e., residential)
50 dBA	Nighttime	

The assessment included existing sound levels around the operating landfill and measurement of potential noise sources (operations and equipment), computer

modeling to predict future sound levels for various operating scenarios, and comparisons to the sound level limits. Sound levels from mobile equipment (excluding registered and inspected on-road vehicles), the Thiopaq® landfill gas treatment facility, and the anticipated future on site landfill gas-to-energy plant were included in the modeling. Operations for the proposed expansion were considered to be the same as current operations: 6:00 am to 6:00 pm Monday to Friday and 7:30 am to 2:30 pm Saturday and Sunday.

During periods of operations, modeled results were below the 75 dBA sound level limits for daytime and nighttime at the facility property boundary. However, residential areas are considered protected locations in the Rules and the western and northern property lines border residential properties. Additionally, there is a residential parcel to the south beyond the property boundary. These locations were assessed for compliance with the more restrictive sound level limits. The assessment results were below 60 dBA for the daytime operations, but were above 50 dBA for the one operating hour from 6:00 am to 7:00 am considered nighttime. To meet the sound level limit for this one hour of operation, the facility will be restricted to utilizing landfill equipment with a combined sound level of 77 dBA at 50 feet or less during the 6:00 am to 7:00 am hour when within 60 feet from the western solid waste boundary (approximately 480 feet from the western property line). This equates to utilizing a Caterpillar 836 compactor (77 dBA or less at 50 feet) or a Caterpillar 826 compactor (75 dBA or less at 50 feet), but not both compactors simultaneously.

The applicant will continue to maintain buffer vegetation between the proposed expansion and property lines to minimize sound levels from the facility, with the exception of tree clearing to install the relocated electrical line. The proposed pump stations, future gas-to-energy plant, and other mechanical structures will incorporate acoustical enclosures. Construction and maintenance activities will include environmental noise control devices in proper working condition and maintained as originally provided with the equipment by its manufacturer. Although vehicle warning signals and alarms are exempt from the sound limit levels, NEWSME has replaced the original backup alarms on operating equipment at the landfill with broadband backup alarms having less abrupt sounds.

The Board finds that the noise study for the proposed expansion indicates that routine operations will not generate excessive noise at the property boundary or at any protected location as defined by the Rules; provided that during the hour of 6:00 am to 7:00 am, only equipment with a combined sound level of 77 dBA at 50 feet or less are utilized if within 60 feet of the western solid waste boundary (approximately 480 feet from the western property line).

E. Neighboring Property

The portions of the 780-acre parcel to be developed will be a continuation of the existing site use, with buffers as required by 06-096 C.M.R. ch. 401, §§ 1(C)(2) and (3). Existing land in the vicinity of the expansion is locally zoned for landfilling, rural residences, farming, and under resource protection. The setbacks and buffers from the solid waste boundary in comparison to the Rule requirements are listed in Table 4 (modified from Volume I of the application, Table 3-3, page 3-12):

Table 4: Proposed Expansion Setback and Buffers

Setbacks from the Solid Waste Boundary to:	Actual Proposed (feet)	Rules Setback Requirements (feet)
Prohibitive Siting Criteria		
Class AA or Class SA Waters	> 10,560 (> 2 miles)	1,000
Significant sand and gravel aquifer	5,230 (approximately 1 mile)	300
Fault displaced in Holocene time	None identified on 780-acre parcel. Nearest mapped fault approximately 6 miles northeast of site.	200
Restrictive Siting Criteria		
Nearest public road	2,400	300
Property boundary	420	300
Nearest residence	2,100	1,000
Stratified sand and gravel deposit	275	100
Classified surface water	950	100
Water supply spring or water supply well not owned by the applicant	2,100	1,000

The Board finds that the proposed facility will have no unreasonable adverse effect on existing uses of property neighboring the proposed expansion based on the facility's buffers and setbacks as required in State law and the Rules.

11. NO UNREASONABLE ADVERSE EFFECT ON AIR QUALITY

The solid waste facility may not unreasonably adversely affect air quality pursuant to the siting standards of 38 M.R.S. § 1310-N(2-F)(C) and 06-096 C.M.R. ch. 400, § 4(G)(1). The facility must obtain an air emission license, if required; control fugitive dust and

nuisance odor; and prohibit open burning of solid waste other than clean or painted wood waste.

A. Air Emission License

Air emission license renewal #A-921-70-B-R was issued on October 7, 2014 for the existing landfill facility with findings that emissions from the source will receive Best Practical Treatment, will not violate applicable emissions standards, and will not violate applicable ambient air quality standards in conjunction with emissions from other sources. The air emission license renewal includes State and federal emission limits and operational requirements associated with landfill gas collection and control, as well as monitoring and reporting requirements.

The 2014 air emission license renewal addresses control of landfill gas emissions through use of a landfill gas collection and control system, with the extracted and collected landfill gas passing through a Thiopaq® sulfur removal system, then being combusted in either the main flare (Flare #4) or back-up flares prior to release to the atmosphere. In the future, a landfill gas-to-energy facility may be located at the site, at which time the extracted Thiopaq® treated gas may be combusted in engines to produce power as an alternative to flaring. The Thiopaq® system was required to be installed to decrease total reduced sulfur (mainly H_2S) prior to combustion to reduce sulfur dioxide air emissions. Thiopaq® operations began in early 2015, with a sulfur removal Sulfatreat® system installed as backup. In addition to monitoring air emissions from the control equipment, as well as control equipment parameters, the facility is also required by the Federal New Source Performance Standards (NSPS) to perform periodic gas surface scans on the landfill.

An LFG System Expansion Design Report, dated June 2015, was prepared by Sanborn, Head & Associates, Inc. for the proposed expansion consisting of estimates of future landfill gas generation, descriptions of the proposed gas collection and control system, and how the proposed system would connect to the existing gas collection system infrastructure. The report stated that Flare #4 is adequate for the proposed expansion. Flare #4 capacity and operations are addressed in the air emission license renewal.

The Board finds that the applicant has an air emission license, as required by State law and the Rules.

B. Fugitive Dust

The measures to control dust at the proposed expansion will include utilizing water spray trucks to wet secondary roads during dry weather, paving the primary access road to the proposed expansion, and making use of a road sweeper to remove dirt buildup on paved roadways. Calcium chloride may be utilized on an as-needed basis, primarily on internal cell access roads.

On the landfill's active working area, ash will be off-loaded and primarily utilized as a mix within daily cover or as a bulking agent for sludge. The ash will not be prone to being windblown due to quenching, which is to occur at the point of generation, and the placement of ash and ash mixtures on the active landfill area.

The Board finds that the dust control measures proposed by the applicant are sufficient to control fugitive dust as required by State law and the Rules.

C. Nuisance Odors and H_2S

Three potential primary sources of odor identified by the applicant were odors associated with incoming wastes, leachate storage and transport, and landfill related gases. The facility's Odor Complaint Management and Response Plan to manage landfill-related odors and limit off-site odor migration is part of the facility's current Operations Manual. Incoming waste types with the highest potential for odor generation are FEPR, MSW bypass, and wastewater treatment plant sludge. The leachate has potential for odor during storage at the facility and transport to the wastewater treatment facility. Landfill gases, including odorous H_2S, are produced as the waste in the landfill decomposes.

Measures for minimization of odor associated with incoming odorous waste streams will include placement within a small area in the cell, waste compaction, and placement of another lift (or layer) of non-odorous waste such as ash or CDD waste above it. Daily cover will be applied over the active portion of the landfill at the end of each day of waste placement. The facility will also utilize odor neutralizing spray systems, as needed, such as a bulldozer mounted system within the active cell, a trailer spray system for incoming and outgoing trailer loads, and a perimeter misting system.

To minimize leachate odors, the leachate will be collected and transported by piping systems and stored in an enclosed tank sized to hold all of the leachate generated at the landfill prior to being transported for treatment and disposal. Tanker trucks used to haul the leachate to the wastewater treatment facility will be

required to have their tanker filling points tightly sealed during transportation and have the ability to add chemicals for odor reduction.

Odor from LFG produced as waste degradation occurs will be minimized by the installation of intermediate or final cover over non-active portions of the landfill and the operation of the facility's LFG collection and control system, which will be expanded to accommodate the proposed expansion.

The facility monitors H_2S concentrations through real-time data collected using six Honeywell Analytics Single Point Monitors, four located off-site (on the access road, West Coiley Road, Route 43, and Old Stagecoach Road), and two located on-site, one adjacent to the perimeter fence and one on NEWSME owned land on Route 16. The location and operation of the four off-site monitors have been pre-determined with the Department's approval. The two on-site monitors are solely utilized to assist in operations, and the location and operation of these monitors may change or cease based on ongoing operations. If the monitors detect concentrations of 15 parts per billion (ppb) or above at any of the off-site monitors, the scale house is alerted by automated telephone message. Personnel then report any alert to supervisory staff for follow-up. In addition to monitoring for compliance with the action level of 15 ppb, the monitor data can be utilized in assisting with odor complaints.

Odor complaints received by the facility will follow a specific procedure. Information will be obtained from the complainant and then given to the appropriate complaint response personnel. Follow-up steps will be taken during the complaint investigation including filling out a Complaint Record Form with data about the day, time, wind direction and speed, H_2S levels, unusual conditions at the landfill, and observed waste materials accepted at the time of complaint. Landfill personnel will communicate directly with the complainant, either in person or by phone. For all complaints, the following will also be documented: remedial actions taken, resolution of the complaint, comments made during the investigation, and any other recommendations.

During the licensing proceedings, the City of Old Town raised the issue of H_2S as it relates to odor and exposure. The City's consultant and expert witness, Denis St. Peter, P.E. of CES, Inc., recommended that the facility use acute action levels for concentrations of H_2S exceeding 15 ppb (for reporting of events in the facility's Monthly Status Report) and 30 ppb, with the Old Town Code Enforcement Officer to be contacted if H_2S levels exceed 30 ppb. The applicant agreed and has incorporated the action levels into the facility's Operations Manual. Mr. St. Peter also recommended that the City set forth its own evaluation protocol to review the effect of possible chronic (long-term) exposure

to H_2S on members of the public since JRL does not currently use a chronic exposure standard. A portion of the Host Community funding will be used to hire a consultant to annually review the facility's H_2S data, with the City reporting the findings to the applicant and the Department.

Intervenor Edward Spencer testified on the odor complaint procedure and suggested consideration be made to include law enforcement officials in the process to verify nuisance odors. In response to this concern, Jeremy Labbe, P.E., Environmental Manager at JRL, testified that the City of Old Town receives a summary of every odor complaint at JRL and that JRL can provide copies of individual completed complaint forms to the City if requested. Mr. Labbe further testified that any City employee or citizen may call in an odor complaint.

The Board finds that the applicant has proposed odor control mechanisms sufficient to control nuisance odors from the proposed expansion as required by State law and the Rules. The Board further finds that the facility's current odor complaint procedure includes appropriate documentation and follow-up to odor complaints at this time.

12. NO UNREASONABLE ADVERSE EFFECT ON SURFACE WATER QUALITY

In accordance with the 38 M.R.S. § 1310-N(2-F)(C) siting standards of no unreasonable adverse effect on water quality and the requirements of 06-096 C.M.R. ch. 400, § 4(H)(1), the solid waste facility: may not discharge any water pollutants, directly or indirectly, that affect the state classification of a surface water body, as specified in 38 M.R.S. § 464; may not discharge any pollutant without first obtaining a license pursuant to 38 M.R.S. § 413 (waste discharge licenses); may not degrade water quality by contributing to the phosphorous concentrations in "waterbodies most at risk from new development" as defined in *Direct Watersheds of Lakes Most at Risk from New Development, and Urban Impaired Streams*, 06-096 C.M.R. ch. 502 (last amended December 27, 2006); and may not cause the discharge of a nonpoint source of pollution to waters of the United States that violates any requirement of an area-wide or State-wide water quality management plan that has been approved in compliance with Section 319 of the *Federal Water Pollution Control Act*, as amended.

The proposed expansion includes a leachate collection and off-site treatment system for precipitation that comes into contact with waste and stormwater management and erosion sedimentation control plans to control surface water runoff from covered portions of the facility, construction activities, and non-operational areas. The proposed expansion is not located within the watershed of a "lake at most risk from new development" or an "urban impaired stream." The applicant submitted a Stormwater Management Plan and an Erosion Sedimentation Control Plan, both dated July 2015 and prepared by SME. The

plans address effective drainage, flood prevention, and erosion control. The applicant's best management practices include stormwater detention basins, low velocity (lined) ditches, and stone check dams within on-site ditches. The plans are described in more detail in Findings 14 and 17 of this license.

The facility holds a Multi-Sector General Stormwater Permit (#MER05B477) for the discharge of stormwater associated with industrial activity for Sector L: landfills. The facility also submitted the existing Stormwater Pollution Prevention Plan, originally prepared in April 2006 and most recently revised in June 2013. The Stormwater Pollution Prevention Plan will be updated as necessary to address construction as the proposed expansion is developed.

Leachate generated by the proposed expansion will be collected, stored onsite, and trucked off-site to the MFGR, LLC wastewater treatment plant in Old Town. The project was reviewed by the Department's Bureau of Water Quality, which stated that the treatment plant is licensed to accept the leachate and is currently operating in compliance with that license (Department Order #W-002226-5O-O-R, entered into the evidentiary record). Leachate management is described in more detail in Findings 26(D) and 28(E) of this license.

The Board finds that the stormwater and leachate management systems for the proposed expansion meet the applicable State laws and Rules and are designed to prevent the discharge of sediment and other contaminants conveyed by stormwater from polluting the waters of the State and otherwise unreasonably affecting surface water quality.

13. NO UNREASONABLE ADVERSE EFFECT ON OTHER NATURAL RESOURCES

The solid waste facility may not unreasonably adversely affect other natural resources in the municipality or in neighboring municipalities pursuant to the 38 M.R.S. § 1310-N(2-F)(C) siting standards and 06-096 C.M.R. ch. 400, § 4(I)(1). The facility must conform to the standards of NRPA, 38 M.R.S. §§ 480-A to 480-Z, if proposed to be located in, on, over, or adjacent to a protected natural resource; and must be permitted by the federal government for any activities that require a Federal Wetlands permit.

Finding 38 of this license addresses impacts to protected natural resources under the NRPA and includes the Board's findings regarding compliance with NRPA requirements. The applicant has applied to the U.S. Army Corps of Engineers for a permit for impacts to federally regulated wetlands located in and adjacent to the expansion area.

14. SOIL TYPES THAT ARE SUITABLE AND WILL NOT CAUSE UNREASONABLE EROSION

In accordance with 38 M.R.S. § 1310-N(2-F)(D) siting standards and 06-096 C.M.R. ch. 400, § 4(J)(1), the solid waste facility must be located on soil types suitable to the nature of the undertaking and the facility must not cause unreasonable erosion of soil or sediment.

An Erosion and Sediment Control Plan, dated July 2015 and prepared by SME, was submitted with the application to address the site setting including watersheds, wooded areas, and surficial soils; existing and proposed drainage structures, timing and sequence of land disturbance activities during cell construction, landfill operations, and cover placement; temporary, permanent, and standard erosion control measures; and maintenance and inspection of erosion control features to ensure proper function. In addition, a site assessment report was submitted with the application consisting of site investigation findings and site characteristics, along with other analyses.

The surficial soils were investigated with the use of site test pits and soil borings and through the use of the Natural Resources Conservation Service Web Soil Survey of Penobscot County, Maine 2014. The surficial soils under and around the proposed expansion footprint are primarily Plaisted very stony loam and Howland very stony loam. On-site observations and a review of soils mapping did not identify areas near the proposed expansion that would be prone to or highly susceptible to erosion, such as exposed sideslopes.

The design and implementation of all erosion control measures will follow the requirements of the Rules and will be in accordance with the appropriate version of Maine's Erosion and Sediment Control Best Management Practices (BMP) Manual, most recently updated in March 2015 for Contractors and in October 2016 for Designers and Engineers (the previous version was dated 2003). BMP's to minimize erosion from the proposed expansion will include utilizing grass lined and riprap lined channels, catch basins, sediment detention ponds, culverts, ditches, storm drains, riprap aprons, riprap plunge pools, and level spreaders. Analyses were performed to appropriately size and locate these structures. Some existing structures will be utilized as they exist without modifications and others will be modified or removed. For example, Detention Ponds 1 and 9 will be modified, Detention Pond 5 will be removed, Detention Ponds 2 and 6 will remain unmodified, and Detention Ponds 10, 11, and 12 will be added.

Prior to disturbance of soil during development, appropriate erosion and sedimentation control measures will be put in place. Temporary measures will include silt fences, temporary seeding, mulching, and stone check dams. Permanent measures will include downspouts, sedimentation ponds, permanent seeding, mulching, and culvert inlet and

outlet protection. The amount of area disturbed at any one time will be minimized by the phased development of the landfill over time.

The Board finds that the construction and operation of the proposed expansion will not cause unreasonable sedimentation or erosion of soil and that suitable soil types underlie the landfill, meeting the applicable State laws and Rules; provided that the erosion and sedimentation control plan is implemented as proposed, incorporating any future revisions as a result of the Department's review and approval of each new cell construction as detailed in a specific design package as phased landfill development occurs.

15. NO UNREASONABLE RISK THAT A DISCHARGE TO A SIGNIFICANT GROUND WATER AQUIFER WILL OCCUR

Pursuant to 38 M.R.S. § 1310-N(2-A), the 38 M.R.S. § 1310-N(2-F)(E) siting standards, and 06-096 C.M.R. ch. 400, § 4(K)(1), the proposed solid waste facility may not: overlie any significant sand and gravel aquifers; pose an unreasonable threat to the quality of a significant sand and gravel aquifer; pose an unreasonable threat to the quality of an underlying fractured bedrock aquifer; or pose an unreasonable risk that a discharge to a significant ground water aquifer will occur. Significant ground water aquifer is defined in 06-096 C.M.R. ch. 400, §§ 1(Ccc) as "a porous formation of ice contact and glacial outwash sand and gravel supplies or fractured bedrock that contains significant recoverable quantities of water likely to provide drinking water supplies", with a similar definition found in 38 M.R.S. § 1310-N(2-A).

The application included a comprehensive Site Assessment Report dated July 2015, prepared by SME, of the geologic and hydrogeologic characteristics of the site, in addition to the water quality of the site, future water quality monitoring, and travel time analyses.

The Maine Geological Survey maps (Open File 08-87, Tolman and Lanctot, 2008) show the nearest mapped sand and gravel aquifer in the vicinity of the proposed expansion is approximately one mile east of the landfill. There are no stratified sand and gravel deposits mapped by the Maine Geological Survey within the facility site (Borns and Thomspson, 1981; Foster and Smith, 2001). Therefore, the proposed expansion does not overlie any significant sand and gravel aquifers.

An investigation was performed to determine whether the proposed expansion would pose a risk or affect the quality of a significant sand and gravel aquifer or a bedrock aquifer. Although no mapped stratified sand and gravel deposits are located near the proposed expansion and ground water from bedrock beneath, directly adjacent to, and immediately downgradient of the proposed site is not likely to be used for domestic

consumption due to the State's ownership of land 400 feet downgradient of the proposed solid waste boundary, two formations were evaluated further. These formations consist of the isolated stratified sand zones contained within the basal till greater than 100 feet beyond the southeast side of the proposed expansion boundary and the off-site bedrock immediately adjacent to the site property boundary.

The on-site stratified sand and off-site bedrock formations were evaluated utilizing the time of travel analysis and the contaminant transport analysis included in the application. These analyses are described in more detail in Findings 25 and 29 of this license, respectively.

The Board finds that the proposed expansion will not be located over a significant sand and gravel aquifer and that the facility poses no unreasonable risk to a significant sand and gravel aquifer or underlying fractured bedrock aquifer, as required by State law and the Rules. Adequate protection of water quality will be provided by the soils under the proposed expansion, the design of the proposed expansion, the ground water flow conditions, and implementation of the Water Quality Monitoring Program discussed further in Finding 33 of this license.

16. ADEQUATE PROVISION FOR UTILITIES AND NO UNREASONABLE ADVERSE EFFECT ON EXISTING OR PROPOSED UTILITIES

The applicant shall provide for adequate utilities, including adequate water supplies and appropriate sanitary wastewater disposal, and the facility may not have an unreasonable adverse effect on existing or proposed utilities in the municipality or area served by those utilities, in accordance with the 38 M.R.S. § 1310-N(2-F)(F) siting standards and in 06-096 C.M.R. ch. 400, § 4(L)(1).

Existing sanitary wastewater disposal systems located at the maintenance buildings (on the southeast side of the facility) and the office building and scale house (currently located on the north side of the facility) will continue to be utilized by personnel. However, with the development of Cell 12, the office building and scale house will be relocated northeast from its current position and a well and new on-site sanitary wastewater disposal system will be installed.

Water for dust control, leachate pipe cleaning, and other needs of the facility will continue to be met by the existing on-site water supply sources. The leachate generated by the landfill will continue to be collected and stored on-site and treated off-site.

As part of the proposed expansion, an approximate 3,700-foot portion of the facility's three-phase, 480-volt power electrical service will be relocated. This electrical service enters the site along the existing access roadway which will be modified to accommodate

the development of the proposed expansion. The new leachate pump stations associated with the proposed expansion will require three-phase, 480-volt power, which will be supplied to each pump station through additional on-site electrical cables to be installed along the site access roads.

The Board finds that the applicant has provided for adequate utilities and the proposed facility will not have an unreasonable adverse effect on existing or proposed utilities in the municipality or area served by the utilities, pursuant to the applicable State law and Rules.

17. NOT UNREASONABLY CAUSE OR INCREASE FLOODING

The solid waste facility may not unreasonably cause or increase flooding on-site or on adjacent properties nor create an unreasonable flood hazard to a structure pursuant to the 38 M.R.S. § 1310-N(2-F)(G) siting standards. As set forth in 06-096 C.M.R. ch. 400, § 4(M)(1), the facility may not be located in a 100-year flood plain or restrict the flow of a 100-year flood. In addition, the facility must include a stormwater management system that controls run-on and run-off; and infiltrates, detains, or retains precipitation falling on the facility site during a storm of an intensity up to and including a 25-year, 24-hour storm, such that the rate of flow of stormwater from the facility after construction does not exceed the rate of outflow of stormwater from the facility site prior to the construction of the facility.

The most recent Federal Emergency Management Agency (FEMA) flood plain map of the proposed expansion's location shows that the proposed expansion is not located on a 100-year flood plain (Quad panel number 2301120002A, dated April 1978).

The Stormwater Management Plan prepared by SME and dated July 2015 for the proposed expansion application included pre-and post- development stormwater analyses, for storm events up to and including a 25-year, 24-hour storm event. The post-development design includes modifications to some of the existing stormwater structures, along with the addition of three detention ponds and various drainage ditches, catch basin, storm drains, and culverts. The stormwater analyses showed that post-development peak flows did not exceed pre-development peak flows. The results of the submitted analyses are shown in Table 5 (Volume I of the application, Appendix J, Table 4-1, page 9). Changes in precipitation data, requirements, or cell development plans may result in revisions to the analyses as the proposed expansion is developed.

Table 5: Summary of Peak Flows

Analysis Point	Peak Flow (cubic feet per second, cfs)					
	Pre-Development			Post-Development		
	2-Year	10-Year	25-Year	2-Year	10-Year	25-Year
1	29.5	92.6	130.9	16.2	50.4	68.3
2	10.2	26.6	36.0	9.8	24.6	33.2
3	29.1	74.1	100.3	29.1	74.1	100.3
4	36.1	92.1	124.5	33.4	84.7	112.5
5	6.2	14.6	19.3	5.7	13.4	17.7

Note: Peak flow of analysis point after routing through the detention pond and/or reaches.

Dr. Stephen Coghlan, Intervenor Spencer's expert witness, raised concerns in pre-filed direct testimony on the date of the 1978 flood plain map used by the applicant. Department staff verified through a website search of FEMA's floodplain maps that the most recent map for the proposed expansion area was utilized, as required. Dr. Coghlan also testified on the potential for extreme rainfall events and flooding due to climatic changes and questioned the adequacy of an analysis based upon a 25-year, 24-hour storm event. Michael Booth, P.E. of SME, one of the applicant's expert witnesses, testified that the rules require that an event of intensity up to and including a 25-year, 24-hour storm be utilized in the analysis. In addition, Mr. Booth testified that the stormwater ponds include structures that also allow stormwater flow from a 100-year storm to be managed without impacting the integrity of the structures and that with respect to the age of the flood plain maps, the expansion is located on a high point and not susceptible to flooding.

The Board finds that the facility will not be located in a 100-year flood plain and that adherence to the facility's stormwater management plan will control run-on and run-off; and will infiltrate, detain, or retain water falling on the facility site during a storm of an intensity up to and including a 25-year, 24-hour storm, such that post-development stormwater flows from the facility are below pre-development stormwater flows from the facility site. These findings meet the applicable requirements of State law and the Rules.

18. SOLID WASTE MANAGEMENT HIERARCHY

A. Applicable Law

As stated in 38 M.R.S. § 1310-N(1)(D) and 06-096 C.M.R. ch. 400, § 4(N)(1), the purpose and practices of the solid waste facility must be consistent with the State's solid waste management hierarchy (hierarchy) set forth in 38 M.R.S. § 2101(1), which reads as follows:

> Priorities. It is the policy of the State to plan for and implement an integrated approach to solid waste management for solid waste generated in the State and solid waste imported into this State, which must be based on the following order of priority:
>
> A. Reduction of waste generated at the source, including both amount and toxicity of the waste;
> B. Reuse of waste;
> C. Recycling of waste;
> D. Composting of biodegradable waste;
> E. Waste processing that reduces the volume of waste needing land disposal; including incineration; and
> F. Land disposal of waste.

For the purpose of 06-096 C.M.R. ch. 400, § 4(N):

> reducing, reusing, recycling, composting and/or processing waste to the "maximum extent practicable" prior to disposal means handling the greatest amount of waste possible through means as high on the solid waste management hierarchy as possible, resulting in maximizing waste diversion and minimizing the amount of waste disposed, without causing unreasonable increases in facility operating costs or unreasonable impacts on other aspects of the facility's operation. Determination of the "maximum extent practicable" includes consideration of the availability and cost of technologies and services, transportation and handling logistics, and overall costs that may be associated with various waste handling methods.

In addition, 38 M.R.S. § 2101(2) establishes that "it is the policy of the State to actively promote and encourage waste reduction measures from all sources and maximize waste diversion efforts by encouraging new and expanded uses of solid waste generated in the State as a resource."

The Department's rule at 06-096 C.M.R. ch. 400, § 4(N)(2)(a) states that for a solid waste disposal facility, the applicant must affirmatively demonstrate consistency with the hierarchy, including the following:

> that the waste has been reduced, reused, recycled, composted, and/or processed to the maximum extent practicable prior to incineration or landfilling, in order to maximize the amount of material recycled and reused, and to minimize the amount of waste

> being disposed. Such evidence shall include, but is not limited to, a description of the reduction, reuse, recycling, composting and/or processing programs/efforts that the waste is or will be subject to, and that are sufficiently within the control of the applicant to manage or facilitate, including relevant metrics to evaluate effectiveness; and a description of ongoing efforts to increase the effectiveness of these programs/efforts.

State law also imposes limits on the origin of wastes accepted at a State-owned solid waste facility. In accordance with 38 M.R.S. § 1310-N(11),

> a solid waste facility owned by the State may not be licensed to accept waste that is not waste generated within the State. For the purposes of this subsection, "waste generated within the State" includes residue and bypass generated by incineration, processing and recycling facilities within the State or waste, whether generated within the State or outside of the State, if it is used for daily cover, frost protection or stability or is generated within 30 miles of the solid waste disposal facility.

B. Applicant's Summary of Proposed Waste Streams Relative to the Hierarchy

In its application (Volume I) and the testimony of Toni King, P.E., Regional Engineer for Casella Waste Systems, Inc.'s Eastern Region, the applicant provided information, summarized below, on the wastes proposed to be disposed in the expansion and the viable waste management options for these wastes as related to the hierarchy that are sufficiently within the control of the applicant to manage or facilitate:

(1) *CDD* – JRL has received, and is expected to continue to receive in the expansion, CDD from Casella-owned companies and others. Typically, about 30% of the material disposed of at JRL is CDD. In 2014, Casella-owned companies delivered approximately 87,324 tons of CDD material to JRL. Approximately 3,335 tons of clean wood and metals had been removed from this material and JRL has a wood waste handing area which received 46 tons of clean wood and stumps in 2014. These materials were ground and recycled as alternative daily landfill cover. Additionally, Casella controlled/operated transfer stations divert tonnage from JRL, including clean and processed wood and metal, which is removed from the CDD before the CDD is sent to JRL. These Casella facilities also direct or supply CDD to processing facilities such as ReEnergy in Lewiston for beneficial use or recycling.

(2) *FEPR* – FEPR currently comes to JRL from the PERC incinerator in Orrington. PERC's FEPR is approximately 20% by weight of the non-combustible portion of the facility's MSW that cannot be incinerated and is removed mechanically prior to combustion of the refuse-derived fuel. FEPR is currently utilized at JRL as part of the 5-foot layer, referred to as the "soft layer", which is placed above the landfill liner and leachate collection systems as a protective layer. This usage is also proposed for the expansion. At this time, there is no other disposal option allowed in Maine other than secure landfill disposal for FEPR. The applicant states that if FEPR were not available, the facility would need to purchase other materials such as tire chips and sand to provide a soft layer.

(3) *MSW Incinerator Ash and Multi-Fuel Boiler Ash* – The use or reuse of MSW incinerator ash is currently not allowed by regulatory beneficial use standards in Maine due to its chemical characteristics; therefore, the current disposal method is landfilling. Multi-fuel boiler ash is similar to MSW incinerator ash regarding the allowable disposal method, with the exception of a few ashes, such as clean wood ash. Clean wood ash may be land spread or used in the production of flowable fill for certain construction needs. Casella Organics, NEWSME's sister company, has developed, and continues to develop, programs to reuse and recycle suitable clean wood ash, diverting various amounts from the landfill. JRL will utilize ash in its operations as daily cover at the proposed expansion, eliminating the need to use virgin soil (non-waste material) to serve that purpose.

(4) *CDD Processing Fines* – The residue from the processing of CDD is currently utilized as landfill grading, shaping, and alternative daily cover material and is expected to be used in the same manner for the proposed expansion. The current allowable disposal methods for CDD processing fines are either reuse as daily cover or disposal in secure landfills. Use of CDD fines as alternative daily cover materials at landfills is a beneficial use/recycling activity. Approximately 126,000 tons of CDD fines were received at JRL in 2014 and used as alternative daily cover.

(5) *OBW* – OBW is not currently generated by entities within the control of BGS and NEWSME, and there are no prevalent, viable mechanisms for reuse, reduction, or recycling of OBW that are within the control of BGS and NEWSME. The primary management option is landfill disposal for OBW.

(6) *Municipal Wastewater Treatment Plant Sludge* – Municipal wastewater treatment plant sludge not land applied, composted, or alternatively managed is proposed as acceptable waste at the expansion. Casella Organics has developed, and continues to develop, alternative sludge usage programs; however, the usage options for municipal wastewater treatment plant sludge from Maine communities is limited due to factors such as the quality of sludge, available acres for land application, facility capacity restrictions and cost considerations. Landfilling is the disposal option for municipal wastewater treatment plant sludge not otherwise land applied, composted or alternatively managed.

(7) *Industrial Wastewater Treatment Plant Sludge and Residuals* – As with municipal wastewater treatment plant sludge, industrial wastewater treatment plant sludge and residuals are expected to be disposed of in the proposed expansion. Maine industries with wastewater or process treatment plants (the generator of this type of sludge) are responsible for reducing and recycling this waste material to the maximum extent practicable. As stated above, Casella Organics has an active alternative sludge usage program to divert some of this waste material from the landfill; however, the sludge not otherwise processed is landfilled. For example, in 2014 Casella Organics handled approximately 42,000 tons of short paper fiber from the Cascades Auburn Fiber pulp mill in Auburn, Maine, all but 8000 tons of which was diverted from disposal to beneficial uses.

(8) *Contaminated Soils and Oil Spill Debris* – Contaminated soils and oil spill debris are currently accepted at JRL at an estimated amount of about 1% of the total tonnage (approximately 6,500 tons in 2014) and are expected to be accepted in the proposed expansion. This waste type often is the result of accidental spills and releases and is managed in accordance with regulated practices (such as facility spill prevention, control, and countermeasure plans). While some of these wastes can be used in construction projects or in secure settings, reuse is typically limited due to physical and/or chemical characteristics or practical limitations such as transportation costs. Alternate use decisions are within the control of the generator, not BGS or NEWSME.

(9) *Miscellaneous Special Wastes* – Generators of miscellaneous special wastes are responsible for reducing to the maximum practicable extent the amount of these wastes that are landfilled. These special waste streams are handled either through individual one-time or ongoing special waste permits when there is not an alternative to landfilling based on regulatory

standards and practical cost and transportation considerations. Alternative use decisions are within the control of the generator, not BGS or NEWSME.

(10) *MSW Bypass from Maine MSW Incinerators* – The only MSW that will be disposed of in the JRL expansion is bypass from Maine MSW incinerators (pre-filed testimony by Ms. King page 10; pre-filed testimony by Jeremy Labbe, Environmental Manager at JRL, page 13; hearing testimony by Michael Barden, the State's Manager for State-owned landfills, pages 15 and 147 of the hearing transcript; and during questioning of Intervenor Edward Spencer page 419 of the hearing transcript). These incinerators are required by their licenses to provide an alternative management method (bypass) if the facility receives MSW that is in excess of its ability to accept, process, and/or combust that waste (i.e., during planned shutdowns or unplanned production problems). The decision to bypass and where to dispose of the bypass is made by the incinerator facility and is not within the control of BGS or NEWSME.

C. Testimony Regarding the Hierarchy

Compliance with the State's solid waste management hierarchy was a major issue at the hearing.

The applicant testified that the proposed expansion will be developed and operated consistent with the hierarchy and that JRL will promote and encourage waste reduction measures and maximize the waste diversion efforts of JRL users to the maximum extent practicable. Toni King, Regional Engineer for Casella Waste Systems, Inc.'s Eastern Region, testified that a high percentage of material to be disposed of in the proposed expansion is ranked in the State Plan (Maine Materials Management Plan: 2014 State Waste Management and Recycling Plan Update & 2012 Waste Generation and Disposal Capacity Report, January 2014, prepared by the Maine Department of Environmental Protection) as either a high or medium option for landfill disposal; i.e., landfill disposal is the primary management technique available (high) or a middle option (medium). Ms. King testified that approximately 30% of the waste material accepted at JRL is utilized in landfill operations and is considered recycling in accordance with the applicable State laws and Rules. This includes residuals from waste processing facilities used as alternative daily cover, thereby offsetting the amount of landfill capacity used by non-waste materials. Ms. King noted in her testimony that the Department evaluated JRL's use of alternative daily cover as part of the Public Benefit Determination for the proposed expansion and concluded that the amount

used at JRL is comparable to the amount used at the Crossroads landfill in Norridgewock, Maine.

Ms. King also testified that NEWSME's parent company operates Casella Recycling, LLC and Casella Organics, both of which contribute to the reduction of waste landfilled. Casella Recycling, LLC, a Zero-Sort facility in Lewiston, recycled approximately 87,700 tons of material in 2014 and the non-recyclable residuals (9% of the waste stream) were sent to the Mid Maine Waste Action Committee (MMWAC) incinerator in Auburn, with ecomaine in Portland available as backup. Casella Organics composts and land applies organic wastes, landfilling their customers' waste only when the physical or chemical properties of the material do not allow for beneficial reuse, if there is a lack of site access for land application, or when reuse/recycling outlets are not available.

Intervenor Edward Spencer addressed the following issues in his testimony and post-hearing brief: a concern that wastes have been coming into JRL without adequate assurance of source reduction; wastes sent to JRL should have been handled according to the State's hierarchy at their source, their point of discard, including wastes discarded outside of Maine and subsequently sent to Maine processing facilities; the definition of "waste generated within the State" is concerning since CDD processing facilities can accept out-of-state wastes but once processed, those wastes (fines, OBW, etc.) are considered in-state waste; and as a state-owned landfill, the focus should be on preserving capacity by exerting more control over the waste accepted for disposal.

With respect to CDD and associated residuals, Mr. Spencer testified that for the last five years (2011 through 2015) wastes categorized as CDD, OBW, and CDD process fines when combined accounted for over 57% of inputs to JRL. Mr. Spencer expressed concern over the origin of CDD ultimately disposed of at JRL, and testified that the majority of wastes entering the Lewiston processing facility (ReEnergy) and "continuing to JRL" were not discarded in Maine. Mr. Spencer expressed concern about the amount of OBW in the CDD, and questioned the amount of effort that goes into recycling various components of OBW such as mattresses, appliances, and furniture. Mr. Spencer argued in support of an annual limit on the amount of OBW disposed of at JRL and for waste audits of processing facilities as set forth in the Public Benefit Determination for the proposed expansion.

Intervenor Dana Snowman raised similar concerns regarding the amount and origin of wastes coming to JRL and the statutory definition of "waste generated within the State" in his questioning of the applicant's witnesses.

In response to these concerns, Michael Barden, the State's Manager for State-owned landfills, testified that out-of-state wastes are "excluded wastes" and disposal at JRL is prohibited, and he affirmed that JRL accepts only waste which meets the definition of "waste generated within the State."

Ms. King further testified that discussion of the "point of discard" is irrelevant; the State's solid waste rules do not require evidence of the point of origin. With respect to CDD and associated residuals, Ms. King testified that CDD processing facilities in Maine must demonstrate that they are complying with Maine State law "by recycling or processing into fuel for combustion all wastes accepted at the facility to the maximum extent practicable, but in no case at a rate of less than 50%." Ms. King testified that two processing facilities cited by Mr. Spencer, ReEnergy in Lewiston and ARC in Eliot, reported recycling rates in 2015 of 78.7% and 84%, respectively, (BGS/NEWSME Exhibits #49 and #50), and have met their statutory recycling and source reduction requirements. Therefore, residuals, including CDD fines and OBW, from these facilities are legally "waste generated within the State" and may be accepted at JRL.

Ms. King testified that the question for the applicant is whether the applicant could further reduce, reuse, compost, or incinerate the post-processing CDD material that JRL receives from these processing facilities. Her response was that it could not; she testified that the fines are used as alternative daily cover (a use which is defined as recycling), the primary option for handling of OBW is landfilling, and that these materials cannot be further reduced, incinerated or composted.

With respect to mattresses, a component of OBW, Ms. King testified that Casella has had limited experience with mattress recycling at other facilities in New England, but that by the time mattresses arrive at JRL, they are in poor condition (fabric contaminated, wood broken) and are not easily recycled.

Ms. King testified that waste streams entering JRL are, and will continue to be, managed consistent with the hierarchy to the extent within the applicant's control and to the maximum extent practicable, and that the hierarchy does not require a solid waste facility to control those who generate waste.

D. Board Finding

The Board finds that Casella-owned facilities have active recycling and reuse programs that divert waste from JRL. In addition, the waste management options available for most of the materials proposed to be disposed of in the landfill expansion, as set forth in the State Plan, are at or near the bottom of the hierarchy.

The concern that OBW from CDD processing facilities are landfilled without limitation is addressed by the establishment of an OBW limit for the proposed expansion in Finding 37 of this license. Compliance with the recycling and source reduction provisions of State law is further addressed in Finding 19 of this license.

With respect to intervenors Edward Spencer and Dana Snowman's argument that generators located outside Maine should be subject to Maine's laws governing recycling and source reduction, the Board finds that under current law, provided the Maine solid waste processing facilities which accept waste from outside Maine are in compliance with the terms of their licenses and State law regarding recycling, residue and bypass generated by these Maine facilities' operations sent to JRL is "waste generated within the State" and may be disposed of in the proposed JRL expansion.

The Board further finds that the applicant's purpose and practices of the proposed expansion are consistent with the applicable State laws and Rules relating to the hierarchy; provided that evolving waste management techniques and practices sufficiently within the control of the applicant continue to be explored and implemented as appropriate to reduce, reuse, recycle, compost, and/or process to the maximum extent practicable prior to landfilling. In each Annual Report, the applicant must summarize the steps taken by the facility in the respective reporting year to meet the hierarchy, submitting relevant metrics to evaluate effectiveness (i.e., tons of material diverted from landfill disposal by Casella companies; tons of materials reused, reduced, recycled at the landfill), a description of ongoing efforts to increase the effectiveness of these programs/efforts, and any additional pertinent hierarchy-related information.

19. RECYCLING

In addition to demonstrating compliance with the State's solid waste management hierarchy as described in Finding 18 of this license, State law at 38 M.R.S. § 1310-N(5-A) requires the applicant to demonstrate that the proposed solid waste disposal facility will accept solid waste that is subject to recycling and source reduction programs, voluntary or otherwise, at least as effective as those in the statute and other provisions of State law; and the applicant has shown consistency with the recycling provisions of the State Plan. Similarly, 06-096 C.M.R. ch. 400, § 6(B) requires a determination by the Department that the volume of the waste and the risks related to its handling and disposal have been reduced to the maximum practical extent by recycling and source reduction prior to being landfilled or incinerated, consistent with state recycling programs and the State Plan.

The applicant submitted the information presented in Table 6 below (Volume I of the application, Table 5-1, page 5-2 and BGS/NEWSME Pre-filed Direct Testimony Exhibit #4 appended to the testimony of Toni King) to address opportunities for recycling of the waste streams proposed to be accepted for disposal in the proposed expansion. The applicant testified that the tonnages of the various waste types in the table were estimated for design purposes and were not intended to be limits on the amounts received.

Table 6: Waste Management Techniques for Proposed Expansion Materials

Material Category	Proposed Waste Types to be Accepted in Expansion		Is Material a Residual from a Processing Facility that reduced the amount of material landfilled?	Is Material subject to recycling efforts by generator or otherwise prior to landfilling or is its use in the landfill considered recycling?	State Plan[1] Ranking of Landfill Disposal as Current Management Method	State Plan[1] Ranking for Source Reduction, Recycle, Compost, Beneficial Reuse Processing As Current Management Method
	Tons	Percentage of Total Tonnage				
Waste Treatment Plant Sludges and Biosolids	70,000	10	No	Yes	L	H,L,N,N/A
Contaminated Soils	30,000	4.3	No	Yes	H	N/A,N
Municipal Solid Waste Incinerator Ash	58,000	8.3	Yes	No	H	N/A
Front-End Processing Residue[2]	54,000	7.6	Yes	No	H	N/A
Biomass and Fossil Fuel Combustion Ash	35,000	5	Yes	Yes	M/H	N/A,M
Construction and Demolition Debris	195,000	27.9	No	Yes	H,M	N/A,N, M
Construction and Demolition Debris Processing Facility Fines	138,000	19.7	Yes	Yes	N/E	N/E
Oversized Bulky Waste	60,000	8.6	No	No	H	L

Material Category	Proposed Waste Types to be Accepted in Expansion		Is Material a Residual from a Processing Facility that reduced the amount of material landfilled?	Is Material subject to recycling efforts by generator or otherwise prior to landfilling or is its use in the landfill considered recycling?	State Plan[1] Ranking of Landfill Disposal as Current Management Method	State Plan[1] Ranking for Source Reduction, Recycle, Compost, Beneficial Reuse Processing As Current Management Method
	Tons	Percentage of Total Tonnage				
Miscellaneous special waste	35,000	5	No	No	M,H	N/A,N,M
MSW Bypass and Soft Layer Material[3]	25,000	3.6	Yes	Yes	M, H	N, N/A
Total[4]	**700,000**	**100**	**44.2**	**70.5**		

Notes: [1] Source: MEDEP Maine Materials Management Plan, January 2014, Appendix C Current Management of Maine's Solid Waste by Type; N=None L=Low; M=Medium; H=High; N/A = Not Applicable (not possible); N/E Not Evaluated.
[2] Listed as shredder residuals.
[3] Note included in Table as an individual category compared to MSW Other Organics.
[4] Values are percent of total material landfilled except tons total.

The applicant also presented evidence on Casella's efforts to facilitate recycling of a number of other waste streams and thereby decrease the volume of wastes landfilled including Casella Recycling's Zero-Sort system used by Maine municipalities (which recycles paper, cardboard, plastic, glass and metals) and Casella Recycling's offer of waste audits to commercial and industrial customers to assist with the recycling of difficult to recycle items (Pre-filed direct testimony of Ms. King).

A summary of testimony at the hearing regarding recycling and source reduction and the hierarchy, and the applicant's responses, are summarized in Finding 18 of this license.

As shown in Table 6, it is expected that 44.2% of waste disposed will be residuals (MSW incinerator ash, 8.3%; FEPR, 7.6%; Biomass and fossil fuel combustion ash, 5.0%; CDD processing fines, 19.7%; and MSW bypass, 3.6%) from processing facilities that already reduce the amount of materials landfilled. Approximately 70.5% of the waste disposed will be materials (waste treatment plant sludges and biosolids, 10%; contaminated soils, 4.3%; biomass and fossil fuel combustion ash, 5.0%; CDD, 27.9%; CDD processing fines, 19.7%; and MSW bypass, 3.6%) subject to recycling at its source or are considered recycling based upon the landfill's use.

While the percentages in the table may vary with actual operations, a review of the data indicates that overall the facility follows the State Plan ranking for recycling. A high percentage of material to be disposed of is ranked in the State Plan as either a high or medium option for landfill disposal; i.e., landfill disposal is the primary management technique available (high) or a middle option (medium). The only low landfill disposal ranked material that will be accepted at JRL includes waste treatment plant sludges and biosolids. Casella Organics, a subsidiary of NEWSME's parent company Casella, does actively compost and reuse this material at the Hawk Ridge Compost Facility in Unity, Maine. The record indicates that in 2014, 29,068 tons of waste water treatment plant sludges and biosolids were manufactured into compost and mulches, while 38,000 tons were brought to JRL for disposal (Volume I of the application, page 5-3).

The Board finds that the applicant has demonstrated that material proposed to be landfilled in the JRL expansion has been reduced to the maximum practical extent by recycling and source reduction prior to being landfilled in accordance with applicable State law and Rules provided the facility's Annual Report includes updates on recycling information similar to that in Table 6 for the waste disposed, as specified by the Department.

20. PUBLIC BENEFIT DETERMINATION

Pursuant to the provisions of 38 M.R.S. § 1310-AA and in accordance with 06-096 C.M.R. ch. 400, § 5, proposals for new or expanded solid waste disposal facilities must be found by the Commissioner to provide a substantial public benefit.

As stated in Finding 1(B)(7) of this license, the applicant originally proposed to expand JRL by 21.9 million cubic yards. The Commissioner issued a PBD approval, with conditions, for a 9.35 million cubic yard capacity increase of JRL on January 31, 2012. On appeal, the Board affirmed the Commissioner's PBD in a decision dated July 19, 2012. Pursuant to 38 M.R.S. §1310-N(3-A)(B), the Commissioner's determination of public benefit is not subject to review by the Board as part of this licensing process.

In the PBD, the Commissioner concluded that the proposed expansion will provide a substantial public benefit, provided the expansion is limited to 9.35 million cubic yards, and provided an annual limit on OBW disposal in the expansion is established. The approval included the following conditions (among others):

3. The applicant shall, if, and when, a license is issued for the construction and operation of the 9.35 million cubic yard expansion, comply with the limit, and any subsequent modifications to the limit, established by the Department in the license on the tonnage of OBW that may be disposed in the 9.35 million cubic yard expansion.

4. Periodic independent third party audits of CDD processing operations that are anticipated to transport more than 10,000 tons of OBW to the 9.35 million cubic yard expansion for disposal on an annual basis shall be conducted to verify the results of the demonstrations required under the provisions of 06-096 [C.M.R. ch. 409, § (2)(C)], focused on the nature and volume of processing residues being sent to JRL for disposal. Third party audits will be conducted by a qualified consultant selected by the Department in consultation with the affected CDD processing facilities and Casella. Casella shall reimburse the Department for the cost of the audits. The first such audit(s) shall occur prior to the disposal of OBW from these processing facilities in the 9.35 million cubic yard expansion. Audits will be conducted at 2 year intervals, unless or until the Department approves their discontinuation.

These conditions of the PBD are included in the conditions of this license. See Finding 37 of this license for further discussion of a limitation on the annual amount of OBW that may be accepted at JRL.

21. HAZARDOUS AND SPECIAL WASTE HANDLING AND EXCLUSION PLAN

Pursuant to 06-096 C.M.R. ch. 400, § 9(A), only permitted wastes may be accepted for handling at a solid waste facility; the operator shall comply with all applicable Federal and State laws regarding the detection, identification, handling, storage, transportation and disposal of special wastes, biomedical wastes and hazardous wastes; and the operator shall develop and implement a Hazardous and Special Waste Handling and Exclusion Plan for the detection, identification, handling, storage, transportation and disposal of any and all wastes that may be delivered to the facility.

Consistent with JRL's current license, only non-hazardous waste will be allowed to be accepted in the proposed expansion. The types of acceptable wastes for disposal are further described in Finding 37 of this license. Included in the facility's Operations Manual is a Hazardous and Special Waste Handling and Exclusion Plan which will apply to the waste delivered to the proposed expansion. This plan includes provisions for waste inspection at the gate and at the point of offloading, as well as procedures to follow if non-acceptable waste does enter the site.

Based upon the information provided by the applicant, the Board finds that the facility will not be licensed to accept hazardous waste and has an appropriate Hazardous and Special Waste Handling and Exclusion Plan for the detection, identification, handling, storage, transportation and disposal of delivered wastes. The Hazardous and Special

Waste Handling and Exclusion Plan will be updated as necessary with the annual review and revision of the facility's Operations Manual.

22. LIABILITY INSURANCE

The Department's rule at 06-096 C.M.R. ch. 400, § 10 requires a solid waste disposal facility, except public entities, to submit proof of liability insurance for the active life and closure of the solid waste disposal facility. The applicant is a public entity and is exempt from the liability insurance requirements of 06-096 C.M.R. ch. 400, § 10. Liability insurance is required by the OSA, Section 21. NEWSME submitted the current certificate of insurance maintained for the facility and NEWSME will provide copies of the updates to the current certificate of insurance in the facility's Annual Report during operation of the proposed expansion.

The Board finds that the applicant is exempt from the liability insurance requirements of 06-096 C.M.R. ch. 400, § 10 of the Rules; however, liability assurance is being maintained by NEWSME as the current operator of JRL and will be maintained for the expansion.

23. CRIMINAL OR CIVIL RECORD

In accordance with 38 M.R.S. § 1310-N(7) and 06-096 C.M.R. ch. 400, § 12, a license for a solid waste facility or activity may be denied if the owner or the operator or any person having a legal interest in the applicant or the facility has been convicted of any criminal law or adjudicated or otherwise found to have committed any civil violation of environmental laws or rules of the State, other states, the United States, or another country.

Civil and criminal disclosure statements were submitted for the BGS and NEWSME as part of the application. The disclosure statements included those for NEWSME's operation of JRL, a related entity New England Waste Services of ME, Inc. (operator of the Pine Tree Landfill), and the five officers, directors, and partners of the two businesses. Additionally, in response to the Department's review and comment on the application, the applicant submitted an organizational chart of the Casella companies authorized to do business in Maine.

In the five year environmental compliance history submitted for New England Waste Services of ME, Inc., four notices of violations and one administrative order were listed. These have been addressed through responses required by the notices of violation and administrative order.

Based upon information in the application, the Board finds that the applicant filed complete disclosure statements as required by applicable State law and Rule. Based on the disclosure statements submitted and the evaluation criteria contained in 06-096 C.M.R. ch. 400, § 12(B), the Board finds no basis for denying the license.

24. VARIANCES

Pursuant to 06-096 C.M.R. ch. 400, § 13, an applicant may seek a variance to the requirements of the Rules for establishing, altering, operating or closing a solid waste facility or handling solid waste provided the applicant demonstrates that its proposal will comply with the intent of State laws and the Rules.

The applicant requested no variances from the Rules for siting, design, or operation of the proposed expansion. The applicant submitted two variance requests related to construction practices regarding the maximum barrier soil lift thickness required by the Rules. In lieu of the variance requests, Department staff commented that the alternative design process required by 06-096 C.M.R. ch. 401, § 2(E) should be used to clearly and convincingly demonstrate the technical equivalency of the proposed alternative (see Department technical memorandum dated January 20, 2016 from S. Farrar, V. Eleftheriou, and K. Libbey). The alternative design standard procedure was agreed to by the applicant and is addressed in Finding 27 of this license.

SOLID WASTE SITING, DESIGN, AND OPERATION

25. SITE ASSESSMENT: GEOLOGIC AND HYDROGEOLOGIC

In accordance with 06-096 C.M.R. ch. 401, § 2(B) and (C), an applicant must submit the results of site investigations and assessments performed to properly describe the surficial stratigraphy and bedrock beneath and adjacent to the proposed solid waste boundary; ground and surface water investigations performed to determine water table information and horizontal and vertical ground water flow gradients and for phreatic surface (water table) observations; and geotechnical investigations to support the stability and settlement assessments. The applicant submitted a Site Assessment Report dated July 2015 prepared by SME (Volume II of the application). The applicant must demonstrate the proposed expansion meets the performance standards and siting criteria in 06-096 C.M.R. ch. 401, § 1(C).

Department staff reviewed the geological and hydrogeological aspects of the proposed expansion prior to the hearing and submitted comments to the applicant in several memoranda. The applicant addressed a number of the staff's comments and made a number of adjustments to the application in response to those comments.

A. General Site Geology Description

Information submitted by the applicant shows that the site of the proposed expansion is in an area underlain by glacial till, on an elongated hill oriented in a northwest-southeast direction understood to have been formed as a glacial drumlin. Dense, silt-clay glacial till is primarily beneath the proposed expansion, with occasional thin, isolated portions of washed till observed typically just above the bedrock. Marine clay was observed over till beyond the proposed expansion boundary. The glacial till ranges from less than 5 feet to greater than 50 feet thick beneath the proposed expansion footprint (average thickness between the landfill base grades and bedrock surface is an estimated 24.5 feet), with approximately 3.6 acres of the footprint having an existing overburden thickness of less than 5 feet. The near-surface till was determined to be fractured above the frost/desiccation zone due to weathering and frost action.

Bedrock beneath the proposed expansion is mapped as interbedded metamorphosed quartzite, siltstone, graywacke, and phyllite of the Vassalboro Formation (Maine Geological Survey mapping, Griffen, 1979a, Osberg et al, 1985), with no bedrock faults mapped within the site. Core samples were primarily metagraywacke and phyllite, with some metasiltstone. Four bedrock outcroppings were observed directly adjacent to the proposed expansion with fracture groupings oriented northwest/southeast and northeast/southwest. The bedrock is only slightly broken, weathered, and stained within the upper several feet, but is generally hard, unweathered, and competent with depth.

Hydraulic conductivities were measured during previous JRL investigations, with the following results: brown and gray glacial tills ranged from 1.8×10^{-5} to 2.4×10^{-8} centimeters per second (cm/sec); discontinuous washed till and sandy zones within the basal till had a geometric mean of 5.3×10^{-4} cm/sec; and bedrock ranged from 3.2×10^{-3} to 9.2×10^{-8} cm/sec.

Based upon the information in the application and supporting documents in the record, the Board finds that the applicant characterized the site geology in accordance with the requirements of 06-096 C.M.R. ch. 401, § 2(B)(1).

B. General Site Ground and Surface Water Description

The application includes information showing that the total 780-acre parcel is divided into four watersheds which drain to the east, northwest, northeast, and southwest. There is a relatively shallow water table from approximately 5 to 10 feet beneath much of the facility property due to the relatively low hydraulic conductivities of the natural soils and bedrock; therefore, the ground water flow

generally follows the topography and is expected to flow from the higher elevations towards the west and east following the drumlin as a ground water divide. Recharge at the higher topographical elevations occurs primarily through precipitation and snowmelt, with ground water moving mainly horizontally and discharging to locations along streams and low-lying topography. Upward vertical seepage gradients are located on the east and west lower portion of the drumlin beyond the proposed expansion footprint.

There are no stratified sand and gravel deposits mapped by the Maine Geological Survey within the landfill site. Further discussion of standards related to significant ground water aquifer can be found in Finding 15 of this license.

Based upon the information in the record, the Board finds that the applicant characterized the site hydrogeology in accordance with the requirements of 06-096 C.M.R. ch. 401, § 2(B)(2).

C. Site Investigations and Proposed Expansion Area Specifics

The applicant submitted data and summaries of site-specific investigations conducted within and around the proposed expansion area from 2004 to the present, including:

(1) Wetlands delineation within 2,000 feet of the proposed expansion footprint;

(2) Subsurface test pits and borings to sample and evaluate soil and bedrock lithologies;

(3) Bedrock coring for mapping, fracture frequency measurement, and porosity estimation;

(4) Surficial geophysical surveys using electrical earth resistivity and Very Low Frequency-Electromagnetic (VLF-EM) methods to identify bedrock fracture zones and other features;

(5) Borehole geophysical logging to identify and quantitatively characterize bedrock fracture orientation and structural features;

(6) Installation of multi-level piezometer clusters and monitoring wells to determine seasonal ground water flow rates and direction;

(7) In-situ hydraulic conductivity testing in monitoring wells and piezometers for both till and bedrock;

(8) Testing of soil properties;

(9) Laboratory hydraulic conductivity testing of undisturbed till samples for vertical hydraulic conductivity;

(10) Natural gradient ground water tracer tests to measure ground water velocities in till and bedrock;

(11) Ground water age-dating for ground water velocity verification;

(12) Bedrock pumping tests for fracture interconnectivity; and

(13) Water quality testing of the natural background ground water.

The information collected, specific methods used, and the results of the evaluations were included in the application. The results of the evaluations were utilized to confirm the site characteristics and in the design of the proposed expansion.

The water table (ground water phreatic surface depth) was found to vary between 0 and 2 feet below the existing ground surface during the wet season, whereas the dry season water table varies between 5 and 10 feet beneath the existing ground surface. Due to the shallow water table depth, the northeast side of the proposed expansion will be subject to upward ground water seepage into the construction excavations; therefore, the applicant will install an underdrain in the 12.7-acre area. It is expected that the seepage into the underdrain will continue, but then will eventually diminish since there will be less recharge once the area is covered, first by the liner systems, and eventually by a final cover system.

Information provided by the applicant shows that the fine-grained glacial till can be considered to provide some natural containment under the proposed expansion. The applicant used a variety of hydrogeological methods to estimate the horizontal ground water velocities. The calculated ground water velocities ranged from 1 to 24 feet per year (ft/yr) through the till. The natural gradient tracer test revealed a range of horizontal ground water velocities of about 10 to 24 ft/yr for the near surface weathered till. Subsequent estimates of travel time to sensitive receptors incorporated conservative estimates of horizontal ground water velocities.

Ground water movement through the bedrock under the proposed expansion is a function of the overall interconnectivity of the bedrock's fracture and joint openings. Based on pumping tests, bedrock tracer tests, and other investigative methods, the applicant concluded that the degree of bedrock fracture interconnectivity beneath the proposed expansion allows for a level of predictability of ground water movement through the site's bedrock and could be utilized for controlling ground water flow directions by means of ground water extraction wells if a leachate leak were to occur. The applicant's estimates of site-wide horizontal bedrock ground water velocities range from about 0.4 to 10 feet per day. Based on its ground water modeling, the applicant estimated that post-construction ground water flow directions beneath the proposed expansion are projected to be in a generally southerly direction.

Over the course of the review and comment period on the application, Department staff requested the collection of supplemental data from three additional boreholes at suggested locations within the proposed expansion footprint, and the geophysical downhole logging of those boreholes and the two water supply wells serving the office and scale house. The applicant conducted the requested drilling and geophysical downhole logging and submitted the results of the data collected in a report to the Department on June 7, 2016.

During its review of the application, Department staff raised several questions regarding the interpretation of the pumping test data and resulting ground water level drawdowns. The applicant responded to the Department's questions through additional correspondence, resulting in a Department memorandum dated June 21, 2016 from R. Behr stating that the Department's concerns have been addressed.

In his testimony and cross-examination, intervenor Edward Spencer posed questions regarding the site geology, including the impact of glacial rebound on landfill stability, the use of an underdrain system below ground water level, and potential ground water flow beyond the site. One of the applicant's expert witnesses, John Sevee, P.E., C.G., testified that glacial rebounding will have no effect on the integrity of the landfill or the slope of the drainage pipes since the crustal rebound is occurring over the entire region surrounding the landfill. Michael Booth, expert witness for the applicant, testified that the underdrain system was primarily designed to facilitate construction and will be monitored as part of the water quality monitoring program. Mr. Sevee testified that ground water flow paths were investigated through wells and borings, along with utilizing ground water simulations which indicated that ground water emanating from the landfill site does not pass to ground water users along Route 16, Route 43, or Stagecoach Road.

Based upon the information in the record, the Board finds that the applicant has submitted a site assessment report and subsequent information addressing Department staff's review comments, identified the site characteristics and recommendations for landfill design and construction, identified potential impacted sensitive receptors, and estimated ground water flow time of travel as required by 06-096 C.M.R. ch. 401, §§ 2(B) and (C). See Finding 33 of this license for further discussion regarding the Water Quality Report and Ground Water Monitoring Program.

The Board further finds that the underdrain system was included and designed specifically to minimize ground water intrusion during construction and that, in the future, the ground water level will flatten due to less recharge once the proposed liner system is placed. Addressing the concern of ground water flow beyond the site, the Board finds that extensive site assessments have been undertaken and submitted in the past and with this application to characterize the geology and hydrogeology at the site and to serve as the basis for the selection of the design of the proposed expansion.

D. Geotechnical Investigation

The applicant submitted the results of its geotechnical investigations as part of the site assessment. Based on the information provided by the applicant in the site investigations, including published data, on-site field and laboratory data, and specific seismic information, the Board finds that the applicant gathered sufficient information to support the stability and settlement assessments described in Findings 28A and B of this license, as required by 06-096 C.M.R. ch. 401, § 2(B)(3).

E. Time of Travel Calculations

The applicant submitted a time of travel analysis to demonstrate conformance with the Rule's performance standard of greater than 6 years from the bottom of the landfill to sensitive receptors and greater than 3 years from leachate storage structures and pump stations to sensitive receptors set forth in 06-096 C.M.R. ch. 401, § 1(C)(1)(c). Improvement allowances for the leak detection system and a composite secondary liner system were included in the calculations as described in Finding 26B of this license. An imported soil layer of 12 inches of compacted, low permeability, marine clay to be placed below the secondary liner system in the proposed expansion area was also taken into account in the calculations as allowed in 06-096 C.M.R. ch. 401, § 2(C)(2), based on the use of improvement allowances and the hydraulic conductivity and effective porosity of the marine

clay. The analysis included time of travel from each of the proposed expansion cells and the two proposed permanent leachate sumps. The applicant did not include the existing leachate storage tank in its calculations because it was previously addressed in license #S-020700-WD-N-A, dated April 9, 2004.

The sensitive receptors were selected based on the requirements in the Rules and site-specific characteristics and are listed in Table 7 (Volume II of the application, Table 7-1, page 7-6).

Table 7: Identified Site Sensitive Receptors

Identification	Location Description
Point A	Southeast sandy zone
Point B	Hypothetical Groundwater Supply Well at Closest Property Boundary on Eastern Side.
Point C	Surface Water Discharge to the East. An Unnamed tributary to Judkins Brook.
Point D	Surface Water Discharge to the Southwest. An Unnamed Tributary to Pushaw Stream.
Point E	Hypothetical Groundwater Supply Well at Closest Northern Corner of Property Boundary on Western Side.
Point F	Hypothetical Groundwater Supply Well at Closest Southern Corner of Property Boundary on Western Side.
Point G	Surface Water Discharge to the Northwest. An Unnamed Tributary to Pushaw Stream.

The applicant provided results of the time of travel calculations as shown in Table 8 (based on combining two tables in the application, Volume II, Tables 7-3 and 7-4 on page 7-11, and the applicant's update in the second response to comments dated May 13, 2016, with added footnotes for clarity). The analysis was performed twice: under current conditions and under future conditions when the ground water table flattens due to the cutoff of precipitation recharge when the area is covered (first by the liner system, then eventually by the final cover system).

Table 8: Calculated Travel Times to Site Sensitive Receptors

Landfill Node	Site Sensitive Receptor	Offset Credits[1] (yrs)	Imported Soils[2] (yrs)	Existing Conditions		Future Conditions		Rule Require-ment (yrs)
				Calculated Travel Time in Soil and Bedrock (yrs)	Total Travel Time (yrs)	Calculated Travel Time in Soil and Bedrock (yrs)	Total Travel Time (yrs)	
Cell 11 Southern End	Point A	3	3	10.5	**16.5**	10.5	**16.5**	**6**
Cell 11 Center	Point B	2	3	3.9	**8.9**	3.9	**8.9**	**6**

Landfill Node	Site Sensitive Receptor	Offset Credits[1] (yrs)	Imported Soils[2] (yrs)	Existing Conditions		Future Conditions		Rule Require-ment (yrs)
				Calculated Travel Time in Soil and Bedrock (yrs)	Total Travel Time (yrs)	Calculated Travel Time in Soil and Bedrock (yrs)	Total Travel Time (yrs)	
Cell 12 Center	Point C	2	3	11.3	**16.3**	11.4	**16.4**	**6**
Cell 13 Center	Point C	2	3	11.0	**16.0**	11.2	**16.2**	**6**
Cell 13 Leachate Sump	Point C	2	3	35.8	**40.8**	36.1	**41.1**	**3**
Cell 14 Center	Point D	3	3	47.7	**53.7**	62.2	**68.2**	**6**
Cell 14 Center	Point E	3	3	3.3	**9.3**	17.7	**23.7**	**6**
Cell 15 Center	Point F	2	3	1.2	**6.2**	1.4	**6.4**	**6**
Cell 16 Center	Point G	2	3	4.7	**9.7**	5.3	**10.3**	**6**
Cell 16 Leachate Sump	Point G	3	3	10.3	**16.3**	10.3	**16.3**	**3**

Notes: [1] Improvement allowance offset credits are described in Finding 26B of this license.
[2] 06-096 C.M.R. ch. 401, § 2(C)(2) allows for imported soils used for base preparation below liner systems to account for up to three years in the time of travel calculations, as appropriate.

Intervenor Edward Spencer testified that time of travel calculations appear to be an acknowledgement that a landfill leak will occur. Michael Booth, an expert witness for the applicant, testified that the time of travel analysis is required by the Rules and is utilized as a design evaluation tool.

Based on the information in the record, the Board finds that the applicant meets the Rule requirements of ground water time of travel from the bottom of the landfill liner systems (greater than 6 years) and leachate storage structures and pump stations (greater than 3 years) to all identified sensitive receptors. The applicant installed piezometers and water table observation wells at a sufficient number of locations to enable a calculation of ground water time of travel and performed the calculations with the appropriate information in accordance with the Rules.

26. DESIGN STANDARDS: ENGINEERING

The Department's rule at 06-096 C.M.R. ch. 401, § 2(D) requires an engineering design for a proposed landfill to meet specific design and performance standards. The applicant submitted engineering design information in support of the proposed expansion. As noted previously, a number of rounds of comments and responses occurred between Department staff and the applicant on the technical aspects of the proposed expansion design.

In general, the applicant's design of the proposed expansion consists of an underdrain and augmented secondary liner system over portions of the proposed expansion footprint, two liner systems (primary and secondary), a leak detection system, leachate and gas collection and control systems, and intermediate and final cover systems. The outer side slopes are designed at 3H:1V (3 horizontal to 1 vertical), with a maximum final elevation of 390 feet above mean sea level. Six operational cells are proposed. The applicant submitted a detailed engineering design including drawings, contract administrative documents, technical specifications and a construction quality assurance plan for Cell 11 with the application. Similar detailed engineering designs are required to be submitted for Department review and approval prior to each subsequent cell's construction.

A. Liner System Requirements

The liner system proposed for the expansion includes a composite primary liner, a leak detection system, and a secondary liner system. The proposed liner system consists of the following from top to bottom:

(1) A composite primary liner system consisting of an 80-mil HDPE textured geomembrane, a GCL, and a 12-inch compacted clay layer (hydraulic conductivity less than or equal to $1x10^{-7}$ cm/sec);

(2) A leak detection system consisting of a 12-inch layer of sand (average hydraulic conductivity greater than or equal to $1x10^{-2}$ cm/sec and a minimum hydraulic conductivity of $5x10^{-3}$ cm/sec), a network of 6-inch diameter perforated HDPE pipe, and a drainage geocomposite; and

(3) A secondary liner system consisting of a 60-mil HDPE textured geomembrane. The secondary liner system will be augmented with a GCL and 12 inches of compacted clay (hydraulic conductivity less than or equal to $1x10^{-7}$ cm/sec) on approximately 11 acres where the existing soil depth between the bedrock and landfill base grades is less than 10 feet.

Intervenor Edward Spencer voiced concerns in his testimony that the liner systems will eventually leak. In response, Michael Booth, expert witness for the applicant, countered the claim that all liner systems must necessarily leak, focusing on the following proposed expansion items: the expansion primary and secondary liner system was specifically designed to address potential leak issues, the construction process will include an electrical leak location survey of the primary geomembrane, the specifications for the geomembranes require compliance with ASTM standards (including stress cracking standards), construction specifications and practices will mitigate pressure points beneath the geomembrane that could lead to stress cracks, and the proposed expansion design eliminates liner penetrations for piping.

The Board finds that the liner system proposed by the applicant was designed in accordance with 06-096 C.M.R ch. 401, § 2(D)(1). The Board also finds that the proposed HDPE geomembranes for both the primary and secondary liner systems are thicker than the 60-mil and 40-mil Rule requirements, respectively. The Board finds that the geomembranes, GCLs, drainage geocomposites, and soils proposed will meet the performance requirements of the Rules, including material characteristics (i.e., Geosynthetic Research Institute standards and American Society for Testing and Materials (ASTM) standards) and installation requirements. Further, the applicant will be required to submit detailed design packages including the engineering design, drawings, contract administrative documents, technical specifications and a construction quality assurance plan to the Department for review and approval prior to the construction of each cell.

B. Improvement Allowance System (Time of Travel)

The Department's rule at 06-096 C.M.R. ch. 401, § 2(D)(2) allows for the use of improvement allowance offsets when calculating existing ground water time of travel to achieve the minimum 6 year time of travel to sensitive receptors.

The applicant incorporated improvement allowance offsets in the time of travel demonstration. Finding 25(E) of this license includes additional time of travel information.

The Board finds that the applicant utilized the allowance offsets appropriately as permitted by the Rules for the following two design improvements: a two year offset for the addition and monitoring of a leak detection system and geomembrane secondary liner for the areas of the proposed expansion where the design is applied; and a three year offset for the addition of a composite liner system (secondary liner augmented by a GCL) and leak detection system for the

areas where the bottom of the secondary liner system and the bedrock surface is generally less than 10 feet.

C. Base Preparation Below Liner Systems

The base preparation below the liner system proposed by the applicant includes grading native till subgrades, filling with native till material (maximum 12-inch lift), placement of an underdrain system (12 inches of sand and 4-inch collection pipes) where the proposed grades are below the phreatic surface, and placement of 12 inches of compacted clay soils (maximum hydraulic conductivity of $1x10^{-7}$ cm/sec).

Based upon the information provided by the applicant, the Board finds that the base preparation below the liner system proposed by the applicant was designed in accordance with 06-096 C.M.R. ch. 401, § 2(D)(3). The proposed grading plan will result in positive drainage to the perimeter of the landfill for the underdrain, leak detection, and leachate collection systems. The materials and placement will meet the performance criteria in the Rules, including gradation, moisture content, density, and hydraulic conductivity.

D. Leachate Conveyance System and Storage Structure Standards

The applicant submitted leachate collection and conveyance system designs for the proposed expansion to handle the predicted leachate, leak detection, and landfill gas condensate flows. The leachate management system components include leachate collection, leak detection, landfill gas condensate collection, leachate transport from the landfill to on-site storage, and the on-site leachate storage tank. The leachate, leak detection, and gas condensate systems include pumping systems and force mains to pump flows from each collection point to the tank. The design of the piping system for collection and conveyance accounts for the stresses due to dynamic and static loading conditions and climate effects anticipated over the life of the landfill. System designs also address filter criteria such as sizing of piping perforations, soil gradation, and component interfaces, so that clogging of the systems will be minimized. The systems were designed for use during operations, closure, and post-closure. All piping components are designed with access for inspection and cleaning.

(1) Leachate Collection System

The applicant designed the leachate collection system to allow all leachate to drain to a collection sump at the low point of the individual landfill cells. Components of the leachate collection system include 6-inch and 8-

inch diameter HDPE collection piping, 12 inches of sand (average hydraulic conductivity greater than $1x10^{-2}$ cm/sec and minimum hydraulic conductivity of $5x10^{-3}$ cm/sec), filter stone and drainage stone around the piping, and a drainage geocomposite.

The applicant used the U.S. Environmental Protection Agency (EPA)'s Hydrogeologic Evaluation for Landfill Performance (HELP) model to estimate leachate generation rates for the proposed expansion. The leachate depth (head) over the primary liner system will be limited to 12 inches, except in leachate sumps. The leachate levels within the landfill cells will be monitored using pressure transducers located at the bottom of each cell.

The application shows that a five-foot layer of select waste will be placed directly over the drainage sand component of the leachate collection system for frost protection, to protect the liner from puncture by other wastes placed in the landfill, and to serve as a filter medium.

In his testimony, intervenor Edward Spencer questioned whether the horizontal pipes in the leachate collection system may collapse. Michael Booth, expert witness for the applicant, testified that the leachate collection pipes are specifically designed for the expansion setting.

Based on the information in the application and hearing record, the Board finds the leachate collection system proposed by the applicant was designed in accordance with 06-096 C.M.R. ch. 401, § 2(D)(4). The Board further finds that the applicant performed static and seismic stability and settlement analyses to address potential movement of the piping in addition to including piping specifications in the application.

(2) Leak Detection System

The application shows that a leak detection system for the proposed expansion will be located under the primary liner system and will consist of the following, from top to bottom: 12-inches of drainage sand, crushed stone, perforated 6-inch diameter HDPE pipe surrounded with drainage stone and a drainage geocomposite. The applicant designed the leak detection system to detect leachate from each cell's primary liner system within 30 days. The fluids collected in the leak detection system will drain by gravity to individual collection sumps located at the low point of each cell and will be pumped to the leachate collection system and from

there pumped into the leachate transport system. Each pump will include a flow meter and sampling ports.

The Board finds the leak detection system proposed by the applicant was designed in accordance with 06-096 C.M.R. ch. 401, § 2(D)(4).

(3) Landfill Gas Condensate System

The application shows that the LFG condensate collection system for the proposed expansion consists of U-shaped condensate traps at low points in the gas conveyance pipe to remove liquid. Condensate collected in the traps will drain to a primary leachate collection system pipe. From there it will be conveyed to an existing landfill leachate header pipe and transported to the on-site leachate storage tank.

The Board finds that the applicant has appropriately addressed collection of LFG condensate as required by 06-096 C.M.R. ch. 401, § 2(D)(4).

(4) Leachate Transport

As stated in the application, leachate transport for the proposed expansion includes temporary and permanent internal cell pump stations that will deliver leachate to dual-walled force mains (6-inch by 10-inch diameter) located within the eastern and western perimeter berms. Temporary pump stations will be installed in each of Cells 11, 12, 14, and 15 and will be utilized during each cell's active period, to be discontinued when each cell becomes inactive and the subsequent lower grade cells are developed. The inactive cell's leachate piping will be connected to the next cell's piping system. The permanent pump stations will be located in Cells 13 and 16 at the lowest base grades and will be operated during active and post-closure periods. Both the temporary and permanent leachate pump stations will utilize a sump and pump design that avoids penetrations of the liner system. The pump stations were sized using the HydroCAD Model to account for storm events and storage volume. Sample ports will be included in all pump stations to allow for the sampling of leachate and each pump will have continuous recording flow meters.

The Board finds the applicant has appropriately addressed the transport of the leachate pursuant to 06-096 C.M.R. ch. 401, § 2(D)(4).

(5) Leachate Storage

As stated in the application, calculations demonstrate that the existing 921,000 gallon above ground glass-lined leachate storage tank is capable of handling the maximum anticipated leachate during the life of the proposed expansion. The storage tank is surrounded by a secondary containment structure with an available volume of 110 percent of the tank. The storage tank was addressed during the issuance of Department license #S-020700-WD-N-A. From the storage tank, tanker trucks will remove the leachate and transport it to the MFGR, LLC wastewater treatment plant in Old Town for treatment and disposal as described in the Leachate Disposal Agreement between MFGR, LLC and NEWSME, effective April 27, 2016. The City of Brewer wastewater treatment plant is available as a back-up disposal facility as described in Industrial Wastewater Discharge Permit #37-2679-07, effective March 3, 2013.

The Board finds the applicant has appropriately addressed on-site leachate storage and off-site treatment and subsequent disposal in accordance with 06-096 C.M.R. ch. 401, § 2(D)(4).

E. Seismic Impact Zone

Information in the application shows that the proposed expansion is located in a seismic impact zone as identified by U.S.G.S. Seismic Hazard Maps. The facility's structures, including liner systems, leachate collection systems, and surface water control systems for the proposed expansion were designed to withstand the maximum horizontal acceleration identified by the Hazard Maps. Additional seismic discussion can be found in Finding 28(A) of this license.

Based upon information in the record, the Board finds that the proposed expansion has been designed to meet the seismic requirements of 06-096 C.M.R. ch. 401, § 2(D)(5).

F. Phased Operations

As set forth in the application, the proposed expansion was designed for phased construction, taking into account waste operations and cover placement, stormwater run-on and run-off, leachate management, protection of the liner system from freeze and thaw effects, and stability. Individual cell size was based on the design waste disposal rates, resulting in approximately 2 years of active waste placement in each cell. Final cover will be installed in a phased manner during construction seasons when new cells are not being developed.

The Board finds that the submitted cell development plans for the 6 proposed cells meet the requirements of 06-096 C.M.R. ch. 401, § 2(D)(6).

27. ALTERNATIVE DESIGN PROCESS

Pursuant to 06-096 C.M.R. ch. 401, § 2(E), an applicant may propose alternatives to the minimum design standard and requirements of section 2(D) of the rule. An applicant is required to submit documentation to clearly and convincingly demonstrate technical equivalency of the proposed alternative.

A. Liner System Barrier Soil Lift Thickness

The landfill liner system requirements include a barrier soil layer placed in maximum lift thicknesses of 9 inches pursuant to 06-096 C.M.R. ch. 401, § 2(D)(1)(g)(iv). The applicant has proposed a barrier soil lift thickness of 12 inches, as has been utilized in the past during construction of Cells 7, 8, and 9 at the existing landfill. The test pad programs utilized during the construction of these cells demonstrated that the performance criteria required in the Rules (densities, moisture content, hydraulic conductivity, soil remolding, and lift bonding) were met utilizing the current available compaction techniques and equipment and project specific soils.

The Board finds that the applicant has submitted documentation referencing past practices that clearly and convincingly demonstrates technical equivalency of placing barrier soil in a 12-inch lift thickness compared to a 9-inch lift thickness, provided that a test pad program is undertaken as proposed in the application and described in Finding 28(L) of this license during construction of each cell of the proposed expansion to demonstrate that the required performance criteria will be met and the results submitted to the Department at least 7 days prior to full scale construction. If the applicant cannot demonstrate technical equivalency, the maximum barrier soil lift thickness will remain 9 inches.

B. Base Preparation Below Liner Systems Lift Thickness

The requirements for constructed base materials below liner systems include a base material maximum allowable compacted lift thickness of 9 inches pursuant to 06-096 C.M.R. ch. 401, § (2)(D)(3)(e). Similar to the liner system barrier soil request described in Finding 27(A) above, the applicant has proposed the placement of barrier soil in a 12-inch lift thickness compared to the required 9-inch lift thickness.

Based on the same reasons noted above for the liner system barrier soil lift thickness, the Board finds that the applicant has submitted documentation during past practices that clearly and convincingly demonstrates technical equivalency of placing barrier soil in a 12-inch lift thickness compared to a 9-inch lift thickness for base material placement, provided that a test pad program is undertaken as proposed in the application and described in Finding 28(L) of this license during construction of each cell of the proposed expansion to demonstrate that the required performance criteria will be met and the results submitted to the Department at least 7 days prior to full scale construction. If the applicant cannot demonstrate technical equivalency, the maximum barrier soil lift thickness will remain 9 inches.

28. ENGINEERING REPORT

The Department's rule at 06-096 C.M.R. ch. 401, § 2(F) requires the applicant to submit an engineering report detailing the basis for engineering design and the proposed construction procedures, utilizing site specific factors and analyzing potential modes and significance of engineered system failures. The application and subsequent information submitted by the applicant addressing Department review comments, included data, calculations, assumptions, and evaluations for the following aspects of the proposed expansion:

A. Stability Assessment

The application for the proposed expansion included a slope stability assessment which analyzed static and seismic loads during construction, operation, and post-closure periods. The stability evaluation included four cross-sections of the proposed expansion representing the steepest base liner slope angle, the steepest final sideslope angles, the greatest waste thickness, and the tallest and steepest exterior waste grades. The geotechnical properties were based on data collected from previous field and laboratory studies and construction projects. The data included density, internal and external friction properties, and cohesion/adhesion as applicable.

The applicant used two potentiometric surfaces in its assessment of landfill stability based on the following: maintenance of the leachate level within the base liner system and a conservative assumption that the potentiometric surface beneath the entire landfill is coincident with the bottom of the base liner system. A sensitivity analysis was completed to evaluate the potential impact of higher water levels. Seismic slope stability was evaluated, utilizing site specific Hazard Maps and the acceptable accelerations. As part of the seismic stability evaluation, the applicant also submitted a liquefaction and deformation analysis. In addition,

a sensitivity analysis was performed on two of the cross-sections for horizontal deformation (strain) of the base liner system.

The site specific data and design parameters were used by the applicant as input to the slope stability computer analysis program SLOPE/W. The resultant calculated factors of safety exceeded the minimum acceptable values required by the Rules, demonstrating that in-place waste and foundation soils beneath and adjacent to the waste can support the proposed expansion loads. The results of the stability assessment and comparison to the applicable safety factor requirements are presented in Tables 9 and 10 (based on the application, Volume III, Table 3-9, page 3-21 and separated into two tables for presentation clarity).

Table 9: Stability Assessment Result Summary
Calculated Slope Stability Minimum Factors of Safety
for Construction and Operations

Cross-Section	Static Condition				Seismic Condition			
	Waste, Shallow surficial	Liner, Block	Foundation (circular)	Rule Minimum	Waste, Shallow surficial	Liner, Block	Foundation (circular)	Rule Minimum
A-A’	1.91	1.73	2.65	1.3	1.54	1.37	2.14	1.1
B-B’	2.43	2.01	2.93		1.88	1.50	2.26	
C-C’	1.90	1.75	2.17		1.53	1.39	1.75	
D-D’	1.92	1.82	2.61		1.55	1.45	2.07	

Table 10: Stability Assessment Result Summary
Calculated Slope Stability Minimum Factors of Safety
for Post Closure

Cross-Section	Static Condition				Seismic Condition			
	Waste, Shallow surficial	Liner, Block	Foundation (circular)	Rule Minimum	Waste, Shallow surficial	Liner, Block	Foundation (circular)	Rule Minimum
A-A’	1.81	1.72	2.65	1.5	1.11	1.00	1.62	1.0
B-B’	2.33	1.98	2.90		1.32	1.05	1.64	
C-C’	1.81	1.74	2.17		1.11	1.01	1.33	
D-D’	1.84	1.81	2.54		1.11	1.04	1.52	

As the proposed expansion development occurs, the applicant will perform individual slope and interface stability assessments as part of each cell design to

confirm the construction and operational phase stability. Similar assessments for each cover system construction project will also be performed.

Based on the information provided in the application, the Board finds that the applicant has met the requirements in 06-096 C.M.R. ch. 401, § 2(F)(1) for static and seismic stability factors of safety, as demonstrated in a slope stability assessment for static and seismic loads during construction, operation, and post-closure periods.

B. Settlement Assessment

The applicant submitted a settlement assessment to predict total and differential settlements of the landfill liner systems, leachate management systems, and cover system components. The settlement assessment quantified the anticipated primary and secondary settlements of the landfill waste and foundation soils and evaluated the effect of the settlements on the base liner system, leachate collection, and cover system components.

The foundation soils below the proposed expansion are a dense to very dense glacial till. Settlement of the foundation soils is predicted to be between 0.0 to 0.3 feet. It was determined that neither the base liner nor leachate collection systems will be compromised by the predicted settlement, since the strains on the geosynthetics (i.e., geomembrane, GCL, drainage geocomposite) will be within acceptable limits, the base liner slopes are estimated to change by less than 0.1% from the design slopes, and the leachate collection piping would continue to maintain positive drainage.

The waste and cover settlement was projected based on the similar composition and behavior of waste existing at the facility. The calculated combined primary and secondary settlements would be between 0 to 8 feet at the end of the 30-year post-closure period. The applicant does not expect these settlements to compromise the cover system since the settlement is projected to occur in a uniform, gradual manner, the cover system's initial slope angles are sufficient to maintain positive drainage even with the predicted settlement, and tensile strains at 0.1% are well below the allowable strain for the textured, linear low density polyethylene (LLDPE) or HDPE geomembrane to be used as a component of the final cover system.

The Board finds that the applicant has met the settlement requirements in 06-096 C.M.R. ch. 401, § 2(F)(2), confirming future predicted settlement will not adversely affect the landfill liner system, leachate collection system, and cover system components.

C. Stability and Settlement Monitoring Plan

The Stability and Settlement Monitoring Plan submitted in the Design Report prepared by SME (Volume III, Section 3.1.5, page 3-26) and the referenced geotechnical monitoring plan (Operations Manual, Volume IV, Appendix N of the application) proposed for the expansion include the installation and monitoring of pore-water pressure transducers at the base of each cell and geotechnical slope stability and settlement inspections of the facility. The pressure transducers will be connected to the pump station control panels and will measure leachate head on the liner system to confirm the leachate collection system design assumptions. The annual inspections will be performed by a qualified geotechnical engineer to observe slopes for cracks, sloughs, seeps, leachate breakouts, displacements, toe-heaving, areas of stressed vegetation; to observe any water ponding; and to compare recent waste placement topographic maps with the previous year's information.

As part of the annual geotechnical inspection, the applicant proposes to conduct an annual review of waste types, quantities, location of waste placement; evaluation of pore pressure data; and review of site aerial topographic surveys. If the design assumptions such as waste streams and pore pressures have changed, then a reassessment may be warranted. A summary of the geotechnical inspections and evaluations will be included in the facility's Annual Report.

The Board finds that the Stability and Settlement Monitoring Plan submitted by the applicant meets the requirements of 06-096 C.M.R. ch. 401, § 2(F)(3) and that the applicant must include the results of the geotechnical inspections and evaluations in a geotechnical report submitted in the Annual Report.

D. Water Balance

EPA's Hydrologic Evaluation of Landfill Performance (HELP) Model was used by the applicant to evaluate the rates and volumes of leachate, including consolidation water, to be generated by the landfill during operations, closure, and post-closure periods. The model results identified the most critical leachate generation conditions over the life of the proposed expansion and were used to design the leachate collection system. Three simulations were performed under conditions of open active waste filling assuming 10 feet of waste and no cover, an intermediate covered condition assuming 90 feet of waste and 18 inches of soil cover, and a final cover condition. The average daily leachate flows were estimated to be approximately 48,000 gallons per day from the entire facility during the operation of the proposed expansion, with an average daily flow during

the peak monthly condition of approximately 57,500 gallons per day. The estimated yearly flows ranged from approximately 22.9 million gallons per year during the operation of Cell 12 to approximately 13.8 million gallons per year during the operation of Cell 15.

The Board finds that the applicant has met the requirements in 06-096 C.M.R. ch. 401, § 2(F)(4) for adequately designing the leachate collection system to convey the predicted leachate flow from the proposed expansion.

E. Leachate Management

The Rules require the applicant to select an appropriate leachate management method and require a leachate management plan. In accordance with 06-096 C.M.R. ch. 401, § 2(F)(5), leachate management options available to the applicant include "off-site transport to a licensed wastewater treatment facility for treatment and disposal." The applicant has proposed to continue the method currently employed at the existing landfill; namely, leachate will be collected and conveyed through a series of pipes above the primary liner system, pumped to the on-site leachate storage tank and trucked to the MFGR, LLC (MFGR) wastewater treatment plant in Old Town (disposal agreement signed April 27, 2016). A contingency plan for leachate disposal limitations at contracted treatment facilities is required in 06-096 C.M.R. ch. 401, § 2(F)(5)(e)(iii), including a letter of intent or service contracts for such proposed contingencies. To meet this requirement, the applicant has provided a back-up agreement for leachate treatment, held with the City of Brewer wastewater treatment plant (disposal agreement effective March 3, 2013). Both MFGR and City of Brewer disposal agreements have a term of 5 years and both treatment facilities hold current wastewater licenses from the Department, as required by the Rules.

The design calculations and drawings for the leachate collection and transport system were submitted with the application and are further described in Finding 26(D) of this license. The leak detection system, located beneath the primary liner system, includes the capability to measure both flow and quality of liquid collected by the system. The leak detection system was based on a design leakage rate as defined in 06-096 C.M.R. ch. 400. The design leakage rate for the primary liner component of the system was calculated to be 0.26 gallons per acre per day, based on potential variables such as geomembrane imperfections, the head above the primary liner, the uniformity of contact between the geomembrane and underlying soil/GCL, and the hydraulic conductivity of the material in contact with the primary liner. In conjunction with the siting and design specifics of the proposed landfill, the design leakage rate is required to be taken into account for assessing hypothetical failures. The leak detection system was designed to detect

leaks from each cell's primary liner system within 30 days, and have sufficient hydraulic capacity to transmit the flow associated with the Action Leakage Rate (ALR) for the proposed expansion. The applicant proposed to determine leachate leakage by comparing the measured specific conductance to values calculated using the selected ALR, leachate specific conductance, and baseline measurements. The monitoring methodology was included in the Liner Action Plan (LAP), submitted as part of the proposed expansion application in the Operations Manual.

During review of the application, Department staff commented on the proposed LAP and recommended an initial two-tiered ALR program based on 20 and 100 gallons per acre per day, followed by consultation with Department staff to determine the appropriate response action (Department technical memorandum dated January 20, 2016 from S. Farrar, V. Eleftheriou, and K. Libbey). Specific conductance could then be utilized to determine further action, but would not be the primary ALR method initially. The applicant may request revisions to the LAP upon submittal of actual field data as the proposed expansion is developed for the Department's approval through changes to the Operations Manual.

Contingency plans were built into the designs for conveyance and transport system failures as described in the application, including conservative design factors and assumptions; materials to be used; periodic maintenance, cleaning, and inspection; monitoring pressure transducers and pressure gauges; alarm systems; back-up pumps and generators; force main dual-containment piping; and easy access to cell pumps.

The volume of leachate generated will be measured through the use of flow meters at each pump station. Leachate and the leak detection system quality will be monitored in accordance with the facility's Environmental Monitoring Plan (EMP), as described in Finding 33 of this license. The leachate management system will be maintained, inspected, and cleaned periodically, as addressed in the facility's Operations Manual section on site maintenance and inspection.

As stated above, the applicant has proposed to transport leachate off-site to the MFGR wastewater treatment facility for treatment and subsequent disposal. Taking into account the proposed expansion, leachate hauling is expected to be approximately 48,000 gallons per day, with an estimated 57,500 gallons per day during peak months. This represents an increase from current hauling loads which average 30,000 gallons per day and 46,000 gallons per day during peak months. The quality of the leachate to be taken off-site and treated is expected to be consistent with the current leachate quality since there is no change in accepted waste types proposed. Leachate samples will be routinely collected from the on-

site storage tank and the leachate and leak detection pump stations for characterization. Data on characteristics of the leachate will be sent to the wastewater treatment facility.

During the hearing, intervenor Edward Spencer questioned the adequacy of the MFGR wastewater treatment facility given closure of the pulp and papermaking operations at the former mill site. Mr. Spencer's witness, Dr. Steve Coghlan, expressed concerns regarding the potential for the discharge of pollutants including metals from the wastewater treatment plant to adversely impact the Penobscot River.

The Board finds that evidence in the record indicates that MFGR's waste discharge license was most recently renewed and amended on October 12, 2016 to reflect the change in wastewater loading to the facility including leachate from JRL. The MFGR license specifically recognizes that "the wastewater characteristics are no longer representative of a kraft pulp mill operation as sources of wastewater are primarily storm water, landfill leachate from JRL, wastewater from the commercial LaBree's Bakery, filter backwash from the Orono-Veazie Water District and septage dewatering filtrate, leachate and storm water runoff from a composting facility" (Department license #W-002226-5O-O-R). In addition to State standards, MFGR's wastewater application was evaluated for compliance with National Effluent Guidelines set forth in 40 CFR, Part 445, *Landfills Point Source Category*, Subpart B, *RCRA Subtitle D Non-Hazardous Waste Landfill.*

MFGR's wastewater treatment license places limits on the concentration of various pollutants in the discharge and requires that discharges from the MFGR wastewater treatment facility be monitored for a range of parameters including, but not limited to, flow, pH, biological oxygen demand, total suspended solids, mercury, whole effluent toxicity, and priority pollutants. The license states that the wastewater treatment facility modifies its treatment protocols as appropriate based on operating parameters such as influent flow, strength, and temperature to meet the effluent limits, including those for metals (metals can be present in the sludge and also within the discharged effluent at allowable levels). In issuing MFGR's renewal license, the Commissioner concluded, based upon a knowledge of the influent and the operation of the MFGR facility, that all applicable licensing criteria for the proposed waste discharge had been met and that the "discharge, either by itself in combination with other discharges, will not lower the quality of any classified body of water below such classification" and that "the provisions of the State's antidegradation policy, 38 M.R.S., § 464(4)(F), will be met."

The Board finds that the applicant has met the applicable requirements in 06-096 C.M.R. ch. 401, § 2(F)(5) for leachate management, based on the submitted leachate management design plans and utilization of a licensed wastewater treatment facility, along with a back-up licensed wastewater treatment facility as the contingency plan, for the treatment of the collected leachate; provided that the applicant maintains a valid leachate disposal contract(s) with licensed waste water treatment facility(ies) for the treatment and disposal of leachate from the proposed expansion.

F. Gas Management

The Landfill Gas Expansion Design Report dated June 2015, prepared by Sanborn Head & Associates, Inc. and submitted with the application, addresses LFG management for the proposed expansion. The existing active LFG extraction system will be expanded to accommodate gas generated from future waste placement. The LFG collection and control system consists of horizontal extraction trenches and vertical extraction wells. Once extracted, the LFG passes through a moisture separator, followed by treatment at a Thiopaq® sulfur removal system to reduce hydrogen sulfide, and is then combusted at the flare. The June 2015 report demonstrates that the existing H_2S removal equipment and flares as addressed in the landfill's existing air license renewal are adequate to handle the LFG from the proposed expansion. A landfill gas to energy facility may be proposed in the future as an alternative to flaring and to generate electricity.

The application states that the LFG collection and control system is utilized to control air emissions, including methane and odors from hydrogen sulfide, as described previously in Finding 11(A) of this license. The existing facility is required to meet the EPA's New Source Performance Standards, 40 CFR Part 60, Subpart WWW, *Standards of Performance for Municipal Solid Waste Landfills* (initially published in 61 FR 9919, March 12, 1996). The application included reference to Subpart WWW, but in 2016, 40 CFR Part 60, Subpart XXX, *Standards of Performance for Municipal Solid Waste Landfills that Commenced Construction, Reconstruction, or Modification after July 17, 2014* (published in 81 FR 59368, Aug. 29, 2016) was promulgated. The proposed expansion will be subject to 40 CFR Part 60, Subpart XXX upon commencing construction of Cell 11. Requirements in the federal regulation include operational standards for gas collection and control systems, as well as provisions for compliance and monitoring.

In the application, Sanborn Head & Associates estimated the LFG generation rate using the EPA's *Landfill Gas Emissions Model, Version 3.02* (LandGEM) for the years 2004 to 2050, with a peak collection rate of approximately 3,600 standard

cubic feet per minute (scfm) in 2031, assuming LFG at 50% methane and taking into account the proposed expansion construction to commence in 2018. The application states that the LFG collection system will be installed in phases as the proposed expansion cells are built. Horizontal extraction trenches will be located in the waste mass, constructed 4-feet wide by 5-feet deep, and contain a 6-inch perforated HDPE pipe surrounded by coarse aggregate. The trenches will be installed approximately every 40 feet in vertical elevation and spaced approximately 100 feet apart. The permanent vertical extraction wells will be constructed of 8-inch diameter schedule 80 polyvinyl chloride pipe, slotted on the lower portion. They will be installed approximately 100 feet on center. Conveyance HDPE pipes will vary from 4 inches to 24 inches in diameter and will be sloped to provide condensate drainage and account for settlement.

LFG management at the facility also includes the installation of intermediate and final cover on non-active portions of the landfill to promote efficient gas collection.

Intervenor Edward Spencer questioned in testimony whether the horizontal pipes in the landfill gas collection system may collapse. Michael Booth, an expert witness for the applicant, testified that the horizontal gas collector trenches are only a temporary collection method and only need to function until the permanent vertical extraction wells are installed once the appropriate waste depth is achieved.

The Board finds that the applicant has met the requirements in 06-096 C.M.R. ch. 401, § 2(F)(6) for LFG collection and control based on the submitted LFG design report and cell development plans, and the proposed expansion will be subject to the requirements of 40 CFR Part 60, Subpart XXX when JRL commences construction on the proposed expansion. The Board further finds that the design and operation of the LFG collection and control system will minimize LFG related nuisance odors.

G. Cell Development Plan

A Cell Development Plan was submitted with the application which illustrates the sequence of development for the proposed expansion in a phased manner, allowing operation in an active landfill cell while construction occurs on the next cell. Phased intermediate and final cover placement are also proposed. Table 11 includes general cell development information, with a schedule for new cell construction approximately every two years. Table 11 was compiled from information in the application, Volume III, Section 3.5.1. Specific plan details with layout of cells, projected grades, location and timing of intermediate and

final cover, location and construction of cell access, relevant aspects of leachate and stormwater management measures, relevant aspects of erosion and sedimentation control measures, and other pertinent facility-specific features are included in the facility's Operations Manual and will be updated with the facility's Annual Report.

Table 11: Proposed Expansion Cell Development Plan Summary* (cell construction listed from first to last, occurring every two years)

Cell Number	Size (acres)	Disposal Capacity (cubic yards)	Construction Items of Note
11	9.5	1,460,000	• Expansion of existing Detention Pond 9; • Year following Cell 11 construction, final cover placed over approximately 14.3 acres of existing landfill.
12	12.6	1,500,000	• Construction of Detention Pond 10; • Relocation of the administration building; • Year following Cell 12 construction, final cover placed over approximately 18.6 acres of existing landfill.
13	11.8	1,580,000	• Construction of Detention Pond 11; • Relocation of the scale house; • Year following Cell 13 construction, final cover placed over approximately 14.6 acres of existing landfill.
14	6.7	1,670,000	• Year following Cell 14 construction, final cover placed over approximately 13.3 acres of existing landfill.
15	6.0	1,500,000	• Year following Cell 15 construction, final cover placed over approximately 15.0 acres of existing landfill.
16	7.1	1,640,000	• Construction of Detention Pond 12; • Over a several year period following Cell 16 construction, final cover placed over remaining 45.5 acres.
Note: *Size and capacity information is approximate. Variations in construction scheduling may occur as development progresses.			

The Board finds that the applicant has met the Cell Development Plan Rule requirements in 06-096 C.M.R. ch. 401, § 2(F)(7), including cell development sequencing and phased placement of intermediate and final cover. The Board further finds that the applicant shall update the Cell Development Plan on an annual basis as the proposed expansion is developed.

H. Phased Final Cover System Proposal

The applicant proposed a phased final cover system for the expansion consisting of the following, from top to bottom: 12 inches of vegetative soil, 12 inches of

drainage sand, a 40-mil LLDPE or HDPE textured geomembrane, and 24 inches of barrier soil. Prior to each phase of final cover system construction, an engineering report, construction contract bid documents, including drawings, technical specifications, and contract administrative documents and a quality assurance plan will be submitted to the Department for review and approval. The applicant anticipates that final cover system construction will occur about every other year.

The Board finds that the applicant has met the requirements in 06-096 C.M.R. ch. 401, § 2(F)(8) for a phased cover system; provided that an engineering report, construction contract bid documents, including drawings, technical specifications, and contract administrative documents and a quality assurance plan are submitted to the Department for review and approval at least four months prior to each proposed application of a phased final cover system.

I. Waste Storage, Staging, and Burn Areas Design

The applicant has not proposed additional waste storage and staging areas outside of the solid waste boundary, or a burn area for wood waste or CDD. Rather, the applicant proposes to use the existing permitted wood waste handling area adjacent to the maintenance facility for the proposed expansion. In addition, areas within the existing landfill may be used to temporary stockpile soft layer material to be placed in the bottom of newly constructed cells.

The Board finds that the applicant is not proposing additional waste storage and staging areas outside of the solid waste boundary, or a burn area for wood waste or CDD and will utilize the existing permitted wood waste handling area. Therefore, the provisions requiring submittal of a design and operating plan in accordance with 06-096 C.M.R. ch. 401, § 2(F)(9) do not apply to the proposed expansion; however, the facility shall continue to operate the existing storage and burn area in accordance with the applicable operating requirements.

J. Waste Characterization and Design Compatibility

The Department's rule at 06-096 C.M.R. ch. 401, § 2(F)(10) requires that the wastes proposed to be accepted at the expansion must be characterized to enable the Department to determine that the wastes to be landfilled are non-hazardous and suitable for disposal in accordance with the proposed design, and to support the analytical parameters proposed in the Environmental Monitoring Plan (EMP).

The procedures for the characterization, testing and acceptance of waste at JRL are included in the facility's Solid Waste Characterization Plan in the Operations

Manual. The wastes proposed to be accepted in the expansion are similar to the wastes currently approved for JRL, with the exception of MSW (except for bypass) which will not be accepted in the proposed expansion. Generally, the waste types include wastewater treatment plant and miscellaneous sludge, FEPR, contaminated soils, MSW incinerator ash, biomass and fossil fuel ash, MSW bypass from incinerators, CDD, OBW, CDD process fines, and miscellaneous waste. Finding 37 of this license addresses the acceptable wastes in more detail.

The applicant states that the currently accepted waste types have been previously determined by the Department and JRL to be non-hazardous, compatible for commingling, and compatible with the engineered systems components.

The Board finds that the applicant has provided appropriate waste characterization procedures for the proposed expansion as required by 06-096 C.M.R. ch. 401, § 2(F)(10).

K. Surface Water Control Plans

The Department's Rules at 06-096 C.M.R. ch. 401, § 2(F)(11) require that an applicant submit two surface water control plans: an erosion and sedimentation control plan which meets the standards and submission requirements of 06-096 C.M.R. ch. 400, § 4(J) and a stormwater management plan which meets the standards and submission requirements of 06-096 C.M.R. ch. 400, § 4(M). The applicant's Erosion and Sedimentation Control Plan and the Stormwater Management Plan are described in Findings 14 and 17 of this license.

The Board finds that the applicant has submitted the two required surface water control plans required by 06-096 C.M.R. ch. 401, § 2(F)(11) and that these plans meet the requirements of 06-096 C.M.R. ch. 400, §§ 4(J) and 4(M) as set forth in Findings 14 and 17 of this license.

L. Test Pad Submission

The applicant has proposed to utilize test pads to demonstrate that the proposed barrier soil material and construction methods will result in barrier soil meeting the specified requirements. The test pad program will evaluate the construction techniques to determine conformance with the project technical specifications, similar to the program used during construction of the existing cells at JRL. For base grade, liner, and final cover system construction, a test pad covering an area of approximately 50,000 square feet will be constructed in the cell or cover area. During placement and compaction of the test pad, testing will be performed for moisture, density, and in-place hydraulic conductivity at the appropriate locations

and frequencies. Once the performance criteria is met, up to four shallow test pits will be excavated in the test pad area to evaluate the remolding and bonding of the barrier soil. If the entities involved in construction and oversight, including the Department, concur with the results, the construction techniques utilized on the test pad will continue for the project and the frequency of in-place hydraulic conductivity testing may be reduced with approval from the Department. If the borrow source or material properties change during the course of construction, a new test pad will be required.

The Board finds that the applicant has submitted an appropriate test pad program as required by 06-096 C.M.R. ch. 401, § 2(F)(12). Any reduction in the frequency of the in-place hydraulic conductivity testing must be authorized by the Department.

M. Special Construction Requirements

In accordance with 06-096 C.M.R. ch. 401, § 2(F)(13), at facilities where ground water monitoring in bedrock is anticipated or is being conducted, the applicant must submit information on all measures to be taken to minimize the disturbance of soil material within five feet of the bedrock surface.

The applicant submitted information on measures to be taken to minimize the disturbance of soil material within 10 feet of the bedrock surface where the augmented secondary liner system will be installed. In these areas, the base grade will be cut one foot to accommodate the additional foot of compacted clay to be placed under the secondary liner system. To achieve minimal soil disturbance, the excavator will complete the cut prior to placement of imported soils.

In other areas of the site where the proposed base grades are below the phreatic surface, the applicant has proposed to install an underdrain system to assist with dewatering and to facilitate base liner system construction.

The Board finds that the applicant has submitted measures to minimize soil disturbance that meet the 5 feet to bedrock separation requirement in 06-096 C.M.R. ch. 401, § 2(F)(13).

29. CONTAMINANT TRANSPORT ANALYSIS

In accordance with 06-096 C.M.R. ch. 401, § 2(G), an applicant is required to provide a thorough analysis of the proposed site and the adjacent area that could be affected during operation and after closure of the landfill in the event of releases of contaminants to ground water beyond engineered systems to assess the potential for an unreasonable

threat to sensitive receptors and to identify any operational or monitoring measures needed to ensure protection of sensitive receptors. As defined in the Rules, the potential for an unreasonable threat to a sensitive receptor is an arrival time of less than 6 years from the landfill or less than 3 years from leachate storage structures and pump stations of a concentration of a pollutant which would result in contamination of that sensitive receptor.

The contaminant transport analysis submitted by the applicant consisted of modeling potential leakage scenarios using information from site investigations and appropriate inputs and assumptions. An analytical three-dimensional ground water solute transport equation was used to simulate leachate concentrations from hypothetical leaks. Evaluated hypothetical scenarios included complete failure of the liner system, a leaking liner system, and a leaking leachate force main. The leachate constituents modeled were iron, nitrate, alkalinity, arsenic, chloride, and ammonia since these constituents have the highest concentrations in leachate relative to the ground water and surface water criteria. A sensitivity analysis was also performed.

Based upon information in the application, the Board finds that under the hypothetical failure scenarios, the results of the analysis showed that sensitive receptors in the vicinity of the proposed expansion will not be unreasonably threatened by leachate leaks; the proposed monitoring locations and monitoring frequency will be sufficient to detect changes in water quality from potential failures; and the currently proposed design will provide greater than six years travel time from the landfill's base liner to the sensitive receptors.

The Board further finds that the applicant provided an analysis of potential releases of contaminants to ground water that meets the requirement of the 06-096 C.M.R. ch. 401, § 2(G) and has demonstrated that the proposed expansion will not pose unreasonable threats to sensitive receptors.

30. PLAN VIEW AND PROFILE VIEW DRAWINGS

The Department's rules at 06-096 C.M.R. ch. 401, § 2(H) require that an applicant submit plan and profile drawings that provide information specified in the rule.

The Board finds that the applicant submitted the drawings required in 06-096 C.M.R. ch. 401, § 2(H), including the drawings for existing site conditions, site development, site base grading, underdrain piping, leak detection piping, leachate collection piping, the gas collection and control system, final site drainage, final site development, landfill cross-sections, and specific details of engineered systems.

31. QUALITY ASSURANCE PLAN

The Department's rules at 06-096 C.M.R. ch. 401, § 2(I) requires that an applicant submit a Quality Assurance Plan to assure that design specifications and performance requirements for all facility components are met during construction. The Quality Assurance Plan submitted by the applicant for the proposed expansion includes the following, as related to construction: quality assurance measures to be implemented; the relationship between the Quality Assurance Plan, construction quality control, and the construction contract bid documents; responsible authorities and a resolution process; qualifications of quality assurance personnel and testing laboratories; inspections and tests to be performed for construction conformance; sampling details; recordkeeping and reporting requirements; and a list and description of all items requiring quality assurance certification.

The Board finds that the applicant has submitted a Quality Assurance Plan that addresses the items required by 06-096 C.M.R. ch. 401, § 2(I) to verify conformance with construction design specifications and performance requirements.

32. CONSTRUCTION CONTRACT BID DOCUMENTS

Pursuant to 06-096 C.M.R. ch. 401, § 2(J), an applicant is required to submit construction bid documents. The applicant may submit draft documents at the time the application is filed, and subsequently submit final detailed construction contract bid documents to the Department for review and approval on a schedule approved by the Department.

The application included construction bid documents for Cell 11 consisting of contract administrative documents, technical specifications, and drawings.

The Board finds that the applicant provided the construction contract bid documents for Cell 11 in accordance with the Rules. Prior to the construction of individual subsequent cells (Cells 12 through 16), detailed construction contract bid documents shall be submitted to the Department for review and approval four months prior to commencing construction activities at each cell.

33. WATER QUALITY REPORT AND PROPOSED MONITORING PROGRAM

In accordance with 06-096 C.M.R. ch. 401, § 2(K), an applicant is required to provide a water quality report addressing the site characterization requirements of 06-096 C.M.R. ch. 405, including a water quality monitoring program.

The application includes information on the water quality monitoring program which was established at the site in 1990 and currently includes periodic sampling of 22 monitoring

wells, 3 ground water discharge locations, 6 surface water locations, 10 underdrain locations, and 1 leachate location. The specific sampling and monitoring procedures utilized are detailed in the facility's EMP. The proposed expansion will be integrated into the existing water quality monitoring program, with updates and revisions as appropriate.

The proposed expansion will include the addition of 45 monitoring locations consisting of: background and downgradient piezometers and wells, additional surface water and pore water sampling points, and leak detection and underdrain system monitoring points. The locations will be phased in with the development of the proposed cells over a 10 to 12 year period.

Leachate monitoring for the proposed expansion will consist of sampling at the leachate tank; each leak detection sump discharge; and underdrain discharge. Ground water monitoring for the proposed expansion will consist of sampling of 23 new monitoring wells and 11 existing wells and piezometers. Several existing ground water monitoring wells, piezometers, and open-boreholes in the area of the proposed expansion footprint will be abandoned in accordance with the provisions of 06-096 C.M.R. ch. 405, § 5(H). Surface water monitoring will include sampling of two additional locations to characterize potential shallow ground water discharge and runoff impacts to nearby streams and wetland areas. Water quality sampling for the leachate tank, underdrain and leak detection systems, and monitoring wells will be performed three times a year. The leak detection sump discharges and underdrain discharge will be assessed monthly for flow and specific conductance (the Liner Action Plan, included in the Operations Manual, addresses steps to be taken if water quality changes occur).

During review of the application, Department staff commented that the ground water flow directions are anticipated to change with proposed expansion development and that the EMP should provide for an annual assessment of ground water flow directions (Department technical memorandum dated April 1, 2016 from R. Behr).

As set forth in the application, the water quality monitoring program will continue to be adjusted annually based on the operational status of the cells, development at the facility, the previous year's water quality evaluation, and the results of the Department's annual review of the water quality data.

The Board finds that the applicant submitted a water quality report which both characterized the existing site and proposed a water quality monitoring program as required by the Rules. Water quality monitoring shall be performed according to the EMP for the site. An Annual Water Quality Report evaluating JRL's water quality and an assessment of ground water flow directions as the proposed expansion is developed shall

be compiled each year and submitted with the facility's Annual Report. Proposed changes to the water quality monitoring program shall require Department approval.

34. OPERATIONS MANUAL

In accordance with 06-096 C.M.R. ch. 401, § 2(L), a copy of the facility's operations manual must be submitted as part of the application. The facility's Operations Manual was prepared in accordance with 06-096 C.M.R. ch. 401, § 4(A) and contains revisions to JRL's existing operations manual to address the proposed expansion. As required, the Operations Manual will be reviewed annually by the operator and will be updated as necessary. Since the July 2015 version of the Operations Manual submitted with the application, updates to portions of the Operations Manual have been submitted to the Department as a result of Department comments during the application review process.

The Board finds that the applicant has submitted an Operations Manual in accordance with the requirements of 06-096 C.M.R. ch. 401, § 2(L).

35. CONSTRUCTION

The proposed expansion is subject to the regulatory requirements of 06-096 C.M.R. ch. 401, § 3 during construction, as summarized below:

A. Preconstruction Conference

Unless waived by the Department, a pre-construction conference will be held between the applicant and/or the agents of the applicant and the Department, with at least a 7-day advance notice given to the Department.

B. Quality Assurance Plan

The Quality Assurance Plan (QAP) must be implemented at the beginning of construction. Construction Quality Assurance (CQA) must include continuous site inspections by the CQA personnel. Geosynthetics and barrier soil layers must be inspected, tested, and certified by qualified CQA personnel separate from the owner/operator and contractor.

C. Liner Installation

Before installation of any type of liner system, the applicant must evaluate the impacts of climatic conditions, proposed installation procedures, and the proposed installation schedule on liner system integrity. Results and recommendations from the test pad program must be submitted to the Department for review and

approval. Liner systems may be installed only between April 15 and November 1, and only when the ambient temperature exceeds 32 degrees Fahrenheit, unless a specific cold weather installation plan is submitted to the Department for review and approval.

D. Changes from Approved Plans and Specifications

Prior to implementing any changes to the approved landfill design, the leachate management systems, or project specifications, the applicant must receive approval from the Department through an amendment or minor revision, or through a change order approval.

E. Weekly Inspection Reports

The CQA team responsible for construction inspection at the landfill shall keep daily and weekly construction inspection reports and provide a copy to the Department within one week after each construction week.

F. Photographic Documentation

In the final construction report, the applicant shall provide the Department with representative photographic documentation of each stage of construction.

G. Record Drawings

The applicant shall provide record drawings, signed and stamped by a State of Maine Licensed Professional Engineer, to the Department within 45 days after construction completion of each cell.

H. Final Construction Report and Commencement of Operations

The applicant shall submit a written request that the Department conduct an inspection of the completed construction for a finding of compliance with the facility license. The applicant may commence operations of the landfill upon Departmental approval or ten working days after submitting the written certification stating that the project was constructed in accordance with the approved plans and specifications, and after the Department conducts or waives the need for a final construction inspection. The Department may delay commencement of operations pending resolution of issues identified during its inspection and/or during review of the written certification.

The applicant shall submit a final construction report to the Department within 45 days following construction completion of each cell which includes the items specified in the Rules. The written certification is required as part of the final construction report, but may be submitted prior to the final report in order to expedite approval for commencement of operations.

The Board finds that the applicant must follow the applicable regulatory requirements of the Rules during construction.

36. OPERATIONS

The proposed expansion is subject to the regulatory requirements of 06-096 C.M.R. ch. 401, § 4 during landfill operations, as summarized below.

A. Operations Manual

The Operations Manual must be reviewed annually by the operator and updated as necessary. These updates shall be distributed to the entities holding certified copies, including the Department and key operating and management personnel of the landfill. The landfill operator shall familiarize operating personnel with relevant sections of the Operations Manual.

B. Operator Training and Certification Program

At least two key personnel must be trained in the operation of, and regulatory requirements for, the landfill and be certified as required by the Rules.

C. Operating Requirements

The policy and procedures utilized by JRL to meet the operating requirements in the Rules are addressed in the facility's Operations Manual. These operating requirements include, but are not limited to, updating the Operations Manual on an annual basis, accepting only wastes allowed by the facility's licenses and characterizing these wastes appropriately, and providing for facility inspection and maintenance on a regular basis. Requirements for utilization of an approved cell development plan, environmental monitoring and the appropriate installation of daily, intermediate and final cover are also outlined in the Operations Manual.

D. Annual Report

Pursuant to 38 M.R.S. § 1310-N(6-D) and as stated in 06-096 C.M.R ch. 401, §(4)(D), an Annual Report and fee shall be submitted to the Department in the

timeframe stated in the Rules, currently by April 30 of each year. The Annual Report shall contain the applicable information required by the Rules. The operator shall keep copies of the Annual Reports submitted to the Department throughout the operational and the post-closure care period of the landfill.

The Board finds that the applicant has submitted an Operations Manual for the proposed expansion in accordance with the applicable requirements of the Rules, as also discussed in Finding 34 of this license.

37. ACCEPTABLE WASTE AND OBW LIMIT

A. Acceptable Waste

JRL is currently licensed to accept non-hazardous waste generated within the State, including up to 81,000 tons of MSW a year until March 31, 2018 (license #S-020700-WD-BG-Z issued June 19, 2014). The proposed expansion will be licensed to accept similar waste types; however, the proposed expansion will be prohibited from accepting municipal solid waste, except MSW bypass material. For the purpose of this license, MSW bypass is defined as any MSW that is destined for disposal or processing at a solid waste incinerator, but that cannot be disposed of or processed at that incinerator because of the incinerator's malfunction, insufficient capacity, inability to process or burn, down-time, or any other comparable reason as approved by the Department.

Table 12 is a summary of the non-hazardous waste generated within the State currently allowed in the existing landfill (Volume IV of the application, Table 7-1, page 7-2) and also proposed for disposal in the expansion with the exception of MSW as referenced in the paragraph above.

Table 12: Summary of Acceptable Waste for Disposal in the Proposed Expansion

Air & Water Filtration Media	Leather Scrap Waste
Approved Landfill Utilization Wastes	Municipal Solid Waste (MSW)/MSW Bypass
Asbestos (non-friable)	Municipal Solid Waste Ash
Biomass Boiler Ash	Non-hazardous Chemical Related Products
Biomedical Incinerator Ash	Oversized Bulky Wastes
Burned Railroad Ties & Associated Ash	Pigeon Waste
Catch Basin Grit	Pulp & Paper Mill Sludge
Clean Wood Open Burn Ash	Sandblast Grit
Construction & Demolition Debris	Spoiled Foods
Dredged Spoils from Waterways	Sulfur Scrubbing Residue
Dried Paint Residue & Related Debris	Treated Biomedical Waste
Filter Press Cake & Collagen Scrapings	Urban Fill-type Soils

Fossil Fuel Boiler Ash	Virgin Petroleum Contaminated Soil & Debris
Gasoline Contaminated Soil & Debris, Surface Spill	Waste Oil Contaminated Soil & Debris (Oily Debris)
Gasoline Contaminated Soil & Debris, (UST)	Wastewater Treatment Plant Sludge
Grit Screening Waste	Water Treatment Plant Sludge
Laundry Sludge	

In addition to the above waste streams, JRL may accept individually approved wastes after obtaining the proper special waste licenses from the Department.

In accordance with 38 M.R.S. § 1310-N(11), a solid waste disposal facility owned by the State may not be licensed to accept waste that is not waste generated within the State. As set forth in 38 M.R.S. § 1310-N(11) "waste generated within the State" is defined as including "residue and bypass generated by incineration, processing and recycling facilities within the State or waste, whether generated within the State or outside of the State, if it is used for daily cover, frost protection or stability or is generated within 30 miles of the solid waste disposal facility."

During the hearing, intervenor Edward Spencer and a number of commenters at the public session voiced concerns that incinerators, and processing and recycling facilities are allowed to accept waste from out of state, and once the material is processed by these Maine facilities, the residue and bypass is then considered in-state waste that may be taken to JRL for operational use or disposal. Mr. Spencer and commenters raised concerns that waste with out-of-state point of origins would be allowed to be disposed in a state-owned landfill.

The Board finds that the definition of "waste generated within the State" applies to wastes to be disposed of in the proposed expansion. The Board has no authority to alter State statute.

The Board finds that all waste streams accepted at the facility must be characterized (i.e., tested) and accepted following the procedures in the facility's Solid Waste Characterization Plan. For actual delivery onto JRL's site, waste haulers must have the proper manifest documentation as required in the Operations Manual.

B. OBW Limit

Condition 3 of the PBD requires the applicant to comply with a Department-established OBW tonnage disposal limit, and any subsequent modification to this limit, for the proposed expansion. The PBD condition is stated in full in Finding 20 of this license.

Condition 4 of the PBD requires periodic independent third party audits of CDD processing operations that are anticipated to transport more than 10,000 tons of OBW to the proposed expansion on an annual basis, focusing on the nature and volume of processing residues sent to JRL for disposal. The third party audits are to be conducted by a qualified consultant selected by the Department in consultation with the affected CDD processing facilities and the applicant, with the applicant providing reimbursement for the cost of the audits. The first audit(s) is(are) to occur prior to the disposal of OBW from these processing facilities in the proposed expansion and at subsequent 2-year intervals, unless or until the Department approves their discontinuation. The PBD condition is stated in full in Finding 20 of this license.

The term OBW is not defined in regulation or statute; therefore, for the purpose of this licensing action, OBW refers to the standard industry meaning that includes large items that may be difficult to process, such as mattresses, furniture, appliances, and certain other components of demolition debris.

During the hearing, the applicant and the intervenors presenting testimony were asked to propose an OBW limit. The City of Old Town did not propose a limit. Intervenor Edward Spencer testified that he would need to perform calculations utilizing data from other waste disposal facilities and consider the population to determine a limit. Toni King, Regional Engineer for Casella Waste Systems, Inc.'s Eastern Region, initially testified that no OBW limit was necessary since circumstances related to OBW management have changed since the PBD was issued. Later in the hearing, Ms. King testified that if a limit was to be set, she suggested an OBW limit of 118,000 tons, based on the rounded 2011 amount of 99,000 tons and a 3% Consumer Price Index (CPI) annualized to current time. With respect to the amount of 60,000 tons, as listed in Finding 19, Table 6 of this license, Ms. King testified that 60,000 tons was used in the application for design purposes and was not a proposed OBW quantity limit.

In order to establish an appropriate OBW tonnage limit for the proposed expansion, the Board took into consideration the intent of the PBD condition, the expected operating conditions of the proposed expansion, currently available recycling options and potential future conditions. Table 13 below presents the actual data of OBW disposed at JRL over the last 5 years (excerpted from information submitted in the August 1, 2016 letter from Donald Meagher, NEWSME; note added for clarification).

Table 13: Historical Disposal of OBW at Juniper Ridge Landfill

Year	Generator	Tons	Generator	Tons	Generator	Tons	Generator	Tons	Total
2011	KTI Biofuels	97,584	MERC	1,129	PERC	174	-	-	98,887
2012	KTI Biofuels	62,945	MERC	1,700	PERC	44	-	-	64,689
2013	KTI Biofuels	29,873	MERC	126	PERC	24	ReEnergy	24,330	54,353
2014	-	-	-	-	-	-	ReEnergy	48,219	48,219
2015	-	-	-	-	-	-	ReEnergy	47,388	47,388
Note: From 2011 to 2012 operational efficiencies and recovery capability improvements occurred at the KTI Biofuels facility which reduced the volume of OBW sent to JRL.									

The median disposal amount of OBW for the five years was determined to be 54,353 tons. The median CPI from this 5 year timeframe was determined to be 1.5% (the five-year period CPIs were 3.0% (2011), 1.7% (2012), 1.5% (2013) 0.8% (2014), and 0.7% (2015)). During hearing cross-examination, Ms. King noted that 10,000 tons of OBW from the PERC facility will likely need to be disposed of annually at JRL due to an operations change at PERC (based on current 2016 data). Utilizing this information, a calculation consisting of the median plus the estimated PERC amount multiplied by the median CPI was performed with a result of approximately 65,000 tons OBW [((54,353 + 10,000) x 1.015) = 65,000].

The Board finds that an OBW limit of 65,000 tons on an annual basis at the proposed expansion is consistent with the intent of Condition 3 of the PBD and is appropriate to meet the State's current OBW solid waste needs provided that the OBW limit is evaluated annually and adjusted as necessary based on current OBW recycling opportunities, economic factors, and other relevant factors at the time of the annual evaluation. If a limit adjustment is required, the OBW limit will be revised either through the provisions of 38 M.R.S. § 341-D(3) or a license application submitted by the applicant through the provisions of 38 M.R.S. § 344(9) and 06-096 C.M.R. chs. 2 and 400. The Board further finds that the Department will coordinate periodic independent third party audits of CDD processing operations that are anticipated to transport more than 10,000 tons of OBW to the proposed expansion on an annual basis consistent with Condition 4 of the PBD.

STATE OF MAINE, ACTING THROUGH	90	SOLID WASTE LICENSE,
THE BUREAU OF GENERAL SERVICES	)	NATURAL RESOURCES
OLD TOWN, PENOBSCOT COUNTY, ME	)	PROTECTION ACT, AND
JUNIPER RIDGE LANDFILL EXPANSION	)	WATER QUALITY CERTIFICATION
#S-020700-WD-BI-N and #L-19015-TG-D-N	)	
(APPROVAL WITH CONDITIONS)	)	NEW LICENSE

NATURAL RESOURCES PROTECTION ACT

38. NATURAL RESOURCES PROTECTION ACT AND WATER QUALITY CERTIFICATION

In accordance with the Natural Resources Protection Act, 38 M.R.S. § 480-D, the Department shall grant a permit when it finds that the applicant has demonstrated that the proposed activity meets the applicable standards including provisions pertaining to the following: existing scenic, aesthetic, recreational and navigational uses; soil erosion; harm to habitats and fisheries; interference with natural water flow; water quality; flooding; sand or gravel supply; and outstanding river segments. NRPA standards applicable to the proposed expansion are discussed in this Finding section.

To identify and assess impacts to protected natural resources, the applicant submitted a natural resources assessment for the expansion prepared by Stantec Consulting Services, Inc. (Stantec).

The natural resources assessment indicates that the proposed expansion will impact approximately 2.04 acres of primarily forested freshwater wetlands through direct filling and 0.1 acres of the critical terrestrial habitat of one significant vernal pool (SVP) due to clearing for a relocated perimeter fence and an electric line. The impacts to the NRPA regulated SVP were authorized in a permit-by-rule that was accepted by the Department on July 29, 2015 and are not further considered in this licensing proceeding. With the exception of the one vernal pool addressed in the permit-by-rule, the wetlands that will be impacted by the expansion are not Wetlands of Special Significance as defined in 06-096 C.M.R. ch. 310, § 4.

Stantec evaluated the functions and values of the impacted wetlands and prepared a Wetlands Compensation Plan which was submitted in support of its NRPA permit application. The Wetlands Compensation Plan also addresses 12 vernal pools within and adjacent to the expansion area which are regulated by the U.S. Army Corps of Engineers but which are not regulated by the Department under NRPA.

A. Existing Scenic, Aesthetic, Recreational, or Navigational Uses

Pursuant to 38 M.R.S. § 480-D(1), the applicant must demonstrate that the activity will not unreasonably interfere with the existing scenic, aesthetic, recreational or navigational uses of the protected natural resources. The Department's rule 06-096 C.M.R. ch. 315, guides the Department in its analysis of impacts to existing scenic and aesthetic uses resulting from activities in, on, over or adjacent to protected natural resources subject to NRPA.

In support of its application and in accordance with 06-096 C.M.R. ch. 315, the applicant submitted a copy of the Department's Visual Evaluation Field Survey Checklist as Appendix A to the NRPA application along with a description of the property and the proposed project. The applicant also submitted several photographs of the proposed project site including an aerial photograph. The Board visited the project site on June 23, 2016 to view the physical features of the site, including portions of the wetlands that will be filled by the expansion, and the nature of the surrounding area.

An unreasonable adverse visual impact is defined in 06-096 C.M.R. ch. 315, § 4 as one that is "expected to unreasonably interfere with the general public's visual enjoyment and appreciation of a scenic resource." The freshwater wetland impacted by the expansion does not meet the definition of a scenic resource as set forth in 06-096 C.M.R. ch. 315 § 10 in that it is not one of the listed scenic resources nor is it a wetland that is "visited by the general public, in part, for the use, observation, enjoyment and appreciation of its natural and cultural visual qualities."

Finding 10(C) of this license analyzes and makes findings on the proposed expansion's compliance with the scenic character criteria under the solid waste Rules.

There is no evidence of any existing recreational or navigational uses of the impacted wetlands.

Based upon the information in the record including the applicant's scenic assessment, photographs of the site, and the site visit, the Board finds that the proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational or navigational uses of the protected natural resource.

B. Soil Erosion

In accordance with 38 M.R.S. § 480-D(2), the applicant must demonstrate 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.

As discussed in Finding 14 of this license, the applicant conducted an assessment of surficial soils at the site and submitted an Erosion and Sedimentation Control Plan, dated July 2015, prepared by SME. The applicant proposes to install silt fence and other temporary erosion control measures, detention ponds and berms for each landfill cell prior to the construction of the cells. Once a cell has been

completed and filled with waste, the cell cover will be installed, and final stabilization measures will be taken. The applicant states that the design and implementation of all erosion control measures will follow the requirements of the solid waste Rules and will comply with Maine's Erosion and Sedimentation Control Best Management Practices.

Based upon the information in the record including the construction plan with phased development of landfill cells and the Erosion and Sedimentation Control Plan, the Board finds that the proposed expansion 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, as required by 38 M.R.S. § 480-D(2).

C. Habitat Considerations

Pursuant to 38 M.R.S. § 480-D(3), the applicant must demonstrate 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.

The expansion will impact 2.04 acres of primarily forested freshwater wetland due to filling. Impacts to these wetlands and associated compensation are discussed in Finding 38(F). Additionally, the proposed expansion is located approximately 800 feet from an unnamed intermittent brook, 950 feet from an unnamed tributary to Pushaw Stream, and approximately 2,350 feet from Judkins Brook. All of these streams are located in the watershed of the Penobscot River which contains Atlantic salmon, and Judkins Brook is located within federally mapped Critical Habitat for Atlantic salmon.

Intervenor Edward Spencer's expert witness, Dr. Steve Coghlan, testified that the expansion could negatively impact Atlantic salmon, Atlantic sturgeon, and shortnose sturgeon due, in part, to the potential for stormwater and leachate to contaminate adjacent waterways and ultimately the Penobscot River.

The applicant responded that its natural resources assessment prepared by Stantec inventoried and assessed potential impacts to natural resources at the site, including rare, threatened and endangered species. Stantec concluded that the project would not have an unreasonable adverse impact on these resources due in part to the location of the expansion relative to the protected resources, the design of the expansion, and management of stormwater and leachate.

Dr. Coghlan's concerns and the applicant's response are discussed further in Finding 9 of this license which is incorporated herein.

Additionally, Mr. Spencer commented that pumping groundwater to allow for construction will have an impact on the adjacent wetlands and Atlantic salmon habitat. Many of the wetlands surrounding the site are forested wetlands and their hydrology is not due to groundwater discharge, but rather results from surface water perched on the low permeability glacial till. Furthermore, the technical design of the underdrain system is that the underdrains (sand and piping) will collect and transport groundwater by gravity, not by active pumping, over portions of three cells where the bottom of the cell will be below the groundwater table. It is expected that the seepage into the underdrain will continue, but then will eventually diminish over time.

The Maine Department of Marine Resources (DMR) reviewed the proposed project and stated that it should not cause any significant adverse impact to Atlantic salmon or other marine resources.

The Maine Department of Inland Fisheries and Wildlife (MDIFW) reviewed the proposed project and stated that, with the exception of one SVP (impacts to which were authorized in the permit-by-rule), there are no other essential or significant wildlife habitats at the project site.

Based on the setback of the expansion from the streams, the evidence supplied by the applicant in its natural resources assessment and related expert testimony, and the review comments submitted by sister agencies DMR and MDIFW, the Board finds that the activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine or marine fisheries or other aquatic life pursuant to 38 M.R.S. § 480-D(3).

D. Water Quality Considerations

Pursuant to 38 M.R.S. § 480-D(4), the applicant must demonstrate that the activity will not unreasonably interfere with the natural flow of any surface or subsurface waters. Pursuant to 38 M.R.S. § 480-D(5) and Section 401 of the Federal Water Pollution Control Act, the applicant must demonstrate that the activity will not violate any state water quality law, including those governing the classification of the State's waters.

As set forth above, the expansion will be located approximately 800 feet from an unnamed intermittent brook, 950 feet from an unnamed tributary to Pushaw

Stream, and approximately 2,350 feet from Judkins Brook. Information in the record shows that the nearest mapped sand and gravel aquifer is located approximately one mile east of the landfill expansion area.

As discussed more fully in Findings 12, 14, and 15 of this license, the applicant submitted a Stormwater Management Plan and an Erosion and Sedimentation Control Plan, dated July 2015, prepared by SME to manage surface water runoff and minimize impacts to surface water quality from siltation. Additionally, the landfill expansion is designed in accordance with the Department's solid waste Rules to minimize the potential for contamination of groundwater. Leachate from the expansion will be collected, stored on-site, and trucked off-site to the MFGR, LLC wastewater treatment plant in Old Town which is licensed to accept the leachate. The project was reviewed by the Department's Division of Water Quality Management which stated that the treatment plant is currently operating in compliance with its license.

The Board finds that the proposed expansion meets state water quality law, including those governing the classification of the State's waters based on the location of the expansion relative to the protected natural resources, the existing and proposed Stormwater Management System, the Erosion and Sedimentation Control Plan, and the collection and subsequent treatment of the leachate at a licensed wastewater treatment facility.

E. Flooding

In accordance with 38 M.R.S. § 480-D(6), the applicant must demonstrate that the activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties.

As discussed in Finding 17, the expansion will not be located in a 100-year flood plain or restrict the flow of a 100-year flood. The applicant also submitted a Stormwater Management Plan which included pre- and post-development stormwater analyses up to and including a 25-year, 24-hour storm event which demonstrate that post-development peak flows will not exceed pre-development peak flows.

Based upon the location of the expansion outside the floodplain and the Stormwater Management Plan, the Board finds that the expansion will not unreasonably cause or increase the flooding of the alteration area or adjacent properties.

F. Wetlands and Waterbodies Protection Rules

The applicant proposes to directly alter 2.04 acres of primarily forested freshwater wetlands to construct the proposed landfill expansion. Including this proposed project and the previous projects on this site, the total cumulative amount of wetland alteration at the site will be 3.35 acres.

The Department's rule at 06-096 C.M.R. ch. 310 elaborates 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 must provide an analysis of alternatives.

(1) Alternatives Analysis

The applicant provided an alternatives analysis (Volume V, Attachment 2 of the Application) which summarized the need for the project and examined alternatives to the selected project site and project design, including: development of alternative sites, a "no build" alternative, waste reduction/alternative waste management strategies, and alternative designs on-site that would impact less wetland area. The applicant stated that alternative State-owned landfill sites, such as Dolby in Millinocket and Carpenter Ridge in T2R8 NWP (currently undeveloped), and the one commercial landfill (Crossroads in Norridgewock) were not viable options because JRL was the only site which had a Public Benefit Determination. The applicant stated that the "no build/do nothing" option was not viable because existing landfills could not accommodate the anticipated waste volumes and a need for 9.35 million cubic yards of additional landfill capacity had already been documented and approved in the PBD for JRL. The alternatives analysis also considered waste management options (discussed in Findings 18 and 19 of this license). Finally, the analysis examined the placement of the expansion on the site and the design of the expansions cells in relationship to the existing waste disposal cells at JRL.

Intervenor Edward Spencer questioned whether the applicant would be required to demonstrate that the proposed expansion could not occur at another location, such as the state-owned Dolby Landfill in Millinocket or by development of the state-owned site at Carpenter Ridge. In response, the Board Chair ruled in the Third Procedural Order that since the Commissioner had issued a PBD for a 9.35 million cubic yard expansion

at JRL, consideration of alternative sites and the no-build alternative were not issues to be addressed in the current licensing proceeding. The Third Procedural Order states:

> The Applicant has received a Public Benefit Determination for the proposed expansion at the Juniper Ridge site and that determination was upheld by the Board on appeal. As stated in the Second Procedural Order, statute prohibits the Board from revisiting the Public Benefit Determination in this licensing proceeding (38 M.R.S. § 1310-N(3-A)(B)). Therefore, the Board will not allow testimony or cross-examination by the parties regarding the need for the proposed 9.35 million cubic yard expansion. Additionally, testimony that the State should seek to develop other landfill sites is not relevant to the current licensing proceeding. However, to the extent the Public Benefit Determination imposes conditions on any license that may be issued in this proceeding, including limits on the types and volumes of waste, those limits are arguably relevant and may be addressed in testimony and cross-examination (Third Procedural Order).

The Board finds that the amount of capacity needed and the general location of disposal were settled with the Commissioner's issuance of the PBD, leaving only the question of whether or not the proposed project could be located on the subject parcel and designed to avoid and minimize wetland impacts.

(2) Avoidance of On-Site Impacts

As discussed above, the applicant submitted an alternatives analysis for the proposed project dated July 2015. The applicant considered two other on-site designs for the JRL expansion, a 70-acre expansion which would have resulted in 4.5 acres of wetland impact and a 60-acre expansion which would have resulted in 3.4 acres of wetland impact. The design submitted for approval and which is the subject of this license will expand the solid waste footprint at JRL by approximately 54 acres and will directly impact 2.04 acres of freshwater wetlands. In its application, the applicant stated that it has located all roads, stormwater ponds, administrative buildings, and other infrastructure to avoid the greatest amount of wetland impacts. According to the applicant, in order to meet

the stated project purpose, some impacts to freshwater wetlands are unavoidable.

(3) Minimization of On-Site Impacts

In accordance with 06-096 C.M.R. ch. 310, § 5(B), the amount of freshwater wetland to be altered must be kept to the minimum amount necessary for meeting the overall purpose of the project. The applicant's design of the expansion utilizes upland areas for a majority of the expansion. The applicant proposes to build cells vertically, thereby minimizing the horizontal footprint and associated wetland impacts. Finally, additional capacity is obtained by utilizing the "in-fill" areas between existing landfill cells and the proposed expansion cells. The Board finds that the applicant's design minimizes impacts to wetlands to the greatest extent practicable.

(4) Compensation

In accordance with 06-096 C.M.R. ch. 310, § 5(C), compensation is the off-setting of a lost wetland function with a function of equal or greater value. The goal of compensation is to achieve no net loss of freshwater wetland functions and values. The amount of compensation required to replace lost functions depends on a number of factors including: the size of the alteration activity, the functions of the wetlands to be altered, the type of compensation to be used, and the characteristics of the compensation site. When wetland preservation is the type of compensation proposed, Department rules generally require a ratio of 8:1 (area preserved to area impacted). As stated previously, the applicant's Wetlands Compensation Plan was designed to address both NRPA and Corps requirements.

The applicant proposes to preserve a 266-acre area on the same parcel as the landfill expansion to address NRPA compensation requirements as well as Corps compensation requirements. The proposed preservation area is adjacent to an existing 16-acre preservation area along Judkins Brook. The functions and values of the freshwater wetlands on the parcel were evaluated by the applicant using the U. S. Army Corps of Engineers Highway Methodology (September, 1999). The functions and values of the freshwater wetlands proposed to be impacted by the project include flood flow alteration, nutrient removal, sediment and toxicant removal, and wildlife habitat. There are no SVPs (other than the one which was the

subject of the permit-by-rule) or other significant wildlife habitats in the wetlands to be impacted.

The preservation area contains 57 acres of freshwater wetland, 25 vernal pools, and upland habitat. Three of the vernal pools are SVPs and eight others are highly functioning vernal pools that met the biological criteria to be considered an SVP, but did not meet all of the necessary criteria. The functions and values of the preservation area include sediment and toxicant removal, flood flow alteration, nutrient removal, and wildlife habitat. Bryan Emerson, professional wetland scientist and witness for the applicant, testified that the applicant has proposed compensation in excess of that required by both NRPA and the Corps. NRPA requires approximately 16.3 acres of wetland compensation for the 2.04 acres of direct impact to wetlands. The Corps compensation requirements differ from those of the Department and require a greater ratio of acres preserved to acre impacted.

The applicant proposes to preserve the area through the use of a Declaration of Covenants and Restrictions (Declaration) and submitted proposed language that meets Department standards. The City of Old Town has agreed to be the Third Party under the Declaration, with third party rights of administration and enforcement. Prior to the start of construction, the applicant must record the Declaration in the Registry of Deeds and must submit a copy of the recorded deed to the Department's Bureau of Land Resources within 60 days of recording.

Based on the Public Benefit Determination, the applicant's alternatives analysis, the project's design, and the land preservation proposal, the Board finds that the applicant has avoided and minimized freshwater wetland impacts to the greatest extent practicable, and has provided compensation for wetland impacts in accordance with Department rules and in exceedance of NRPA requirements. The Board further finds that the proposed project represents the least environmentally damaging alternative that meets the overall purpose of the project provided that, prior to construction, the applicant records the Declaration of Covenants and Restrictions and submits a copy to the Department's Bureau of Land Resources as described above.

BASED on the above Findings of Fact, and subject to the Conditions listed below, the Board makes the following CONCLUSIONS pursuant to 38 M.R.S. §§ 1310 to 1319-Y, 38 M.R.S. § 2101, and the applicable Department Rules:

STATE OF MAINE, ACTING THROUGH	99	SOLID WASTE LICENSE,
THE BUREAU OF GENERAL SERVICES	)	NATURAL RESOURCES
OLD TOWN, PENOBSCOT COUNTY, ME	)	PROTECTION ACT, AND
JUNIPER RIDGE LANDFILL EXPANSION	)	WATER QUALITY CERTIFICATION
#S-020700-WD-BI-N and #L-19015-TG-D-N	)	
(APPROVAL WITH CONDITIONS)	)	NEW LICENSE

1. The applicant has submitted evidence that the proposed expansion will not pollute any water of the State, contaminate the ambient air, constitute a hazard to health or welfare, or create a nuisance pursuant to 38 M.R.S. § 1310-N(1)(A) and 06-096 C.M.R. ch. 400, § 3(D).

2. The applicant has complied with the public and local participation and notification requirements pursuant to 38 M.R.S. §§ 1310-S(1) and 1310-N(12) and 06-096 C.M.R. ch. 2, §§ 10, 13, and 14.

3. The applicant has demonstrated sufficient title, right, or interest in all of the property which is proposed for development or use pursuant to 06-096 C.M.R. ch. 400, § 4(A).

4. The applicant has provided a sufficient demonstration of financial ability and assurance and technical ability for the permitting, design, construction, operation, closure, and post-closure care of the proposed landfill expansion pursuant to 38 M.R.S. §§ 1310-N (2-F)(A) and § 1310-Y, and 06-096 C.M.R. ch. 400, §§ 4(B)(1) and 4(C)(1), provided NEWSME submits the appropriate financial assurance package updates in accordance with the Rules on an annual basis.

5. The applicant has provided a civil/criminal disclosure statement demonstrating that the entities are not in violation of environmental or criminal law pursuant to 38 M.R.S. § 1310-N(7) and 06-096 C.M.R. ch. 400, § 4(C)(1)(b) and § 12.

6. The applicant has provided sufficient provisions for safe and uncongested traffic movement of all types into, out of, and within the proposed landfill expansion pursuant to 38 M.R.S. § 1310-N (2-F)(B) and 06-096 C.M.R. ch. 400, § 4(D)(1); provided the facility continues to encourage waste haulers to use I-95 as a primary hauling route.

7. The applicant has provided sufficient provisions for fitting the proposed landfill expansion harmoniously into the existing natural environment; has provided buffer strips of sufficient size and quality to adequately protect aquatic and wildlife habitat and the natural environment; and will not unreasonably adversely affect protected natural resources and rare, threatened and endangered plant and animal species pursuant to 38 M.R.S. § 1310-N(2-F)(C) and 06-096 C.M.R. ch. 400, § 4(E)(1).

8. The applicant has sufficiently demonstrated that the proposed expansion will not unreasonably adversely affect existing uses and scenic character, including bird hazard to aircraft, historical sites, established public viewing areas, excessive noise at the property boundary or at any protected location, or existing uses of neighboring property pursuant to 38 M.R.S. § 1310-N(2-F)(C) and 06-096 C.M.R. ch. 400, § 4(F)(1); provided equipment use is restricted in the operating hour of 6:00 am to 7:00 am to only equipment

with a combined sound level of 77 dBA at 50 feet or less if within 60 feet of the western solid waste boundary (approximately 480 feet from the western property line).

9. The applicant has sufficiently demonstrated that the proposed expansion will not unreasonably adversely affect air quality pursuant to 38 M.R.S. § 1310-N(2-F)(C) and 06-096 C.M.R. ch. 400, § 4(G)(1).

10. The applicant has sufficiently demonstrated that the proposed expansion will not unreasonably adversely affect water quality or cause an unreasonable threat to the quality of a classified body of surface water pursuant to 38 M.R.S. §§ 1310-N(2-F)(C) and 1310-N(1-A) and 06-096 C.M.R. ch. 400, § 4(H)(1).

11. The applicant has sufficiently demonstrated that the proposed expansion will not unreasonably adversely affect other natural resources in the municipality or in neighboring municipalities pursuant to 38 M.R.S. § 1310-N(2-F)(C) and 06-096 C.M.R. ch. 400, § 4(I)(1).

12. The applicant has sufficiently demonstrated that the proposed expansion will not: overlie any significant sand and gravel aquifers; pose an unreasonable threat to the quality of a significant sand and gravel aquifer; pose an unreasonable threat to the quality of an underlying fractured bedrock aquifer, or pose an unreasonable risk that a discharge to a significant ground water aquifer will occur, pursuant to 38 M.R.S. §§ 1310-N(2-A) and 1310-N(2-F)(E), and 06-096 C.M.R. ch. 400, § 4(K)(1).

13. The applicant has made sufficient provisions for adequate utilities, including adequate water supplies and appropriate sanitary wastewater disposal, and sufficiently demonstrated that the facility will not have an unreasonable adverse effect on existing or proposed utilities in the municipality or area served by those utilities, pursuant to 38 M.R.S. § 1310-N(2-F)(F) and 06-096 C.M.R. ch. 400, § 4(L)(1).

14. The applicant has sufficiently demonstrated that the proposed expansion will be located on soils types suitable to the nature of the undertaking and the facility will not cause unreasonable erosion of soil or sediment pursuant to 38 M.R.S. §§ 1310-N(2-F)(D) and 1310-N(1-A)(A) and 06-096 C.M.R. ch. 400, § (4)(J)(1).

15. The applicant has sufficiently demonstrated that the proposed expansion will not unreasonably cause or increase flooding on-site or on adjacent properties nor create an unreasonable flood hazard to a structure pursuant to 38 M.R.S. §§ 1310-N(2-F)(G) and 06-096 C.M.R. ch. 400, § 4(M)(1).

16. The applicant has sufficiently demonstrated that the purpose and practices for the proposed expansion are consistent with the solid waste management hierarchy pursuant

to 38 M.R.S. §§ 2101 and 1310-N(1)(D) and 06-096 C.M.R. ch. 400, § 4(N)(1), provided that a summary of continued efforts to meet the hierarchy and relevant supporting data are submitted annually in the Annual Report.

17. The applicant has sufficiently demonstrated that the proposed expansion will accept solid waste that is subject to recycling and source reduction programs, voluntary or otherwise, at least as effective as those in the statute and other provisions of State law; the volume of the waste and the risks related to its handling and disposal have been reduced to the maximum practical extent by recycling and source reduction prior to being landfilled or incinerated; and the applicant has shown consistency with the recycling provisions of the State plan pursuant to 38 M.R.S. § 1310-N(5-A) and 06-096 C.M.R. ch. 400, § 6(B).

18. The applicant is exempt from the liability insurance requirements of 06-096 C.M.R. ch. 400, § 10.

19. The applicant has clearly and convincingly demonstrated the technical equivalency of placing a barrier soil layer in a 12-inch lift thickness compared to the required 9-inch lift thickness, provided that a test pad program is undertaken during construction of each cell of the proposed expansion as described in the application and Finding 28(L) of this license to demonstrate that the required performance criteria have been met and the results are submitted to the Department at least 7 days prior to full-scale construction. If the applicant cannot demonstrate technical equivalency, the maximum barrier soil lift thickness will remain 9 inches.

20. The applicant has completed a site assessment report that adequately supports the design of the proposed expansion and will conduct water quality monitoring in accordance with the Rules.

21. The applicant has submitted a quality assurance plan and construction contract bid documents including drawings, technical specifications, and contract administrative documents for Cell 11 of the proposed expansion in accordance with 06-096 C.M.R. ch. 401, § 2 (I) and (J).

22. The applicant has proposed an expansion design meeting the requirements of the Rules, provided that, an engineering report, construction contract bid documents, including drawings, technical specifications, and contract administrative documents, a quality assurance plan and erosion and sedimentation control and stormwater management plans are submitted to the Department for review and approval at least four months prior to the commencement of construction activities within each subsequent cell (Cells 12 through 16) of the proposed expansion; and the applicant maintains a valid leachate disposal contract(s) with licensed waste water treatment facility(ies) for the treatment and disposal of leachate from the proposed expansion.

23. The applicant has submitted a phased final cover system meeting the requirements of the Rules, provided that an engineering report, construction contract bid documents, including drawings, technical specifications, and contract administrative documents, and a quality assurance plan and erosion and sedimentation control and stormwater management plans are submitted to the Department for review and approval at least four months prior to the proposed application of a phased final cover system.

24. The applicant has submitted an Operations Manual that meets the operating requirements of 06-096 C.M.R. ch. 401, § 2(L), provided that the Operations Manual is reviewed annually and updated as necessary with the Annual Report.

25. The PBD partial approval issued by the Commissioner in 2012 requires that an annual limit be established in this license on the tonnage of OBW that may be disposed of in the proposed expansion, with future review and potential subsequent modification to the OBW limit, and established provisions for the independent third party audits of CDD processing operations that are anticipated to transport more than 10,000 tons of OBW to the proposed expansion for disposal on an annual basis.

BASED on the above Findings of Fact, and subject to the Conditions listed below, the Board makes the following CONCLUSIONS pursuant to 38 M.R.S. §§ 480-A through 480-JJ, Section 401 of the Federal Water Pollution Control Act, and the applicable Department rules:

26. The applicant has sufficiently demonstrated that the proposed expansion will not unreasonably interfere with existing scenic, aesthetic, recreational or navigational uses pursuant to pursuant to 38 M.R.S. § 480-D(1).

27. The applicant has sufficiently demonstrated that the proposed expansion 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 pursuant to 38 M.R.S. § 480-D(2).

28. The applicant has sufficiently demonstrated that the proposed expansion 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 pursuant to 38 M.R.S. § 480-D(3), provided the applicant records the Declaration of Covenants and Restrictions as described in Finding 38(F) of this license above.

29. The applicant has sufficiently demonstrated that the proposed expansion will not unreasonably interfere with the natural flow of any surface or subsurface waters pursuant to 38 M.R.S. § 480-D(4).

30. The applicant has sufficiently demonstrated that the proposed expansion will not violate any state water quality law, including those governing the classification of the State's waters pursuant to 38 M.R.S. § 480-D(5) and Section 401 of the Federal Water Pollution Control Act.

31. The applicant has sufficiently demonstrated that the proposed expansion will not unreasonably cause or increase the flooding of the alteration area or adjacent properties pursuant to 38 M.R.S. § 480-D(6).

THEREFORE, the Board APPROVES the noted applications of the applicant, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations:

1. The Standard Conditions of Approval for Solid Waste and NRPA, copies attached.

2. Severability. The invalidity or unenforceability of any provisions, or part thereof, of this license shall not affect the remainder of the provision or any other provision. This license shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

3. Soil Erosion. The applicant 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 construction and operation of the landfill expansion.

4. Financial Assurance. The applicant shall submit the appropriate financial assurance package updates in accordance with the Rules on an annual basis, including the most recent surety bond documentation.

5. New Cell Construction Submittals. At least 4 months prior to new cell construction and related infrastructure, the applicant must submit the detailed design package for the Department's review and approval. The submittal shall contain the information required by the Rules, including, but not limited to an engineering report, construction contract bid documents consisting of technical specifications, drawings and contract administrative documents, a quality assurance plan and erosion and sedimentation control and stormwater management plans. If the Rules applicable to any aspect of the design and construction of the landfill expansion and its ancillary structures change during the development of the proposed expansion, the applicant shall address the new requirements in subsequent pertinent submittals.

6. Equipment Use - Noise Limitation. From the hour of 6:00 am to 7:00 am, the applicant shall limit equipment use within 60 feet of the western solid waste boundary

(approximately 480 feet from the western property line) to equipment with a combined sound level of 77 dBA at 50 feet or less.

7. Hauler Policy. The applicant shall continue its policy of encouraging hauling trucks to utilize I-95 to reduce use of the Bennoch Road (Route 16).

8. Leachate Disposal Contracts. In accordance with the Rules, the applicant shall maintain valid leachate disposal contract(s) with licensed waste water treatment facility(ies) for the treatment and disposal of leachate from the proposed expansion. A contingency plan for leachate disposal limitations at contracted treatment facilities shall be in place, including a letter of intent or service contracts for such proposed contingencies. Subsequent updates to the leachate disposal documentation shall be submitted to the Department to demonstrate compliance with the leachate management requirements of the Rules.

9. Liner Action Plan (LAP). The LAP shall initially consist of two-tiered action leakage rates of 20 and 100 gallons per acre per day, requiring notification and follow-up interactions with the Department to determine the appropriate response action. Specific conductance shall be utilized as the secondary approach for determining additional response action. As the proposed expansion is developed and upon submittal of actual field data, the applicant may request revisions to the LAP through Operations Manual updates requiring Department approval through the Annual Report.

10. Acceptable Waste

A. In the landfill expansion, the applicant may accept the same non-hazardous waste generated within the State allowed in the existing landfill and under the previously issued waste stream licenses for the facility, with the exception of MSW.

B. The applicant is prohibited from accepting MSW in the landfill expansion. MSW bypass may be accepted in accordance with Condition 11 of this license.

C. OBW disposal at the proposed landfill expansion shall be limited pursuant to Condition 12 of this license.

D. Prior to accepting any waste for disposal not listed or referenced in the application and previously licensed, the applicant shall submit an application for the new waste to the Department for review and approval.

E. Allowable wastes shall be accepted at the landfill expansion in accordance with the facility's Solid Waste Characterization Plan and regulatory and statutory requirements.

11. MSW Bypass

A. The applicant shall not dispose of any unprocessed MSW from any source other than MSW bypass from MSW incinerators located in Maine.

B. The applicant shall not accept MSW bypass from an incinerator without verifiable authorization from the owner/operator of an incinerator that a MSW bypass event has been called.

C. The applicant shall notify the Department within 24 hours if a MSW bypass event continues from a particular incinerator for a period exceeding 2 days, and provide the reason for the MSW bypass event.

12. OBW

A. The applicant shall be restricted to an OBW disposal limit of 65,000 tons on an annual basis in the proposed expansion.

B. No OBW from the CDD processing operations subject to audit shall be disposed in the proposed expansion prior to the first independent third party audit of CDD processing operations conducted as set forth in Condition 12(D) of this license, unless otherwise approved by the Department.

C. The OBW limit shall be evaluated annually by the Department and modified as needed based on current OBW recycling opportunities, economic factors, and other relevant factors. Modification of the OBW limit will be accomplished either through a license modification process pursuant to 38 M.R.S. § 341-D(3) or a license application submitted by the applicant pursuant to 38 M.R.S. § 344(9) and 06-096 C.M.R. chs. 2 and 400.

D. NEWSME shall reimburse the Department for periodic independent third party audits of CDD processing operations that are anticipated to transport more than 10,000 tons of OBW to the expansion for disposal on an annual basis. The audits shall be conducted to verify the results of the demonstrations required under the provisions of *Processing Facilities,* 06-096 C.M.R. ch. 409, § 2(C), focused on the nature and volume of processing residues being sent to the JRL expansion for disposal. The independent third party audits shall be conducted by a qualified consultant selected by the Department in consultation with the affected CDD processing facilities and NEWSME. The first such audit(s) shall occur prior to the disposal of OBW from these processing facilities to the proposed expansion,

unless otherwise approved by the Department. Audits will be conducted at 2-year intervals, unless or until the Department approves their discontinuation.

13. Monthly Activity Reports. Monthly activity reports shall be provided to the Department and include the quantities of the various waste types, and their sources, delivered to the proposed expansion.

14. Annual Reports

In addition to the specific requirements set forth in the Rules, the applicant shall include the following in the facility's annual reports submitted to the Department:

A. The amount of unprocessed MSW bypass received at the proposed expansion from each of the approved sources.

B. A summary of the steps taken by the facility in the reporting year to continue to meet the hierarchy, including relevant metrics to evaluate effectiveness (i.e., tons of material diverted from landfill disposal by Casella companies; tons of materials reused, reduced, recycled at the landfill); a description of ongoing efforts to increase the effectiveness of these programs/efforts; and any additional pertinent hierarchy-related information.

C. A geotechnical report, including a summary of the geotechnical inspections; the annual review of waste types, quantities, and location of waste placement; the evaluation of pore pressure data; and the review of site aerial topographic surveys.

15. EMP - Ground Water Quality and Flow. The applicant shall provide for an annual assessment of ground water quality and flow directions as the proposed expansion is developed through updates to the EMP which shall occur on an ongoing basis and in accordance with Department recommendations.

16. Construction Requirements. The applicant shall meet the construction requirements of 06-096 C.M.R. ch. 401, § 3 for the proposed expansion, including, but not limited to: implementing the Quality Assurance Plan; meeting liner installation requirements; receiving approval from the Department for changes to the approved plans and specifications; and documenting and reporting appropriately, including submittal of a final construction report. At least 7 days prior to full scale barrier soil construction, the applicant shall submit the results of a test pad to demonstrate the technical equivalency of placing barrier soil in a 12-inch lift thickness compared to a 9-inch lift thickness. If the applicant cannot demonstrate technical equivalency, the maximum barrier soil lift thickness shall remain 9 inches.

17. Operating Requirements. The applicant shall meet the operating requirements of 06-096 C.M.R. ch. 401, § 4 for the landfill expansion, including, but not limited to: reviewing and updating the Operations Manual as applicable; training and certifying key personnel; operating the facility per the Rule requirements; and submitting an Annual Report and associated fee.

18. Federal Requirements - LFG Collection and Control System. The applicant shall meet the applicable requirements of 40 CFR Part 60, Subpart XXX for the LFG collection and control system for air emissions minimization and odor control.

19. Phased Final Cover. The applicant shall submit the engineering report, construction contract bid documents, consisting of technical specifications, drawings, and contract administrative documents, a quality assurance plan and erosion and sedimentation control and stormwater management plans for the placement of phased final cover to the Department for its review and approval at least 4 months prior to each proposed application of final cover.

20. Declaration of Covenants and Restrictions. Prior to the start of construction, the applicant shall record the Declaration of Covenants and Restrictions for the preservation area in the Registry of Deeds and shall submit a copy of the recorded deed to the Department's Bureau of Land Resources within 60 days of recording.

21. The Findings of Fact, Conclusions and Conditions remain as approved in Department license #L-19015-31-A-M dated August 24, 1995, and subsequent Licenses to date.

DONE AND DATED AT AUGUSTA, MAINE THIS 1st DAY OF June, 2017.

BOARD OF ENVIRONMENTAL PROTECTION

BY: _____
James W. Parker, Board Chair and Presiding Officer

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

Date of initial receipt of application: July 21, 2015
Date of application acceptance: August 7, 2016 (solid waste); July 31, 2016 (NRPA)

Date filed with the Board of Environmental Protection:

Appendix A

STANDARD CONDITIONS
TO ALL SOLID WASTE LANDFILL 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 license. 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 of 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.

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 M.R.S. Ch. 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.

Natural Resources Protection Act (NRPA)
Standard Conditions

THE FOLLOWING STANDARD CONDITIONS SHALL APPLY TO ALL PERMITS GRANTED UNDER THE NATURAL RESOURCES PROTECTION ACT, 38 M.R.S.A. § 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**

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.

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, 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.
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 questions regarding applicable requirements.
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. 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, including 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, and any materials submitted in response to the appeal will be sent to Board members with a recommendation from DEP staff. Persons filing appeals and interested persons are notified in advance of the date set for Board consideration of an appeal or request for public hearing. 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, a 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.A. § 346(1); 06-096 CMR 2; 5 M.R.S.A. § 11001; & 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. Failure to file a timely appeal will result in the Board's or the Commissioner's decision becoming final.

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.A. § 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.

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.